1952 BRITANNICA BOOK OF THE YEAR

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A Record of
the March of Events
of 1951

BRITANNICA BOOK OF THE YEAR

1952

Prepared
Under the Editorial Direction of
WALTER YUST
Editor of Encyclopædia Britannica

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BRITANNICA BOOK OF THE YEAR
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IN THIS VOLUME, in addition to bibliographies of books and periodicals, references are made to films which cover the subjects of many articles. In all instances the films referred to are 16-mm. sound motion pictures which were produced in 1951. So these references, in addition to giving the reader information about further visual study he can pursue on these subjects, provide a record of most of the major 16-mm. films produced during the year.

There are thousands of 16-mm. films, and perhaps the most comprehensive source of titles and subjects is the *Educational Film Guide* published by the H. W. Wilson Company, New York, N.Y.

These 16-mm. films may be obtained from many film rental libraries maintained throughout the United States by state universities, by many public libraries and by commercial visual-education dealers. The Film Council of America with headquarters in Chicago, Ill., and its community Film Councils can usually provide information about how to obtain the films. Many public libraries can also give this information. Should these sources fail to help in securing a desired film, the reader should write directly to the producer.

The editor of the BRITANNICA BOOK OF THE YEAR *acknowledges with gratitude the privilege of using 52 pictures from* LIFE. *Acknowledgments of the copyright ownership of all illustrations may be found on the following three pages.* THE EDITOR

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INTRODUCTION

THE PRESENT *Britannica Book of the Year 1952* is the fifteenth in the series. It marks the closing half century of American ownership of the *Encyclopædia Britannica.* During those fifty years the centuries-old tradition of Britannica authority and utility has been jealously maintained and the scope of Britannica and its area of influence have been greatly extended.

The present year also marks the publication of "Great Books of the Western World," edited by Robert M. Hutchins, and launched under the auspices of *Encyclopædia Britannica* and The University of Chicago.

Encyclopædia Britannica is an accumulation of information, the Great Books is an accumulation of great ideas—ideas which are the invaluable tradition of the civilization of what is more or less a free west.

A measure of hope for the future of the world—for the very life of a free world—lies in the fact that Britannicas, Books of the Year, Great Books can still be published and distributed in the open. Not all nations have been drawn behind the "iron curtains" of dictatorship. And if the world is to be free, there is desperate need that there always be a free exchange of information and ideas. Vigilance against those who do not believe this must be alert and active every minute.

Alberto Gainza Paz, former editor of *La Prensa,* of Buenos Aires expressed dramatically how "dictators contain their people behind curtains of silence" and this can happen in any country. He said:

> In the Andean reaches of South America the mountaineer knows well how that bird of prey, the condor, destroys the lamb. First the condor flies high in the sky making great circles. Little by little it comes down until, with a great beating of its wings, it circles round and round the little animal which by now is frightened and bewildered. Quickly the vulture darts in and plucks out the eyes. When the lamb opens its mouth to cry for help, with equal rapidity the condor tears out the tongue. Afterwards, the bird of prey calmly ends the work of destruction and consumes his victim. Thus dictators destroy the eyes and silence the tongue of people. Then, blind and mute, the people lose their liberty. I believe that in this hour our message to free men and women throughout the world can be summed up in these few words: Let us take care of the eyes and tongues of our peoples.

So long as there is free communication of information and ideas the eyes and tongues of our peoples have some chance to bring peace and happiness to the earth.

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X.
ANONYMOUS.

NINETEEN FIFTY-ONE

A Survey of Cultural Trends of the Year

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One of the most notable characteristics of the literary and artistic scene during the year 1951, not merely in western Europe but beyond its confines, was the revival of religion, in the widest as well as the narrowest sense of the word, as a central issue of discussion. Historians of opinion have often noted the fact that periods of doubt and scepticism, of criticism and analysis directed against the dogmatic certainties and orthodoxies of previous periods, are as a rule followed by new periods of faith and irrationalism.

But as a rule, the ages of faith are to some degree also those of reason; there is a dominant opinion, there is also an opposition; during the ascendancy of sceptical rationalism, the voices of antirationalist faith are never wholly silent; and during the rise of orthodoxy or emotional abandonment to ideals conceived as either above or at any rate beside empirical or rational inquiry, are seldom allowed to occur unchallenged but are compelled to run the gauntlet of what is usually described as radical or left-wing opposition.

Nevertheless, during the year, it appeared almost as if the rising preoccupation with religious or quasi-religious—metaphysical and eschatological—issues was becoming almost a monopoly. Who were the most discussed authors in western Europe in the course of the year? In England they were, among the novelists, Evelyn Waugh and Graham Greene. These were authors noted not merely for the fact that both were members of the Roman Catholic Church, but that the issues with which they dealt were concerned with specifically religious problems, and provided by them with specifically religious solutions. Indeed, the popularity of Graham Greene, his novels, stories and articles for journals, or of broadcasts and films directly or indirectly founded upon his works, seemed to derive as much from the issues with which he dealt as the purely literary skill and depth with which he dealt with them.

Similarly there was interest in the work of Herbert Butterfield, because he was an avowedly Christian historian who discussed historical and metaphysical problems which occupied the thoughts of many persons; and this was one of the most powerful causes of the continued interest displayed in Europe, and far more deeply in the United States, in the views and writings of Arnold Toynbee.

Among poets and essayists, T. S. Eliot occupied an easily pre-eminent place, again perhaps as much because in his essays and last plays he dealt with what were to him the most fundamental issues—the condition and destiny of the individual soul—which now after many years had become a topic which captured the intellectual imagination of the general public to a greater degree than any, perhaps, during the last two centuries. Some among the most distinguished literary critics in England—C. S. Lewis, Lord David Cecil, Basil Willey—were writers, if not on religious topics, at any rate with much implicit religious feeling. Even the purveyors of lighter forms of art—the popular playwright Christopher Fry, for example—found themselves treating religious issues not so much because of any obvious preoccupation with them as because of a sensibility of the currents of thought and sentiment, a natural inclination responsive to the nature of the public interest of the times.

In France, the works of François Mauriac had long been the centre of growing interest and fascination; his articles in *Figaro* had about them a magistral quality possessed, perhaps, by no other public prophet; and the mere fact that he was able to denounce Jean Cocteau's last play—*Bacchus*—as heretical, and formally to read the author out of the church, was an event scarcely conceivable in the France, let us say, of 20 years before. It seemed almost as if with André Gide and Paul Valéry the last great secular voices of France had ceased to speak; for Paul Claudel, their great Catholic friend and violent opponent, had won; Cocteau replied to Mauriac in a tone certainly as serious as that in which his religious views had been impugned. It is scarcely conceivable that such an exchange on such a topic could have occurred, with such solemnity, between, say, Valéry and Charles Péguy. Yet Mauriac was able to thunder; Cocteau replied with great earnestness and dignity; the public was profoundly interested. And although the Existentialists, who still to some degree dominated the literary and intellectual scene, were by no means all formal adherents of established faiths, yet even the atheistical Jean-Paul Sartre or Simone de Beauvoiz dealt with the human predicament in a sense which nearly touched the attitude of those to whom metaphysical and religious issues were of the deepest concern. And this, of course, was even more true of such religious thinkers as Gabriel Marcel, one of the most widely admired of French *penseurs*.

It is what Luther called the human abyss that was the central topic of the most prominent writers of France, and those who did not deal with this—say, Valéry or Jean Giraudoux, or even the celebrated Alain, who died in 1951—seemed more out of date, less relevant to contemporary discussion, than Pascal or Renan or Péguy.

The plays of Marcel, the plays and philosophical essays of Sartre and Albert Camus, the philosophical essays of such writers as Jacques Maritain or Jean Wahl and Kojève, the interest increasingly taken in the Russian theological essayist Nikolai Berdyaev, or the Jewish theologian Martin Buber, the brooding presence of Martin Heidegger and Karl Jaspers, and behind them the greater figures of Nietzsche and Kierkegaard, dominated French intellectual circles to the relative exclusion of older liberal and humanistic writing.

Against this virtually the only voices which were raised loudly were those of the Communists, who, unlike the more rationalist Marxists of an earlier day, preached a fanatical counter-religion of their own. The celebrated Gallic spirit—secular, detached, humane, sceptical and concerned with the empirical facts and the lives of men on earth—the spirit of Voltaire and Diderot, of Michelet and Taine, of Flaubert and Proust, seemed temporarily in abeyance. Socialism, liberalism, rationalism had won their victories and become absorbed into the texture of normal experience and lost their cutting edge. The wave of metaphysical spiritualism seemed to have engulfed all or at any rate much of what was most gifted and expressive in France, or temporarily obscured from view other tendencies which might have been stirring.

In the United States, a similar phenomenon was observable: The writings of W. H. Auden and Reinhold Niebuhr enjoyed a great vogue; it was the saintly life and faith of Albert Schweitzer, not his music, that was mainly responsible for his sudden vast celebrity in America; novels which dealt with religious subjects, at all levels of artistic skill, seemed assured of wider circulation than those concerned with almost any other topic; such an indicator of popular taste as *Life* magazine contained a greater proportion of writing on religious and metaphysical topics, supplied now and then by Waugh and Greene, and less directly by the mild humanism of F. S. C. Northrop, than it would have done, say, a decade earlier. An attack on Yale university for alleged deficiencies in its religious instruction assured its author greater fame than the treatment of any social or political topic.

This was naturally added to by the fact that on the continent of Europe the parties which held power, in Germany and Italy, for example, and entered into the coalitions which governed France, were avowedly religious, as they could scarcely have been 15 or 20 years earlier; and this fact, which in certain respects resembled similar political developments during the 19th century, differed from them in that the anticlerical opposition in the west did not seem to possess that ancient vehemence which served to throw the issue into such violent relief during the great *Kulturkampf* battles in France, Germany and Italy in the last century.

Italy seemed least affected by this profound difference in outlook: Italian art and literature continued to be far more secular and to preserve a far greater continuity with the European outlook before World War II than they seemed to have done in any other country.

This growth in the religious outlook did not, as in the past, take the form either of the consolations of religion to a distraught and despairing generation, which had found its older values too easily flouted and overthrown by the brutality and moral cynicism of the day, nor yet of some rigorous hierarchical discipline offering a strong and secure asylum for those who found it difficult or impossible to withstand the chaos and fury of the world by their own unaided resources. Although the religious revival might indeed have had one or both of these effects, the form which it took was something relatively new, and owed more to Dostoievsky than to the orthodox doctrinaires of any of the churches. For what the books and essays and plays and histories of the return to Christianity tended to stress was the seamier side of life, to paint with a realism as grisly and violent as any employed by the "slice of life" writers of an earlier, more atheistical generation the least attractive aspects of social relationships and individual experience.

In a sense, this attitude was the successor, and no less sophisticated and "highbrow," to the two other great movements which had dominated modern times—psychoanalysis and Marxism. And like them, it conveyed to its followers the impression that it too was cutting through the mere surface of the phenomena to the hideous depths below, which must be faced because they were real, because they existed, and exercised an influence more decisive upon the course of human life than the more superficial phenomena which composed the worlds of science or common sense. And in the very chaos, irrationality and violent malformations and morbid growths which were thus rendered patent to the shrinking eye of the unhappy but fascinated observer, they discovered not the inexorable laws of psychology nor the inevitable laws of social development, nor the material for any other positive science, but the inscrutable workings of God.

In a sense, this was the modern theodicy, which by stripping away the rationalizations and other constructions both of the intellect and of the imagination with which human beings had sought to screen themselves from the truth, sought to discredit reason and empirical methods, in order to make room for faith as alone being strong enough to discover meaning and purpose in the abounding folly, weakness and vice which any unflinching analysis was bound to reveal in the contemporary scene; to restore faith in God and the spiritual government of the universe by making the light shine out of the darkness; the more inspissated the darkness, the brighter by comparison the saving light without which the darkness could not be judged or described or analyzed at all.

It was a sign of the times when so "progressive" and *avant-garde* a publication as the *Partisan Review* in New York city, for example, devoted itself to the examination of its writers' attitude to religion and printed the works of Jaspers. To any observer, dispassionately considering the artistic and intellectual scene of 1951—when Henri Matisse completed his murals in Vence chapel, William Faulkner wrote a novel with a religious motif, Gian-Carlo Menotti wrote an opera (for television) on a religious topic, the newer popular films dealt with biblical subjects and the conversions of former Communists to the Roman Catholic Church became events of daily expectation—it appeared that this mood was not a simple "escapism" after the disenchantment and failure of energy and morale resulting from the destruction wrought by the war, but sprang from some deeper cause, in this case perhaps the failure of misinterpreted psychologies or a belated reply to Marxism; for the Marxist movement had during the last 20 years been gradually changing from a characteristically critical, rationalistic Victorian doctrine, appealing to intellectuals—a sophisticated and elaborate theory, full of subtleties, and above all with a severely scientific tone—into the simple, dogmatic, fanatical faith, relying upon endless repetition of simple formulas and the worship of visible symbols of sanctity and power.

In response to communism of this type, as practised in the Soviet Union, and imposed upon the satellites in a very crude and all too visible fashion, there was bound to spring up a counterfaith of greater complexity, refinement, psychological depth and artistic quality, in response to the freer and more many-sided and sensitive civilization of the west.

Traditional religion provided something far stronger and more genuine—and even more anti-rational—than the ersatz faiths of the 20's and 30's. What seemed certain at the moment was a continuing process of slow pulverization of all intermediate positions—of all the older forms of liberalism, secularism and tolerant humanism—between the upper and the nether millstones of the rival religions which appeal to civilized mankind.

The phenomena described were, of course, not necessarily symptomatic of the prevailing views of the majorities of the populations of the western countries; they represented at most the strongest tendencies of those literary and artistic élites which set the tone in such societies. But it is in this context that the literary and artistic life of the year 1951 should be surveyed.

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The change of atmosphere from the first three or four decades of the century became peculiarly noticeable when contrasted with such works about the comparatively recent past as R. F. Harrod's biography of Lord Keynes and, even more, N. G. Annan's life of Sir Leslie Stephen, both of which appeared in the course of the year. In both these works a world is revealed the principal ideals of which were the pursuit of knowledge, the contemplation of interesting and beautiful things for their own sake, the cultivation of personal relationships, personal sincerity driven to almost fanatical degree, with, above all, an avoidance of anything remotely savouring the pursuit of worldly success, or of rhetoric, or of betrayal of private to public values in any form. Despite the fact that Keynes's world was in open rebellion against that of Leslie Stephen, it shared with it its sense of revolt against the accepted institutions of the great Philistine establishment into which they were both born, and both rejected in their various ways the religious and the political orthodoxies of their time for the values of private worlds and the cultivation of artistic and personal ideals.

The death of André Gide, who was himself the high priest of a movement in France not dissimilar to this, in which the worship of beauty and of personal relationships and insistence on scrupulous sincerity and candour in both had taken the place of other social and religious values, served to underline the great distance stretching between the universe of that distinguished writer and the modern world into which he had survived.

The year, too, saw the death of the essayist Alain, whose detachment and sceptical pacifism in their turn contrasted oddly with the new preoccupations of the contemporary generation in the major European countries.

In France such recognized and distinguished writers as Georges Duhamel and Jules Romains, as well as authors of the second rank, like Claude Farrère, Pierre Benoît and Paul Morand, continued to write; the works of Colette, Jacques Chardonne, as well as those of Paul Valéry, Valéry Larbaud and André Maurois appeared in collected editions, but it was not they who set the tone. This was done to a far greater degree by Mauriac, who was the most distinguished representative of Catholic orthodoxy in France; by Jean-Paul Sartre, whose play *Le Diable et le Bon Dieu* enhanced his already dominant reputation as being the most ingenious, penetrating and significant writer in France, and perhaps in western Europe—in the sense that all the most typical tendencies of the time seemed to be, at times perversely and deliberately, but always sharply, focused in his work, and presented to the public with exceptional professional *expertise*. He was the leader, quite apart from his specific philosophical point of view, of all those who, in contrast with the antipolitical *révolté* writers of an earlier generation, preached the duty of total self-commitment—the necessity of taking up a position, however personal and individual, but nevertheless a position involving responsibility, in relation to the religious, the political, the social and metaphysical tendencies of the times. In this sense, Albert Camus in his new *L'Homme révolté,* although he was perhaps a better writer, clearly followed Sartre's intellectual leadership. So also Julien Gracq, despite his tendency to Surrealism, nevertheless bowed sufficiently to the spirit of the times to make his latest allegory avowedly political; this writer rejected the Goncourt prize awarded to him, as a protest against literary academies and prizes as such because they made for intellectual bondage and mediocrity, and stifled and corrupted much original enterprise.

This mood, sometimes earnest and almost hopeful, at other times cynical, preoccupied and engaged in emphasizing the hopeless and often revolting aspects of the contemporary human tragedy, was seldom one of desire to withdraw from the scene. The inevitability of involvement was, in France, stressed explicitly or else automatically taken for granted. In this atmosphere charged with the sense of the importance of social and political reality, the works of Victor Hugo were duly rediscovered and overpraised; the German romantic philosophers who were themselves preoccupied with political issues, such as Hegel and Fichte, were being studied afresh. The darker living German metaphysicians such as Jaspers and Heidegger, continued to exercise a considerable influence. What was conspicuously lacking in the realm at any rate of belles-lettres was the traditional French "classical spirit"—lucid, ironical, detached, critical, intellectually firm, free from the clouds of tormented emotion and the mixture of mysticism and metaphysics characteristic of the Germans, and scarcely able to articulate its broken vision by means of that luminous, measured prose which had been once the glory of France. Such elegant trifles as those published by Louise de Vilmorin, or the poetry of such writers of genius as Paul Eluard and Jules Supervielle, or such plays, still within the classical French tradition, as those of Jean Anouilh, could scarcely be said to have secured the continuity of French letters. The central current remained dark and turbid. The only great author apparently untouched by it in France was André Malraux, who did not produce an original work in the course of the year to compare with his magnificent masterpiece, *The Psychology of Art,* of two years before.

The situation was somewhat different in England, which retained a greater degree of continuity with its own sane and sober past; despite the impact made by Graham Greene's *The End of the Affair,* which dealt with the themes, now common in the work of this author, of infidelity, corruption and salvation by faith (the novel curiously resembled the earlier formulas of Ernest Hemingway, save that for communism, the Roman Catholic faith is substituted), there appeared a number of civilized and agreeable novels by Nancy Mitford and Enid Bagnold, Hester Chapman and Julia Strachey, L. P. Hartley and Anthony Powell, a more considerable work by Victor Pritchett, a novel by J. C. Powys in his accustomed strain, as well as one by Ivy Compton-Burnett, who pursued her thin but pure vein of gold, in apparent detachment from the gusts and waves of the contemporary *Zeitgeist.* It was not a time of great imaginative masterpieces. As for poetry, W. H. Auden published his *Nones,* and a poem entitled "The Chimeras," which gave renewed evidence of his magnificent gifts.

The stream of autobiographies and memoirs continued unabated; the most interesting among these was Stephen Spender's *World Within World,* in which, with his accustomed candor, slowly, and without elegance, but with a direct vision of the object (which he possesses almost uniquely in the modern world), he described his youth in the literary and artistic world of the 1930s. It was perhaps the best book yet produced by this distinguished poet and critic, and was widely acclaimed and attacked for much the same reasons as similar confessions, for which Rousseau set the fashion, had been praised and assailed, and invariably survived the attacks of their detractors. Sir Norman Angell published the story of his life, and thereby of a world which now seemed remoter than that of the 18th century; Katherine Mansfield's letters to her husband, J. Middleton Murry, saw the light during the year, and also wore the air of extreme remoteness. Nicolas Nabokov, the composer, published a delightful book of partly social, partly musical reminiscences, and his cousin, the most brilliant of novelists and poets, Vladimir Nabokov, published an account of his early life in Russia and in England, with a gay, boldly original and sometimes acutely poignant virtuosity, which he alone possesses among modern writers. The correspondence of Paul Claudel and André Suarès was published in France.

Julian Green published the fifth volume of his *Journal;* a remarkable collection of essays on contemporary Italy, by the Catholic writer A. C. Jemolo, saw the light; Ezra Pound's *Letters* proved an extremely arresting commentary on the literary and spiritual issues with which they dealt; by comparison with this the collection of reflections by the ageing American-Spanish *penseur* George Santayana appeared a trifle exhausted. Volumes of poetry were published by Walter de la Mare, David Gascoyne, Conrad Aiken, Robert Penn Warren, and Robert Lowell. These were distinguished and sometimes beautiful, but made no new summer in the field of English poetry.

Nor was the field of imaginative literature made wider by the latest works of the highly competent and readable Alberto Moravia or even by Carlo Levi, or by J. P. Marquand's or Faulkner's new novels, or the latest work of John Dos Passos, who continued along predictable and astonishingly conventional lines.

There was greater life and originality in *La Cometa* by R. Bacchelli, a still consistently underestimated Italian novelist.

In Germany nothing of notable interest appeared; apart from the *pièces justificatives* of those who somewhat unconvincingly claimed to preserve their own integrity under the nazis, and the half-apologetic literature seeking less directly to justify general German behaviour during this period, German literature seemed to have contracted into a thin and scarcely notable trickle. Ernst von Salomon, an old prenazi fascist writer, produced a new work along his old violent nihilistic lines, which, however exciting its effect in the early 1930s, was not merely a symptom that the hysterical irrationalism of this type was not yet dead in Germany. Hans Carossa produced a slight but charming book. Ernst Curtius published a new volume of critical essays; these were sensitive and civilized, but added little to their author's already deserved reputation of one of the few critics of European stature.

Mario Praz published a collection of characteristically brilliant but uneven quality; critical writings appeared in England by Frank Leavis, Percy Newby and Charles Morgan; and there was a collection of occasional pieces by E. M. Forster, of charm, beauty and depth, which, because of the dearth of writings from his pen, was a literary event in itself.

In the United States Edmund Wilson, perhaps the most distinguished of all literary critics, published a collected edition of his comments on life and letters in the 1930s and 1940s, and there appeared a collection of essays by Lionel Trilling of striking interest and distinction. William Empson published one of his characteristically meticulous and original analyses of the language of poetry. In France Jean Paulhan produced an interesting essay on aesthetics. The celebrated novelist Sinclair Lewis died in the course of the year, and brought to memory a genre very different from the fashion of the day; as a writer he had long outlived himself.

Eudora Welty and Truman Capote published novels which achieved excellence in a style which had become commoner in America than it was in Europe, in which technical perfection, a remarkable degree of professional skill and a sense of métier (which European writers all too often despise) did something to compensate for the absence of sufficient content to sustain so elaborate a vehicle.

In this respect, the *New Yorker* magazine (whose editor and founder, Harold Ross, a figure of great originality and life, died during the year) had created a new category of imaginative writing—its short stories were better built and better written than similar stories in Europe; they seemed to some to lack inner life, and indeed appeared often not to have quite enough to say; but their emergence as a specific literary genre was a phenomenon worthy of notice in itself, and did much to raise literary standards in all English-speaking countries from the chaos and boneless structure into which the fear of formalism, which developed in the 1930s, had threatened to plunge young English and American writers.

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The drama was going through a singularly fallow period. Apart from such established figures as Sartre and Cocteau in France, only Christopher Fry produced anything fresh. He seemed very much the Edmond Rostand of our day—light, gay, melodious, elegant, skilful, perhaps trivial. His plays in rhyme seemed neither intended, nor likely to achieve, immortality; they contributed to the trend toward the formally pleasing, rather than the profound, the shapeless and the original, as a kind of light foil to set off the preoccupation with religious and metaphysical issues among the more serious. The best of modern actors, Louis Jouvet, died in the course of the year.

Even in the U.S.S.R. this mood of marking time prevailed. No new novels or poems appeared to excite even the normal extravagant praise of the orthodox party critics.

The official head of Russian literature, Aleksandr Fadeyev, was engaged upon rewriting his prize-winning novel, *The Young Guard,* in a manner designed to correct errors and suitably to emphasize the role of the Communist party among wartime partisans; the more eminent V. Katayev was also busy rewriting his older works, now discovered to be inadequate. The themes officially laid down for writers were those of the "battle for peace," denunciation of warmongering in the west, aggrandizement of the Russian and soviet past, and epics of industrial and agricultural reconstruction. Creative activity appeared to be quiescent over the wide area of the Soviet Union.

In short, the literature produced in the course of the year, apart from the clear religious trend, lacked well-defined characteristics; the nostalgia and controlled despair and consciously temperate realism, as well as violent escapes into fantasy and pornography, of the immediate postwar years seemed to have ended; good authors were writing well, and inferior authors, badly—but each was treading established paths, without any sense of new beginnings; 1951 was not a year likely to be notable in the literary histories of the future.

There were new scholarly editions of Montesquieu and Chateaubriand, of Hölderlin and Goethe, a new edition of the forgotten scientist and mathematician and *penseur* of the 18th century, G. C. Lichtenberg; the revision of the definitive edition of the works of Boswell was completed; Winston Churchill published two further volumes of his magnificent memoirs; Rear Adm. S. E. Morison continued his history of the naval war; much solid work was done on the papers and the life of Jefferson; an authoritative account of Palmerston's foreign policies was published by Sir Charles Webster; Austin Lane Poole published his long-awaited volume on English history from the Domesday book to Magna Carta; A. L. Rowse issued the first volume of his imaginative and scholarly survey of the age of Elizabeth; the end of the Austro-Hungarian empire was analyzed with much learning by the German historians Hantsch and Muensch; Steven Runciman published the first volume of a history of the crusades; Bishop David Mathew published an elegant study of the age of Charles I, and B. H. G. Wormald, a life of Clarendon; Julian Amery continued his life of Joseph Chamberlain; a number of scholarly studies of English literature during the Romantic age saw the light.

Two lives by Salvador de Madariaga and Waldo Frank, respectively, of the great liberator of Latin America, Simon Bolivar, were published to commemorate his centenary. Newton Arvin published the most distinguished of the many works which appeared to celebrate Herman Melville on the occasion of the centenary of the publication of *Moby-Dick*.

The Italian counterreformation received classical treatment in the hands of R. Quazzi. In Leningrad the distinguished but unfortunate E. Tarlé was compelled by the fiat of his soviet critics to rewrite his life of Napoleon for the third time, in order to bring it into line with the prevailing dogma on the subject. U.N.E.S.C.O. (the United Nations Educational, Scientific and Cultural organization) published an ambitious scheme for the production of a universal history, to be composed by an international committee, divided into national subcommittees of historians—the resulting compilation to appear in various formats and successive abbreviations for the use of scholars, universities and schools of the world, in order to secure a uniform objective survey of history and counteract national prejudices.

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A number of interesting biographies and memoirs appeared. Beside the biographies of Lord Keynes and Leslie Stephen, there was a life of the humanitarian Labour politician Josiah Wedgwood by his niece, the gifted Veronica Wedgwood; there was a biography of Henry Irving by his grandson, and of David Lloyd George by his old friend and secretary of his cabinet, Thomas Jones; the duke of Windsor and Gen. Omar N. Bradley published their memoirs, and Lord Sysonby, posthumously, his memories of three rulers. New and remarkable letters by Lady Hester Stanhope to a young man in whom she took an interest gave pleasure to a public for whom Arthur Bryant wrote his study of the English social and political scene under the Regency. There was a great outpouring of wartime memoirs, principally apologias for their activities in Hitler's regime by German diplomats: Herbert von Dirksen, E. H. von Weizsäcker and von Blücher and one or two other minor former nazi officials sought to whitewash themselves and received condign treatment from the ruthless and unsparing pen of L. B. Namier.

An original and pungent set of lectures on American foreign policy by the U.S. diplomat George Kennan made a deep impression: it held a plea for professional diplomacy as against the casual imposition of American ideals on peoples, and in situations, unsuited to them; it spoke in sorrow of the difficulties of democratic control of the process of conducting foreign relations. The diaries of James Forrestal, who had been United States secretary of defense, contained much acute and controversial writing by a talented and very unusual man. A noble biography of the Swiss historian Jakob Burckhardt was launched by Werner Kaegi Kargi, and an interesting study of the young Ludwig Ranke was published by Von Laue. Edgar Lobel, of Oxford, published an exquisitely edited reconstruction of fragments of a newly discovered ancient Greek play; Sir Kenneth Clark published a beautifully written and justly admired work on the painter Piero de' Franceschi.

It was clear that the streams of pure scholarship were flowing once more. Long-term projects conceived on the grand scale were being launched, and an atmosphere of intellectual security and solid attention to detail prevailed. At the higher academic and intellectual levels there was an atmosphere of tranquillity for the first time since the end of the war.

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But by far the richest harvest was to be found in the field of music. The greatest event of the year was the staging on Sept. 11, in Venice, of a new opera by Igor Stravinsky, *The Rake's Progress,* of which the libretto was composed in English by the English poet, W. H. Auden, assisted by Chester Kallman. It was an occasion of great social brilliance, and attracted the kind of attention which a new opera by Verdi or Wagner used to receive in the 19th century. There was a general agreement that the opera was a masterpiece—the music was limpid, elegant and inspired, and possessed that peculiar magical quality which Stravinsky's best works had never lacked. It seemed as if this composer had begun on that phase of austere and luminous creation, compounded of a blend of exquisite, serene and ironical melody and a spontaneous and arresting new kind of counterpoint, which sometimes qualifies the late phases of great artists, when the sensuousness of their middle works is vanishing, and a noble, transcendent, life-giving gaiety takes its place.

The year saw the death in California of Arnold Schönberg, the founder of the 12-tone scale—perhaps the most discussed composer of the age. Schönberg's works, of which an *opus postumum* was performed in the course of the year, never became intelligible to the general public, and his final value awaited the verdict of posterity. But there is no doubt that he transformed the musical consciousness of his time, and, abandoning the late Wagnerian romanticism with which he began in his earlier, central European, phase, he created a new musical language, a new framework, within which a whole new art of expression came into being, and commanded the most passionate, and at times fanatical, devotion of his followers, among whom there were several composers of undoubted genius. Whether or not Schönberg himself was a great composer cannot be decided, save by those who recognize no other master. But no critic competent to judge musical works would easily deny that title to Bela Bartók, who was deeply inspired by Schönberg, or to Alban Berg, the lyrical and dramatic composer whose best opera, *Wozzeck,* was, amid much acclamation by the musical world, programmed both in London and in New York city in the course of the year. Schönberg had among his disciples, too, the noble and austere composer Anton von Webern; the lively and interesting innovator Ernst Křenek and many other musicians of varying gifts, temperaments and degrees of originality. Perhaps, like the composers of the Mannheim school of the 18th century, he was the cause of greater creative gifts in others than in himself; but his theories and his compositions, his gifts as a teacher, his self-denying devotion to his musical ideal, his very personality (about which there was hot controversy after the semibiographical sketch which, according to some, Thomas Mann had given of him in one of his last novels) created an abiding monument in musical history. With Bartók and Stravinsky he remained one of the greatest composers of the first half of the 20th century.

There were a good many other musical events of interest and of value. There were two new works by Arthur Honegger, and a work entitled *Winter Campfire*—not heard in the west—by the still prodigiously creative Sergei Prokofiev; and a dignified "morality" opera entitled *The Pilgrims' Progress* by the ageing British composer Ralph Vaughan Williams, and, by him also, a cantata, *Sons of Light.* Benjamin Britten, still the most talented composer of opera in Britain, conducted a performance of his *Billy Budd,* adapted by E. M. Forster from the story by Herman Melville. Like all the works of this musician, it overflowed with musical gifts, was at once original and echoing with eclectic reminiscences, and possessed exceptional skill in construction. Oddly enough the Italian composer Shedins, apparently unaware of Britten's plans, also wrote a *Billy Budd* a year or so before; and this story was, during 1951, adapted for the stage in two versions: in these matters the *Zeitgeist* seemed to operate with an almost pedantic promptness.

The Italian-American composer Gian-Carlo Menotti produced an opera written for television, entitled *Amahl and the Night Visitors,* a fantasy on the journey of the Magi. An opera entitled *Incognita,* by the celebrated musical historian and composer Egon Wellesz, was produced at Oxford, and astonished its listeners by the fact that it was not atonal, as had been expected.

The Spanish composer Roberto Gerhard wrote a gay work entitled *The Duenna;* and the German composers were again singularly prolific. Werner Egk, Carl Orff, Hermann Reutter and Karl Amadeus Hartmann poured forth works with a copiousness worthy of Hindemith himself. A somewhat more interesting composer also continued to produce work of remarkable lucidity and elegance—the German-Russian composer Boris Blacher of whom much was expected.

In the United States new works were written by Roy Harris and the very gifted Lukas Foss.

Beyond the "iron curtain," besides Prokofiev, there appeared 24 preludes and fugues for the piano by Dmitri Shostakovich. The unfortunate composer was once more called to order for incurable formalism and an unlucky inability to escape western influences.

The ancient war horses of the regime, Dmitri Kabalevsky and Herman Zhukovsky, produced routine works—the latter not without sharp political criticism. Czechoslovak music, which seemed promising both before and after the war, had been subtly flattened out by the new regime, and the spate of such works as *Hands Off Korea,* a *Cantata for Gottwald,* and so forth, were credibly reported to possess no musical merit.

Somewhat exotic works, performed in Paris, by the Russian émigré composers Ivan Wyschnegradsky and Maria Scriabin (daughter of the celebrated composer Alexander Scriabin and presumably a relation of V. M. Molotov) left both the critics and public totally perplexed.

Interesting books on music were published: a posthumous volume by Schönberg; the authoritative studies of Schubert; and a collection of critical essays by Virgil Thomson, who, after the death of the gifted English composer and writer Constant Lambert, stood out as one of the most arresting contemporary critics of music in the western world.

The greatest loss in the world of musical interpretation was the death of Artur Schnabel, one of the greatest musicians and the foremost player of Beethoven of his day. As teacher and player he possessed a moral and intellectual authority in the musical world which was equalled perhaps only by that of Pablo Casals.

The number of musical festivals in Europe and America was once again evidence of the fact that music, or at any rate the performance of it, was enjoying a flowering unlike that of any other art. Not only the great festivals of Edinburgh, Salzburg, Perpignan and Aix-en-Provence, but at least a dozen others both in Europe and America, were occasions for a great volume of music both old and new, performed with a quality which was steadily rising. A work entitled *Polyphonie X,* by Pierre Boulez, evoked protests from the audience at the Donaueschingen festival—a rare occasion in which a musical audience was not sufficiently cowed by what appeared to it cacophony to give open expression to the violence of its sentiments.

There was a festival in Tiberias of Israeli music. Behind the "iron curtain" an opera composed by Paul Dessau, with libretto by Bert Brecht, was given in Berlin. This work, however, was condemned as insufficiently conformist.

Arturo Toscanini conducted a series of incomparable concerts in New York city. Toscanini's style appears to have risen in his deep old age toward a luminous and transcendental ideal, and while the unique combination of absolute discipline, ceaseless electric tension, noble breadth and depth and an almost superhuman freedom from self-indulgence had, if anything, reached even a higher level, the Italianisms—the fiery Italian rhetoric, the tendency toward the operatic—had altogether fused away.

The year also saw the passing of three celebrated conductors—the Dutchman Willem Mengelberg, once a singularly dynamic and vigorous figure in the world of music, whose collaboration with the German invaders of his country had plunged him into a disgrace from which he never completely recovered; and Fritz Busch, who, with his brother Adolf Busch, belonged to a musically gifted German family; after raising the performances of the Dresden opera to a great height, he then performed the same services for the Glyndebourne festivals in Britain; without attaining to genius, he was a conductor of very great distinction.

The third conductor to die in the course of the year was Sergei Koussevitzky, who conducted with all the charm and *doucer de vivre* of the Russia of the *ancien régime.* He made the Boston orchestra one of the best bodies of musicians in the world. Without attaining to the heights of a Toscanini or an Otto Klemperer, he conducted gracefully and delightfully, and with unparalleled pleasure to himself and his audiences. Nicholas Medtner, who died in March, belonged to this culture too. He was a Russian composer and pianist of singular sincerity and charm, whose gifts were less recognized than they deserved, and who was perhaps the last representative of the great Russian school of composition to which Nicolas Rimsky-Korsakov and Sergei Rachmaninoff still belonged, and from which Stravinsky and Sergei Prokofiev represented a bold and successful rebellion. During his last years he attracted the interest of an Indian potentate who subsidized his concerts and founded a Medtner society to record his works.

While no specific, powerful new trend was discernible in musical composition, the variety, life and sheer quantity of composition was at the moment so great as to justify belief that there was beginning a musical renaissance, even if only of an Alexandrian and derivative, rather than a wholly original, kind. The United States, with its 702 symphony orchestras, was in a unique position to commission and perform the works of the young composers.

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In the other arts there was relatively little to report. The Italian school of films, which two or three years earlier presented the most creative experiment at that moment in progress in the world, was worthily represented by the film *Miracle in Milan* (produced by Vittorio de Sica), which, like the earlier films of this school, was filled with progressive liberal humanism—a kind of artistic reflection of the liberal socialism of the Italian non-Communist left-wing intelligentsia.

Apart from a sensitive, and almost overtragic, Swedish film based on Strindberg's *Miss Julie,* nothing appeared worthy of exceptional note, although a great standard of technical excellence now seemed assured in the major countries of the west, particularly in British documentary films. Perhaps the best of such films were the Swiss film *Four in a Jeep* and Jean Renoir's poetical *River;* the American *Death of a Salesman* and *A Streetcar Named Desire* translated the precise qualities of these plays efficiently and not altogether unmemorably into the medium of the screen. But the popular films of the year, responding to the religious trends, were such vast and tasteless shows as *David and Bathsheba, Samson and Delilah, Quo Vadis* and *Fabiola,* which precisely corresponded to the vast, harmless, religious novels and literary standard of the type of *The Robe* or *The Big Fisherman* or Francis Cardinal Spellman's *The Foundling,* deeply enjoyed by vast numbers of readers in the United States and Europe.

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The greatest show of the year was the Festival of Britain, in which an attempt was made to paint a national autobiography. The pavilions on the South Bank of the Thames river were built in what was for Britain a daring and elegant modernity; the use also of a decorative "skylon"—a stylized lozenge pointing upward from the centre of the exhibition, was a worthy tribute to the uselessness and beauty of objects made for their own sakes. There were distinguished sculptures by Henry Moore and others to decorate the exhibition. The progress of the sciences and the crafts was recorded with some skill; there was an exhibition of sculpture in a portion of Battersea park, and a number of minor musical festivals as well as that of Edinburgh celebrated the occasion. Ships carried microcosms of the exhibition to the coastal cities of the British Isles. But the most imaginative portion of the affair was the Pleasure gardens in Battersea park in London, which John Piper and Osbert Lancaster designed, and which provided a charming, ironical and delightfully witty evocation of the mid-Victorian period, when the original Great Exhibition, of which this marked the centenary, first came into being. The gloom of British postwar depression was genuinely lightened by the dash and style and brilliant colour of the gay pastiche here provided with such gusto, and a half-sentimental, half-ironical nostalgia. The performances in the two theatres of the Pleasure gardens carried on this quality of sophisticated satire. The number of visitors was great; and with the celebration of the second millenary of Paris, which caused that city to make an elegant display of its own unique and unsurpassable qualities, formed two bright centres in an otherwise somewhat sombre day.

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It was a thin year in the visual arts. Expressionism and Surrealism seemed enfeebled, and abstract painting and sculpture of various types appeared to dominate the field in a peaceful but not striking fashion. The greatest living painters were growing older, though not less productive, and genius seemed tardy among the young. Matisse completed the Vence chapel; Georges Rouault and Georges Braque were painting, but did not exhibit. The greatest of all, Pablo Picasso, still appeared to be in the state of marvellous gaiety and youthfulness, in which he had decorated clay and porcelain dishes, illustrated the *Natural History* of Buffon, painted satyrs on the rocks of the Riviera, and was obviously still launched upon a sea of delights and fantasies which sprang from his own unique vitality and perpetually self-renewing genius.

In the United States attacks were launched upon alleged propensity on the part of American museums for "left-wing" art—a paradoxical development inasmuch as such cultural "bolshevism" is, of all forms of art, the most abhorred and persecuted in Communist countries.

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In the sciences there was no spectacular advance although much progress was noted in mathematics. In medicine—notably in the field of antibiotics—scarcely a day passed but the hope of new drugs to cure ancient diseases was expressed both in general and in specialized publications.

New types of atomic weapons, particularly light missiles, suitable for use against troops in the field rather than cities and great installations, were reported to have been perfected in the United States, and to have transformed the art of war.

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In philosophy the great chasm which still yawned between the empiricists and logicians of the English-speaking and Scandinavian countries, and the metaphysicians and quasi-religious thinkers and philosophical scholars of the German and Latin countries, continued to divide the two philosophical worlds as sharply as ever.

The more rigid forms of Positivism were still melting both in Britain and the United States into a far more imaginative and sensitive, if not less empirical instrument—and this appeared to be largely the effect of the oral doctrines of the Austrian philosopher Ludwig Wittgenstein, who died in Cambridge, Eng., in the course of the year, leaving disciples devoted to his memory and his methods to a degree of which no other philosopher of the day could boast. Wittgenstein had begun as a logician and the follower of Bertrand Russell, but at the height of his philosophical development altered his views, and practised a technique whereby more light was thrown upon some of the most tormenting problems of modern philosophy than the older and more mechanical methods had succeeded in doing. This new and more flexible method required qualities of imagination and insight, and even a kind of poetical genius, which Wittgenstein himself possessed to a degree not shared by even his most gifted disciples. His teaching was the most fruitful contribution to the abstract thought of the day made by any single human being. His influence, powerful enough already, seemed likely to spread further, as a result of the vigorous proselytizing activities of his disciples. Otherwise, though much competent technical work was published by positivists and their allies, nothing of exceptional importance emerged.

In France Gaston Bachelard wrote imaginatively in his own unique manner about the philosophy of science; Wahl continued his metaphysical reflections, influenced by both Kierkegaard and Jaspers. The metaphysical works of the German romantics received renewed attention. A philosophical congress, held in the capital of Peru, merely served to underline the distance which separates such philosophical analysts as A. J. Ayer of London—perhaps the most lucid exponent of modern positivism—from such French metaphysicians as Gabriel Marcel, between whom there was scarcely any common ground for philosophical discussion, only some possibility of meeting in terms of social or political concepts which did not form the main interests of either of these thinkers.

In the Soviet Union the formal logicians, who in the guise of applied mathematicians had hitherto escaped the purges which had decimated other departments of knowledge, were finally, after two decades, attacked in their little enclave together with the mathematicians proper. The practitioners of these abstract disciplines, which because of the relative lack of interference by the Communist party had, both in the realm of pure mathematics and mathematical logic, accomplished distinguished work in the past few decades, were informed that such formalism was highly prejudicial to the orthodoxies of Marxist doctrine. They were further informed that mere lip service to the Marxist dialectic, and the conventional compliments to Stalin, would no longer be sufficient; they must transform their outlook radically, and bring their studies into line with the rest of the soviet ideology. It was too early to tell whether or not this rang the final knell on the only independent abstract studies still pursued in the U.S.S.R.

In chemistry a vigorous Marxist polemic against western theories of valency was launched by the adherents of more materialist models. It was difficult to tell how far this was due to party pressure, to anxiety to conform to the party's demands on the part of the scientists, and how far to genuine addiction to the material models of the 19th century on the part of Russian chemists who, brought up in the tradition, were relatively insulated from western influences.

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The year ended inconclusively, with the issues of foreign policy dominating over the struggle between the political parties in the United States; with the far east still in flames; the middle east in a condition of mounting upheaval; with fear of general war on the whole abated, but the general outlook, particularly in view of Britain's semibankrupt economic position, far from bright. The news of the death of Henri Pétain, of Fritz Thyssen, who had supported Hitler, and of former Crown Prince Wilhelm von Hohenzollern ("Little Willie") served to comfort those who looked back upon the past as to a brighter and securer day with the reflection that the confusions and moral delinquencies and great blunders of that time seemed to itself no less dark and fatal than the present to its inhabitants.

1951

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THE year 1952 of the Christian Era corresponds to the year of Creation 5712-5713 of the Jewish calendar; to the year 1371-1372 of the Mohammedan hegira; to the 176th year of the United States; and to the 184th year of the *Encyclopædia Britannica*.

JANUARY 1952

1 New Year's day.
4 Independence day, Burma.
6 Epiphany, or Twelfth-night.
8 Second session of 82nd U.S. congress convenes.
8 Jackson day.
13 Festival of St. Veronica.
20 Eve of St. Agnes.
26 Republic day, India.
26 Foundation day, Australia.
27 Feast of St. Chrysostom.

FEBRUARY

2 Candlemas. Purification of the Virgin.
2 Ground-hog day.
4 150th anniversary, birth of Mark Hopkins, U.S. educator.
8 Boy Scout day, U.S.A.
10 Septuagesima Sunday.
10-11 Partial eclipse of the moon, visible at Washington, D.C. (date as of Greenwich civil time).
12 Lincoln's birthday, 1809.
12 Georgia day, U.S.A.
14 St. Valentine's day.
22 Washington's birthday, 1732.
24 Quinquagesima (Shrove) Sunday.
24 Feast of St. Matthias.
25 Total eclipse of the sun, invisible at Washington, D.C. (date as of Greenwich civil time).
26 Shrove Tuesday, Mardi gras.
27 Ash Wednesday.

MARCH

1 St. David's day, patron saint of Wales.
2 First Sunday in Lent.
2 Texas Independence day.
11 Purim (Jewish festival), 1st day.
12 Girl Scout day, U.S.A.
15 Ides of March.
17 St. Patrick's day, patron saint of Ireland.
20 Equinox (4:14 P.M. Greenwich civil time), beginning of spring.
25 Annunciation. Quarter day.
30 Seward day, Alaska.

APRIL

1 All Fool's day.
1 100th anniversary, birth of Edwin Austin Abbey, U.S. painter.
6 Palm Sunday.
10 Jewish Passover, 1st day.
10 Maundy Thursday.
11 Good Friday. English bank holiday.
13 Easter Sunday.
14 Easter Monday. English bank holiday.
14 Pan-American day.
15 500th anniversary, birth of Leonardo da Vinci, Italian painter, sculptor, musician, mechanician, engineer and natural philosopher.
19 Patriots' day, U.S.A.
19 Primrose day, England.
23 St. George's day.
25 St. Mark's day.
25 Anzac day, Australia and New Zealand.
26 Confederate Memorial day (also May 10, May 30, June 3).
30 Independence day, Israel.

MAY

1 May day. International labour festival.
5 Cinco de Mayo, Mexican holiday.
11 Mother's day, U.S.A.
17 Constitution day, Norway.
17 Armed Forces day, U.S.A.
18 Rogation Sunday.
22 Ascension day.
24 Victoria day.
30 Shebuoth (Jewish Pentecost).
30 Memorial (Decoration) day, U.S.A.
31 Union day, Union of South Africa.

JUNE

1 Pentecost (Whitsunday).
2 Whitmonday. English bank holiday.
5 Constitution day, Denmark.
8 Trinity Sunday.
11 Kamehameha day, Hawaii.
11 Feast of St. Barnabas.
12 Corpus Christi.
14 Flag day, U.S.A.
15 Father's day, U.S.A.
17 Bunker Hill day, U.S.A.
21 Solstice (11:13 A.M. Greenwich civil time), beginning of summer.
24 Midsummer day. Quarter day.
24 St. John's day.
29 100th anniversary, birth of John Bach McMaster, U.S. historian.
30 St. Paul's day.

JULY

1 Dominion day, Canada.
4 Independence day, U.S.A.
4 Independence day, Republic of the Philippines.
5 Independence day, Venezuela.
9 Independence day, Argentina.
12 Orangeman's day, Northern Ireland.
14 Bastille day, France.
15 St. Swithin's day.
21 Independence day, Belgium.
22 Feast of St. Mary Magdalene.
25 Occupation day, Puerto Rico.
26 St. Anne's day.
28 Independence day, Peru.
31 Tishah Bov (Jewish Fast of Ab).

AUGUST

1 Lammas day. English bank holiday.
1 Independence day, Switzerland.
5 Partial eclipse of the moon, invisible at Washington, D.C. (date as of Greenwich civil time).
6 Feast of the Transfiguration.
10 Feast of St. Lawrence.
14 Independence day, Pakistan.
15 Assumption of the Blessed Virgin Mary.
20 Annular eclipse of the sun, invisible at Washington, D.C. (date as of Greenwich civil time).
24 Feast of St. Bartholomew.

SEPTEMBER

1 Labor day, U.S.A.
1 13th anniversary, beginning of World War II.
7 Independence day, Brazil.
15 Independence day, Costa Rica, El Salvador, Nicaragua, Honduras and Guatemala.
16 Independence day, Mexico.
17 Constitution day, U.S.A.
20 Rosh Hashanah (Jewish holiday beginning year 5713), 1st day.
20 Mohammedan year 1372 begins at sunset.
20 Regatta day, Hawaii.
23 Equinox (2:24 A.M. Greenwich civil time), beginning of autumn.
26 Dominion day, New Zealand.
29 Michaelmas. Quarter day.
29 Yom Kippur (Jewish day of Atonement).
30 Feast of St. Jerome.

OCTOBER

4 Feast of St. Francis of Assisi.
4 Sukkoth (Jewish Feast of Tabernacles), 1st day.
12 Columbus day.
18 Feast of St. Luke.
18 Alaska day, Alaska.
25 St. Crispin and St. Crispinian.
27 Labour day, New Zealand.
28 Independence day, Czechoslovakia.
31 Hallowe'en.

NOVEMBER

1 All Saints' day. Allhallows.
2 All Souls' day.
3 Independence day, Panamá.
4 General Election day.
5 Guy Fawkes day.
7 The October Revolution, U.S.S.R.
9 Lord Mayor's show, London.
11 Martinmas, or St. Martin's day.
11 Armistice day.
11 Remembrance day, Canada.
11 Feast of St. Edmund.
22 St. Cecilia's day.
27 Thanksgiving day, U.S.A.
30 First Sunday in Advent.
30 St. Andrew's day, patron saint of Scotland.

DECEMBER

5 Constitution day, U.S.S.R.
6 Feast of St. Nicholas.
6 Independence day, Finland.
8 Immaculate Conception.
13 Hanukkah (Jewish Feast of Dedication), 1st day.
16 Dingaan's day, Union of South Africa.
21 Solstice (9:44 P.M. Greenwich civil time), beginning of winter.
22 Forefathers' day (also Dec. 20, Dec. 21, Dec. 23), U.S.A.
25 Christmas. Quarter day. English bank holiday.
26 Boxing day. English bank holiday.
28 Childermas. Holy Innocents' day.
30 Rizal day, Republic of the Philippines.
31 Hogmanay.
31 Feast of St. Sylvester.

CALENDAR OF EVENTS · 1951

JANUARY

1 **U.S. house of representatives** completed congressional action on bills imposing an excess-profits tax on corporations and authorizing railroad and air-line union shop agreements.

Communist forces in Korea scored a break-through on the right flank of the U.S. 8th army northeast of Seoul.

2 **U.S. 81st congress** adjourned after completing action on several urgent bills.

Arabian American Oil Co. officials revealed that the company had agreed to divide its profits evenly with the government of Saudi Arabia.

3 **U.S. 82nd congress** convened in Washington, D.C.; Rep. Sam Rayburn was re-elected to a 6th term as speaker of the house of representatives.

Former U.S. Sen. Elbert D. Thomas of Utah was named high commissioner of the Trust Territory of the Pacific Islands.

Pres. Harry S. Truman created the Defense Production administration, headed by William H. Harrison, to centralize various emergency production agencies.

4 **U.N. forces** abandoned Seoul, capital of South Korea, to advancing Communist troops.

U.S. government offered to sell 2 surplus light cruisers each to Argentina, Brazil and Chile.

5 **Sen. Robert A. Taft,** opening a foreign policy debate in the senate, questioned the legal right of Pres. Truman to send additional U.S. troops to Europe without congressional approval.

General chairmen of Brotherhood of Railroad Trainmen and Brotherhood of Locomotive Firemen and Enginemen rejected a previously negotiated national agreement covering railroad operating employees.

6 **U.S. state dept.** announced that Portugal and the U.S. had signed a bilateral military aid agreement within the framework of the North Atlantic Treaty organization.

7 **Legislature of Nepal** authorized the return to Nepal of King Tribhuvana, formation of a cabinet with popular representation and election of a constituent assembly.

Gen. Dwight D. Eisenhower, supreme commander of the military forces of the North Atlantic treaty nations, arrived in Paris for a tour of member countries.

8 **Pres. Truman** in his annual state of the union message to congress accused the U.S.S.R. of seeking to conquer the world and appealed for continued U.S. aid to the free world.

9 **A military committee** of the Allied High commission and a west German committee began discussion of participation of west Germany in the defense of western Europe.

10 **3 U.S. destroyer escorts** were transferred to Italy at Norfolk, Va., under the Mutual Defense Assistance program.

11 **Pres. Truman** asserted at a press conference that he had the right to send U.S. troops anywhere in the world without congressional approval.

U.S. state dept. announced that John Foster Dulles had been named Pres. Truman's special representative, with ambassadorial rank, to conduct negotiations with respect to a Japanese peace treaty.

12 **U.N. convention** on the prevention and punishment of genocide became effective.

Pres. Truman in his annual economic message to congress asked for greatly increased taxes to put the defense program on a pay-as-you-go basis.

British Commonwealth prime ministers stated in a communiqué that agreement had been reached on the urgency of effecting a settlement in the far east, including a peace treaty with Japan.

15 **U.S. supreme court** declared invalid a New York city ordinance requiring preachers to obtain police permits to hold religious services on city streets.

Annual budget submitted to congress by Pres. Truman for fiscal year beginning July 1, 1951, put revenues under existing tax laws at $55,138,000,000 and expenditures at $71,594,000,000, of which $41,421,000,000 was earmarked for military purposes.

National Production authority imposed a 30-day ban on the construction of almost all new commercial buildings.

16 **Board of governors** of the federal reserve system increased the margin requirements on stock purchases and short sales from 50% to 75%.

Lieut. Gen. Alfred M. Gruenther was named by Pres. Truman as chief of staff to Gen. Dwight D. Eisenhower at Allied supreme headquarters in Europe.

17 **Chinese Premier and Foreign Minister Chou En-lai** rejected a U.N. proposal for a cease-fire in Korea to be followed by talks on other far eastern questions.

Export-Import Bank of Washington granted a loan of $52,245,000 to Indonesia for communications and transport equipment.

Aneurin Bevan, minister of health in the British cabinet, was shifted to post of minister of labour and national service in place of George Isaacs, who was named pensions minister.

18 **U.S. air force** announced that it was calling up a major portion of the organized air reserve and about 100,000 men from the volunteer reserve and air national guard.

Agreement providing for a 20-cent hourly raise for soft-coal miners was signed by United Mine Workers of America and soft-coal operators.

19 **Pres. Truman** accepted the resignation of Alan Valentine as economic stabilization administrator and named Eric Johnston to succeed him.

U.S. defense dept. announced that college students could finish their academic year and still enlist in the military service of their choice.

U.S. house of representatives passed by an overwhelming majority a resolution calling upon the U.N. to declare Communist China an aggressor in Korea.

Viêt-Minh Communist offensive in Indochina north of Hanoi was defeated by French forces after week of heavy fighting.

20 **Soviet government** again charged in sharp notes to France and Great Britain that their support of west German rearmament violated wartime treaties of friendship.

Resolution proposed in the U.N. by the U.S. declaring Communist China an aggressor in Korea was opposed by Indian delegate Sir Benegal Rau as increasing tension in the far east.

22 **Czechoslovakia** charged in a note to the U.S. that U.S. planes were making unauthorized flights over Czechoslovak territory.

23 **Defense Secy. George C. Marshall** told the house armed services committee that failure to draft 18-year-olds would endanger U.S. security.

U.S. senate unanimously adopted resolutions calling upon the U.N. to declare Communist China an aggressor in Korea and opposing its admission to the U.N.

U.S., British and French governments in notes to the U.S.S.R. reiterated their position that any foreign ministers' conference should cover all causes of international tension and not merely those relating to Germany.

24 **U.S. air force units** in England, Europe and the Mediterranean area were placed under the unified command of Lieut. Gen. Lauris Norstad, commander of U.S. air forces in Europe.

Indian Prime Minister Jawaharlal Nehru asserted in a broadcast from New Delhi that he believed Communist China was eager to negotiate on Korea and other far eastern problems.

25 **West German government** averted a threatened strike of workers in the coal and iron and steel industries in the Ruhr by promising them an equal voice in company management.

26 **U.S. Economic Stabilization Administrator Eric Johnston** issued an order freezing most wages at the previous

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For elections and disasters of 1951, see under those headings in the text. For obituaries of prominent persons who died during 1951, see under the entry Obituaries.

JANUARY—*Continued*

day's level and prices at the highest points reached during period Dec. 19, 1950–Jan. 25, 1951.

27 **U.S. Atomic Energy commission** set off an atomic explosion on an air force bombing and gunnery range northwest of Las Vegas, Nev.

28 **Another atomic explosion** was set off by the U.S. Atomic Energy commission near Las Vegas, Nev.

Shahanshah Mohammed Riza Pahlavi of Iran ordered the sale to peasants on favourable terms of all the land which he had inherited from his father.

U.N. forces in Korea advanced to within 12 mi. of Seoul against only light Communist resistance.

29 **Prime Minister Clement R. Attlee** announced in the house of commons new measures decided upon by the British government to accelerate its rearmament program.

U.S. government ordered Hungarian diplomats in Washington, D.C., to stay within a radius of 18 mi. from the White House.

French Premier René Pleven arrived in Washington, D.C., to confer with Pres. Truman on policy questions, including the situation in the far east.

30 **Switchmen on 16 railroads** began an unauthorized strike in Chicago, Detroit, St. Louis and Peoria.

31 **Death sentences** of 21 German World War II criminals were commuted to imprisonment and 32 prisoners were ordered released by U.S. occupation officials.

U.S. wage ceiling regulations were amended to authorize wage increases, notably in coal industry, negotiated on or before Jan. 25, 1951, and effective on or before Feb. 9, 1951.

FEBRUARY

1 **U.N. general assembly** adopted, 44 to 7, a U.S. resolution accusing Communist China of aggression in Korea.

Gen. Dwight D. Eisenhower stated in an address to a joint session of congress that each North Atlantic treaty member must contribute its best to European defense; that a steady flow of U.S. supplies be sent to Europe; and that no limit be placed on number of U.S. troops which might be sent there.

Discovery of ore deposits bearing uranium and other fissionable materials in India was reported.

White House issued formal statement denouncing rail strike as directly endangering national security.

Wage Stabilization board further relaxed its wage freeze order to permit merit and length-of-service increases.

Pres. Truman urged an immediate tax increase of $10,000,000,000 in a special message to congress, and indicated a second increase of $6,500,000,000 later in 1951.

Senate banking and currency subcommittee charged that political pressure and personal favouritism had influenced the granting of loans by the Reconstruction Finance Corp.

3 **Chinese Communist Premier and Foreign Minister Chou En-lai** asserted that the U.N. resolution denouncing Communist China as an aggressor in Korea had blocked the way to a peaceful settlement.

4 **Individual weekly fresh meat rations** in the U.K. were reduced to a record low of 8*d.* (about 9½ U.S. cents).

5 **Defense Mobilization Director Charles E. Wilson** appealed directly to striking railroad workers to return to work in the interests of national defense.

Senate rejected by voice vote Pres. Truman's request for blanket emergency powers to reorganize federal departments.

Soviet government again proposed in notes to the U.S., the U.K. and France a foreign ministers' conference limited principally to the issue of west German rearmament.

6 **U.S. Atomic Energy commission** set off final atomic test explosion in series of 5 at air force bombing and gunnery range in Nevada.

85 persons were killed and about 500 injured when a railroad train plunged from a temporary wooden overpass in Woodbridge, N.J.

Economic Stabilization Administrator Eric Johnston assigned prosecution of civil as well as criminal price control actions to the justice dept.

Commissioner of Internal Revenue George J. Schoeneman announced that his bureau would audit the income tax returns of every person with income of $25,000 or more.

French foreign ministry revealed that 5 U.S. air bases would be established in French Morocco.

7 **U.S. government** requested the U.S.S.R. to return at once 672 vessels loaned during World War II.

British house of commons declined, by vote of 308 to 298, to censure the Labour government for its action in nationalizing the iron and steel industry.

8 **Striking railroad workers** returned to work after the U.S. army, acting on orders of Pres. Truman, threatened them with dismissal.

William W. Remington, former government economist, was sentenced to 5 years in prison and fined $2,000 after being found guilty of perjury.

Bey of Tunis set his seal to an agreement in which France gave Tunisia greater self-rule in domestic affairs.

9 **Livestock slaughtering** was placed under licensing and quota controls by Director of Price Stabilization Michael V. DiSalle.

Brotherhood of Railroad Trainmen was fined $25,000 for contempt of a federal court in Chicago, Ill., in instigating a "sickness strike" among switchyard employees in Dec. 1950.

10 **U.N. forces** recaptured Inchon, port of Seoul, and Kimpo airfield from retreating Communist forces.

Economic Stabilization Administrator Eric Johnston appointed as his special assistant George M. Harrison, president of the Brotherhood of Railway and Steamship Clerks (A.F. of L.).

11 **Labour organizations** representing about 135,000 workers employed by 3 major meat packers announced an agreement providing for a 9-cent-an-hour wage increase.

12 **Office of Price Stabilization** removed price ceilings on all raw farm products selling below parity.

Pres. Truman requested congress to give India 2,000,000 tons of U.S. grain at an estimated cost of $180,000,000 to avert threatened famine.

State dept. announced that it was consulting with other governments on the question of recrossing the 38th parallel in Korea.

Shahanshah Mohammed Riza Pahlavi of Iran was married in Tehran to Suraya Isfandiari, daughter of an Iranian tribal chief.

13 **U.N. general assembly** rejected soviet resolutions that the U.S. was guilty of aggression against Communist China in Manchuria and Formosa.

14 **Board of governors** of the federal reserve system ordered loans for building commercial structures limited to 50% of value.

Coalition cabinet of Israeli Premier David Ben-Gurion resigned after losing a parliamentary vote of confidence on a religious education question.

South Korean marines supported by heavy U.N. naval gunfire seized 2 islands off the port of Wonsan on the east coast of North Korea.

15 **Defense Secy. George C. Marshall** revealed plans to send 4 new U.S. divisions with supporting elements to Europe.

Pres. Truman stated that Gen. Douglas MacArthur had full discretion to cross the 38th parallel in Korea if required by military necessity.

Most of Britain's iron and steel industry passed into public own-

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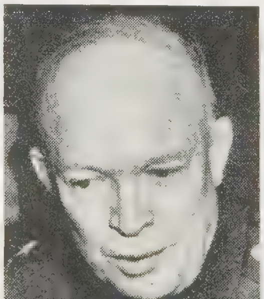
The pictures on this page are, left to right:

TAFT	Jan. 5
RAU	Jan. 20
EISENHOWER	Feb. 1
WILSON	Feb. 5
DiSALLE	Feb. 9



FEBRUARY—*Continued*

ership under aegis of government-owned Iron and Steel Corp. of Great Britain, headed by Steven J. L. Hardie.

16 **Labour members** quit the Wage Stabilization board after industry and public members adopted a basic policy permitting wage rates to rise 10% above levels prevailing on Jan. 15, 1950.

Soviet Premier Joseph Stalin said in a press interview that he did not believe world war was inevitable, but that warmongers could make it inevitable; that the U.N. had doomed itself by condemning China's action in Korea; that U.N. forces would be defeated in Korea because they lacked faith in their cause; and that the U.S.S.R. had extensively demobilized its armed forces.

United Labor Policy committee issued a manifesto denouncing the Wage Stabilization board's decision to limit wage increases to 10%.

19 **Pres. Truman** submitted to congress a reorganization plan to replace board of directors of the Reconstruction Finance Corp. with a single administrator.

U.S. air force cancelled plans to recall to active duty the major portion of its organized reserve.

Charles E. Bohlen, U.S. minister in Paris, was named counsellor of the state dept. by Pres. Truman.

Brotherhood of Railroad Trainmen was fined $75,000 by a federal court in Washington, D.C., after pleading guilty to charges of contempt of court in the strike of railroad switchmen.

20 **Religious, charitable and educational institutions** not subject to federal income taxes were exempted from wage controls by the Wage Stabilization board.

21 **New U.N. offensive** was launched on a 60-mile front in central Korea.

The pictures on this page are, left to right:

CHURCHILL	Feb. 22
PLEVEN	Feb. 28
TRUMAN	March 10
MONTGOMERY	March 20
NEHRU	March 25

Office of Price Stabilization ordered the prices of used cars frozen at Jan. 1951 levels with the price in no case to exceed that of new models.

Senate banking and currency subcommittee opened hearings on charges of political pressure and favouritism in the making of loans by the Reconstruction Finance Corp.

Gen. Dwight D. Eisenhower arrived in Paris to assume his duties as supreme commander of the military forces of the North Atlantic treaty nations.

22 **U.S. air force** and Atomic Energy commission announced completion of the first phase of the program to produce an atomic aeroplane.

Winston Churchill objected in the British house of commons to the projected appointment of a U.S. admiral as commander of naval forces of the North Atlantic treaty nations.

24 **Commercial railway traffic** between Greece and Yugoslavia was resumed under agreement between the two governments.

Maj. Gen. Bryant E. Moore, commander of the U.S. 9th corps in Korea, died of a heart attack after a front-line helicopter accident.

Soviet government contended in a note to the U.K. that soviet armed forces had been reduced to a level equal to their numerical strength prior to World War II.

26 **22nd amendment** to the U.S. constitution, prohibiting any U.S. president after Pres. Truman from holding office for more than 2 terms, became effective with 36th ratification by Nevada.

U.S. supreme court held to be in unconstitutional conflict with the Taft-Hartley act a Wisconsin law prohibiting strikes and requiring compulsory arbitration of labour disputes in public-utilities industries.

27 **Economic Stabilization Administrator Eric Johnston** approved the 10% pay-increase regulation adopted by the Wage Stabilization board.

Czechoslovak government announced that former Foreign Minister Vladimir Clementis had been arrested on charges of espionage, treachery and plotting to set up a separate republic of Slovakia in collaboration with anti-soviet Czechoslovak Communists.

Office of Price Stabilization issued a regulation providing for a new margin-type price control system applicable to more than 200,000 retail items.

28 **Senate crime investigating committee** stated in a preliminary report that at least 2 major crime syndicates were in operation in the U.S.

Organized labour withdrew its representatives from all government mobilization agencies in protest against U.S. mobilization policies.

Cabinet of French Premier René Pleven resigned in a dispute over the manner of conducting projected national elections.

Argentine police seized the plant of the Buenos Aires newspaper *La Prensa* after gangsters broke up an attempt to resume publication in the face of a news vendors' boycott.

MARCH

1 **Economic Stabilization Administrator Eric Johnston** approved cost-of-living wage increases under "escalator" clauses written into labour contracts prior to Jan. 25, 1951.

U.S. dept. of commerce announced that licences would be required for all shipments to the U.S.S.R. and soviet satellite nations.

3 **F.B.I. Director J. Edgar Hoover** told a senate subcommittee that U.S. Communists had gone underground to a greater extent than ever before.

Treasury Secy. John W. Snyder and Thomas B. McCabe, chairman of the board of governors of the federal reserve system, announced settlement of dispute over monetary policy and debt management by issuance of new series of nonmarketable 2¾% treasury bonds in exchange for outstanding 2½% bonds.

4 **Senate labour and public welfare subcommittee** majority issued a report charging a widespread employer conspiracy to destroy textile labour unions in the south.

U.S. state dept. released figures showing that communism was losing strength in western Europe.

5 **General Motors Corp.** reported 1950 net income of $834,044,039 on sales of $7,531,086,846, both record figures for U.S. private corporations.

Deputy foreign ministers of the U.S., U.K., France and the U.S.S.R. met in Paris to try to agree upon an agenda for a foreign ministers' conference.

6 **General Services administration** ordered suspension of tin purchases for its strategic stock pile until world prices reached a reasonable level.

Allied High commission announced revision of the occupation statute for western Germany giving it wider powers and the right to establish a foreign ministry.

7 **Premier Ali Razmara** of Iran was assassinated by a religious fanatic in a mosque in Tehran.

Gen. Douglas MacArthur stated that under existing conditions U.N. forces had no chance of winning a military victory in Korea.

House un-American activities committee released a list of 624 organizations and 204 publications cited as subversive by justice dept., itself or other legislative groups.

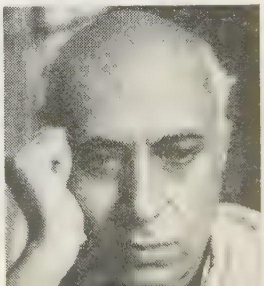
U.N. troops in Korea established a bridgehead on the north bank of the Han river, 15 mi. E. of Seoul.

9 **Herbert Morrison** was named British foreign secy. in place of Ernest Bevin, who resigned because of ill health.

Henri Queuille was approved as French premier by vote of 359 to 205 of the national assembly.

Pakistani government announced that a plan to set up a military dictatorship had been thwarted by arrest of the chief of the army general staff and 3 others.

Yugoslav foreign ministry issued a White Book charging that



MARCH—*Continued*

after 2 years of preparation the soviet bloc was preparing for attack operations against Yugoslavia.

10 **Pres. Truman** signed a naval appropriation bill authorizing modernization of 291 ships and construction of 173 new ships, including a 57,000-ton carrier capable of launching bombers carrying atomic bombs.

Supreme soviet of the U.S.S.R. approved budget of 451,503,000,000 roubles ($112,875,000,000 at nominal exchange rates) for 1951.

South African government rejected proposal of the U.N. general assembly for a conference with India and Pakistan on the question of Indian segregation in the Union of South Africa.

Terms of an agreement between Great Britain and Yemen providing for a joint commission to demarcate the Yemenite boundary with Aden protectorate were published.

11 **Former Sen. Frank P. Graham** of North Carolina was named head of the Defense Manpower administration by Labour Secy. Maurice J. Tobin.

Pres. Truman appointed former Rep. Robert Ramspeck of Georgia to be chairman of U.S. civil service commission.

12 **U.S. senate** and house of representatives approved by voice vote a bill authorizing renegotiation of defense contracts to recapture excess profits.

U.S. supreme court refused to review the perjury conviction of Alger Hiss, former state dept. official.

Albert B. Chandler failed to secure re-election as U.S. baseball commissioner, winning only 9 of the necessary 12 votes of the 16 major league club owners.

13 **U.S. house of representatives** rejected 227 to 167 Pres. Truman's request for emergency powers to reorganize executive agencies.

14 **Seoul,** capital of South Korea, was recaptured without opposition by U.N. forces.

Economic Stabilization Administrator Eric Johnston refused to authorize an 11-cent-an-hour wage increase for employees in the meat-packing industry.

Induction of new 4-party coalition cabinet headed by Willem Drees ended 7-week Dutch cabinet crisis.

Industry representatives rejected Economic Stabilization Administrator Eric Johnston's proposals for reviving Wage Stabilization board.

15 **Asst. Secy. of the Treasury William McC. Martin, Jr.,** was named chairman of the board of governors of the federal reserve system in succession to Thomas B. McCabe.

Iranian *majlis* unanimously confirmed recommendation of its oil commission for nationalization of the Iranian oil industry.

16 **British government** published the text of a formal note to Iran protesting proposed nationalization of the Anglo-Iranian Oil Co.

17 **Vatican** excommunicated all persons connected with persecution of the Roman Catholic Church in Czechoslovakia.

18 **British war office** published intelligence reports showing that the U.S.S.R. and Communist China each had more than 4,000,000 men under arms.

19 **U.N. Economic and Social council** voted 15 to 3 (U.S.S.R., Czechoslovakia and Poland) to conduct a world-wide inquiry into the use of forced labour.

U.S. house of representatives completed congressional action on bill extending federal rent control until June 30, 1951.

Office of Price Stabilization issued an order automatically freezing prices of farm products within 5 days after they reached or exceeded both parity and the highest level before outbreak of war in Korea.

Draft of 50-year treaty to set up western European coal and steel pool was initialled in Paris by delegates of Belgium, France, Italy, Luxembourg, the Netherlands and western Germany.

20 **Argentine government** took over control of *La Prensa*, leading Buenos Aires newspaper.

Gen. Dwight D. Eisenhower announced appointment of Field Marshal Viscount Montgomery of Alamein as deputy supreme commander of North Atlantic treaty forces and Air Chief Marshal Sir Hugh Saunders as air deputy.

U.S. Atomic Energy commission reported a new series of atomic bomb tests at Eniwetok atoll in the Pacific ocean.

21 **Soviet government** advised the U.S. that it refused to consider the return of 670 ships loaned to it during World War II; 2 icebreakers would be returned.

Chunchon, last major Communist base south of the 38th parallel in Korea, was reoccupied by U.N. forces without opposition.

Defense Secy. George C. Marshall reported to Pres. Truman that U.S. armed forces exceeded 2,900,000, or double the number at the outbreak of war in Korea.

22 **Italian government** accepted a Canadian offer to equip an Italian infantry division for North Atlantic treaty forces.

First shipment of Venezuelan iron ore arrived at Sparrows Point, Md., plant of Bethlehem Steel Corp.

23 **U.N. relief and works agency for Palestine refugees** revealed plans to resettle 50,000 Arab refugees from Palestine in the Sinai desert area of Egypt.

24 **Gen. Douglas MacArthur** stated that he was ready at any time to confer in the field with the commander in chief of North Korean and Communist Chinese forces to consider means of ending war in Korea.

25 **Indian Prime Minister Jawaharlal Nehru** rejected as dishonourable for India Anglo-U.S. proposal to permit arbitrator or panel of arbitrators named by International Court of Justice to settle differences between India and Pakistan over state of Kashmir.

26 **Pres. Truman** signed bill authorizing continued interest payments after maturity on series E savings bonds.

Foreign ministers of 21 American republics opened conference on hemispheric defense and economic problems at Washington, D.C.

27 **U.S. and Canadian governments** announced agreement for co-ordination of civil defense planning.

Defense Secy. George C. Marshall stated that Gen. Douglas MacArthur had authority to advance above 38th parallel in Korea if military situation dictated.

Sen. J. William Fulbright proposed creation of commission of private citizens to draft code of ethical conduct for government employees.

28 **Pres. Vincent Auriol** of France arrived at Washington, D.C., for a state visit to the U.S. and Canada.

Office of Price Stabilization introduced new percentage markup price control system for most food items.

Pres. Truman signed bill lifting ban on immigration into the U.S. of persons who had been involuntary members of totalitarian organizations.

U.S. and U.N. officials signed agreement permitting U.N. to issue its own postage stamps for use on mail sent from U.N. headquarters at New York, N.Y.

29 **Academy of Motion Picture Arts and Sciences** awards for distinguished acting in 1950 went to José Ferrer, best actor; Judy Holliday, best actress; George Sanders, best supporting actor; and Josephine Hull, best supporting actress.

30 **U.S. senate** cited for contempt 12 witnesses before its crime investigating committee, including Frank Costello, Joe Adonis and Frank Erickson.

Group Areas act empowering Union of South Africa government to define separate areas for occupation of different races went into effect in Cape, Natal and Transvaal provinces.

U.N. Security council approved 8 to 0 (with 3 abstentions) a new Anglo-U.S. proposal for settlement of Kashmir dispute.

31 **Pres. Truman** approved deferment of college students of superior scholastic standing or those achieving high scores on national aptitude test.

Defense Mobilization Director Charles E. Wilson urged businessmen to reduce borrowing and unnecessary spending as anti-inflationary measure.

U.S. Ambassador John Foster Dulles revealed tentative and suggested details of treaty of reconciliation with Japan.

APRIL

1 **Defense Mobilization Director Charles E. Wilson** stated in first quarterly report that defense efforts since outbreak of war in Korea had made the U.S. measurably safer against attack.

2 **Allied High commission** lifted most restrictions on military production in German Federal Republic.

Gen. Dwight D. Eisenhower formally activated and assumed command of supreme headquarters, Allied Powers in Europe, in Paris and named Vice-Adm. André Lemonnier of France as his naval deputy.

U.N. Food and Agriculture organization opened its new headquarters in Rome in a shift from Washington, D.C.

APRIL—*Continued*

Pres. Truman asked congress for additional $51,300,000 during current fiscal year to build production and research facilities for Atomic Energy commission.

3 **Elements** of 2 U.S. divisions crossed 38th parallel in force on 17-mi. front in west central Korea.

British government economic survey for 1951 stated that Britain faced more harsh and unpleasant austerity during next 3 years because of rearmament program.

4 **U.S. senate** approved 69 to 21 dispatch of 4 additional divisions to Europe in resolution stating it was sense of senate that congress should be consulted before other troops were committed.

House un-American activities committee charged that current Communist "peace offensive" was the most dangerous hoax ever devised by international Communist conspiracy.

5 **Julius Rosenberg** and his wife, Ethel, were sentenced to death by federal court after being found guilty of treason in passing atomic bomb secrets to soviet agents.

Minority leader Joseph W. Martin, Jr., read to house of representatives letter from Gen. Douglas MacArthur endorsing use of Chinese nationalist troops to open second front on Chinese mainland.

Israeli air force bombed Syrian army fortifications in demilitarized area near sea of Galilee, in retaliation against shooting of 7 Israeli policemen.

Labour leaders ended boycott of defense agencies by agreeing to serve on Pres. Truman's National Advisory Board on Mobilization Policy.

6 **U.S. court of appeals** at Washington, D.C., cited Commerce Secy. Charles Sawyer and 9 others for contempt in failing to return American President lines to its former owner, the Dollar company.

Oscar Collazo, Puerto Rican nationalist, was sentenced to death after being found guilty of murdering White House guard in attempt to assassinate Pres. Truman.

7 **Indochinese Communist leader Ho Chi Minh** ordered his forces to revert from orthodox military tactics to guerrilla warfare.

Conference of American foreign ministers adjourned after adopting declaration reaffirming their solidarity in face of international communism.

8 **Iranian Premier Hussein Ala** rejected British protest against proposed nationalization by Iran of Anglo-Iranian Oil Co.

Pres. James B. Conant of Harvard university and Pres. Harold W. Dodds of Princeton university denounced as undemocratic deferment of college students of superior scholastic standing.

9 **Chinese Communist** forces opened floodgates of Hwachon dam in central Korea in effort to halt advancing U.N. troops.

Formation of provisional Libyan federal government, headed by Mahmud Muntasir as prime minister, was announced.

Complaints of violation of armistice agreement were lodged with U.N. Security council by Israel and Syria.

10 **Ivar Rooth** of Sweden was named to succeed Camille Gutt of Belgium as managing director and chairman of the executive board of International Monetary fund.

Chancellor of the Exchequer Hugh Gaitskell presented to house of commons British budget for fiscal year ending March 31, 1952, which estimated expenditure at £4,196,921,000 and revenue at £4,236,400,000.

11 **Gen. Douglas MacArthur** was removed by Pres. Truman from his posts as supreme commander, Allied powers; commander in chief, U.N. command; commander in chief, far east; and commanding general, U.S. army, far east; Lieut. Gen. Matthew Ridgway was named to succeed him in all 4 posts.

U.S. house of representatives rejected, 192 to 168, proposed restrictions on assignment of U.S. troops to defense of western Europe.

British admiralty revealed that 232 new ships and 60 reserve vessels would be added to royal navy by 1954.

12 **National Production authority** announced institution, effective July 1, of controlled materials plan for allocation to industry of steel, copper and aluminum.

Lawrence A. Kimpton was named to succeed Robert M. Hutchins as chancellor of The University of Chicago.

13 **U.S. government** rejected British suggestion that Communist China participate in Japanese treaty negotiations.

Both houses of U.S. congress completed action on bill providing for $10,000 in free life insurance for all armed forces personnel.

Foreign Secy. Herbert Morrison told house of commons that British government reserved right to take appropriate action to protect British lives and property in Iran.

Indian government revealed that maharaja of Baroda had been deposed in favour of his eldest son for misuse of public funds and anticonstitutional activities.

14 **Lieut. Gen. James A. Van Fleet** assumed command of U.S. 8th army in Korea.

15 **Anglo-Iranian Oil Co.'s** refinery at Abadan, Iran, was forced to a virtual shutdown by picketing strikers.

16 **Moscow radio** reported that U.S.S.R. had successfully completed its 4th 5-year plan and increased production by 73% over 1940.

Pres. Truman advised congress that he had authorized shipment of $29,000,000 in raw materials and other supplies for Yugoslav armed forces.

17 **National Advisory Board on Mobilization Policy** advised Pres. Truman, over industry objection, to set up new Wage Stabilization board with power to recommend settlement of any dispute substantially threatening national defense.

W. Stuart Symington was nominated by Pres. Truman to be administrator of Reconstruction Finance Corp.

18 **Treaty** was signed in Paris giving effect to Schuman plan to pool western Europe's coal and steel production.

19 **Gen. Douglas MacArthur** defended his views as to the proper U.S. policy in Asia in address to joint session of congress.

George W. Taylor was named temporary chairman of newly constituted Wage Stabilization board.

British house of commons approved, 291 to 280, government's action in giving a U.S. admiral supreme command over Allied naval forces in the North Atlantic.

20 **Defense dept.** revealed that Chinese nationalist forces on Formosa were scheduled to receive greatly increased quantities of arms from the U.S.

Gen. Douglas MacArthur received a record-breaking welcome upon his arrival in New York city.

21 **Pres. Truman** reconstituted Wage Stabilization Board as an 18-member group with jurisdiction over both wage questions and other labour disputes threatening the defense effort.

British Minister of Labour and National Service Aneurin Bevan resigned in an intra-Labour party dispute over defense and social service expenditures.

22 **Chinese Communist forces** launched a major attack on a broad front across western and central Korea.

23 **Harold Wilson,** president of British board of trade, resigned from British cabinet.

Great Britain and Argentina signed new meat agreement which ended 10-month deadlock over prices.

Subversive Activities Control board began hearings to determine whether U.S. Communist party was subject to registration under Internal Security act of 1950 as foreign-controlled group.

24 **Alfred Robens** was named minister of labour and national service in the British cabinet and Atty. Gen. Sir Hartley Shawcross was named president of the board of trade.

Termination of strike of employees at Abadan, Iran, refinery was reported.

25 **Lieut. Gen. James A. Van Fleet,** U.S. 8th army commander in Korea, expressed complete confidence in ultimate victory in message to U.N. forces.

Economic Stabilization Administrator Eric Johnston approved a 6-cent-an-hour wage increase for 1,000,000 nonoperating railroad employees.

South Korean government admitted that 187 alleged Communist collaborators had been shot in a mass execution at Kochang.

26 **Pres. Truman** urged congress in a special message to extend Defense Production act of 1950 for 2 years beyond June 30, 1951, with broader powers and more stringent controls.

Richard Stokes was named to succeed Ernest Bevin, deceased, as lord privy seal in British cabinet.

Czechoslovak government revealed arrest of William Oatis, Associated Press correspondent in Prague, on charges of antistate activities.

APRIL—*Continued*

27 **U.N. forces** abandoned Kapyong, highway center northeast of Seoul, and fell back along most of the front.

U.S. and Denmark signed 20-year agreement for joint defense of Greenland against threat of attack or invasion.

Discovery of evidence that men of modern type lived in Iran 75,000 years ago at the same time as previously known primitive types was reported by Carleton S. Coon of University of Pennsylvania.

28 **Hungarian authorities** released Robert A. Vogeler, U.S. businessman imprisoned on charges of espionage.

Bill to nationalize the Iranian oil industry was approved unanimously by lower house of Iranian parliament.

Office of Price Stabilization issued a series of orders fixing price ceilings on beef.

Pres. Truman authorized dismissal of U.S. government employees and denial of positions to applicants if there were reasonable doubt as to their loyalty to the U.S.

29 **Lieut. Gen. James A. Van Fleet,** U.S. 8th army commander, declared that Communist forces had been defeated in first phase of their spring offensive in Korea but were massing for a second assault.

30 **Mohammed Mossadegh,** leader of Iranian National Front party advocating oil nationalization, became premier of Iran in succession to Hussein Ala.

Pres. Truman submitted to congress a defense budget totalling $60,679,414,690 for fiscal year ending June 30, 1952.

U.S. supreme court, by vote of 5 to 3, in effect ordered 3 allegedly Communist organizations struck from U.S. attorney general's list of subversive groups.

2-month boycott of defense agencies was officially ended by United Labor Policy committee.

U.N. Security council appointed Frank P. Graham to act as U.N. agent in dispute between India and Pakistan over Kashmir.

MAY

1 **Communist forces** threatening Seoul began withdrawing in face of massed U.N. artillery fire and air attack.

Combined senate armed services and foreign relations committees released report made in 1947 by Lieut. Gen. Albert C. Wedemeyer recommending creation of South Korean force strong enough to cope with threats from the north.

Senate crime investigating committee, headed by Sen. Estes Kefauver, in an interim report accused former Mayor William O'Dwyer of New York city of aiding crime while holding public posts.

Lieut. Gen. Matthew B. Ridgway announced that he had authorized the Japanese government to modify legislation introduced during the occupation.

2 **German Federal Republic** was made a full member of the Council of Europe.

Israel announced that its border had been violated by Syrian troops, which were repulsed.

Law nationalizing Iranian oil industry became effective after approval by Shahanshah Mohammed Riza Pahlavi.

3 **Gen. Douglas MacArthur,** testifying before combined senate foreign relations and armed services committees, stated that the U.S. should give an ultimatum to Communist China to withdraw from Korea or face war against democratic world.

Ernest A. Gross, deputy U.S. representative at the U.N., proposed that the U.N. general assembly recommend an arms embargo against Communist China.

4 **Gen. Douglas MacArthur** told 2 senate committees that world communism, not the U.S.S.R., was the chief enemy of the U.S.

5 **Pakistani government** complained to U.N. Security council that India was violating council's resolution by moving to set up a Kashmir constituent assembly.

Ethiopian light infantry battalion arrived at Pusan, Korea, to join U.N. command.

6 **King Farouk I** of Egypt was married in Cairo to Narriman Sadek, 17-year-old commoner.

7 **Soviet government** proposed that foreign ministers of the U.S., Great Britain, Communist China and the U.S.S.R. should hold a Japanese peace treaty conference within 2 months.

Contingent of U.S. armed forces landed in Iceland at that republic's request to aid in its defense.

Columbia university announced the 1951 Pulitzer prizes; award for fiction went to Conrad Richter for his novel *The Town*, for poetry to Carl Sandburg for his *Complete Poems* and for music to Douglas S. Moore for his opera *Giants in the Earth.*

Defense Secy. George C. Marshall defended policy of administration in far east in testimony before 2 senate committees.

8 **U.N. Security council** called upon persons involved in Syrian-Israeli border zone dispute to cease hostilities.

Economic Stabilization Administrator Eric Johnston created the Salary Stabilization board to handle salary issues for executives and salaried employees not represented by labour unions.

U.S. state dept. revealed that the U.S. had granted new tariff concessions to 17 nations in agreements negotiated during 8-month conference at Torquay, Eng.

9 **312 planes** of U.S. 5th air force made heavy attack on Sinuiju airfield south of Yalu river on Manchurian border.

Lieut. Gen. Matthew B. Ridgway, U.N. commander in Korea, was nominated for rank of full general by Pres. Truman.

Iranian government rejected application of Anglo-Iranian Oil Co. for arbitration of oil nationalization dispute.

10 **Deposed Pres. Arnulfo Arias Madrid** of Panamá surrendered to national police after intense battle around presidential palace in Panamá city.

Both houses of U.S. congress unanimously approved resolution giving veterans of the Korean conflict the same medical and other benefits as veterans of other wars.

11 **U.S. state dept.** advised senate banking and currency committee that U.S. exports to the U.S.S.R. consisted only of a few nonstrategic materials.

13 **Premier Mohammed Mossadegh** of Iran stated that assassination threats forced him to remain in parliament building until nationalization of oil industry was completed.

14 **U.S. supreme court** ruled, 6 to 2, that officers of parent labour groups such as the C.I.O. had to file non-Communist affidavits before any affiliated union could bring charges under the Taft-Hartley act.

15 **Both houses of U.S. congress** unanimously approved resolution calling upon U.N. general assembly to embargo arms shipments to Communist China.

Gen. Omar N. Bradley told 2 senate committees that Gen. Douglas MacArthur's proposed Asian strategy would put the U.S. in the wrong war, at the wrong place, at the wrong time and with the wrong enemy.

American Telephone & Telegraph Co. became the first corporation in the world to have 1,000,000 stockholders.

16 **Government of Bolivia** was taken over by a military junta, allegedly to prevent the leftist National Revolutionary Movement from gaining control.

White House supported Gen. Omar N. Bradley's refusal to disclose to 2 senate committees confidential talks which preceded Gen. Douglas MacArthur's dismissal.

Communist forces renewed their offensive in Korea, concentrating their greatest force on the east central front between Chunchon and Inje.

17 **U.S. senate** combined armed services and foreign

The pictures on this page are, left to right:

MacARTHUR	April 11
KIMPTON	April 12
MORRISON	April 13
BEVAN	April 21
VOGELER	April 28

MAY—*Continued*

relations committees ruled, 18 to 8, that Gen. Omar N. Bradley's talks with Pres. Truman on dismissal of Gen. Douglas MacArthur were privileged.

18 **U.N. forces** were pushed out of their remaining positions north of 38th parallel by mounting Communist offensive.

U.N. general assembly, by vote of 47 to 0, requested all nations to impose an arms embargo against Communist China and North Korea.

Wage Stabilization board approved, by vote of 8 to 4, a 9-cent-an-hour wage increase for meat-packing workers.

19 **U.S. defense officials** disclosed that the U.S., Great Britain and Canada had agreed to standardize more than 400 army items, including the new U.S. light tank.

U.S. government formally rejected soviet proposal that the peace treaty with Japan be negotiated by the U.S., Great Britain, Communist China and the U.S.S.R.

20 **Italian Foreign Minister Count Carlo Sforza** proposed that the U.S., Great Britain and France revise the World War II Italian peace treaty to return Trieste to Italy, lift military and economic restrictions and admit Italy to the U.N.

21 **U.S. supreme court** ruled, 6 to 3, that the state fair-trade laws were not binding on merchants who refused to sign pricing agreements with manufacturers.

22 **U.N. forces** in Korea advanced on western and central fronts; Communist pressure forced limited withdrawals in east.

Israeli government agreed to suspend, in accordance with U.N. Security council resolution, swamp-draining operations on Arab-owned land in demilitarized zone on Syrian border.

23 **U.S. air force** announced appointment of Lieut. Gen. O. P. Weyland as commander of far east air forces in succession to Lieut. Gen. George E. Stratemeyer.

Israeli and Jordanian troops clashed in Hebron area on Israeli-Jordanian frontier.

24 **Pres. Truman** requested congress in special message to appropriate $8,500,000,000 for military and economic aid to foreign nations.

Lord Pakenham, British minister of civil aviation, was named first lord of the admiralty in succession to Viscount Hall of Cynon Valley, resigned.

George Keith Funston, president of Trinity college, Hartford, Conn., was appointed president of New York Stock exchange.

25 **U.S. Atomic Energy commission** and defense dept. announced successful completion of new atomic tests on Eniwetok atoll, including experiments contributing to hydrogen bomb research.

British defense ministry reported imminent dispatch of parachute brigade group to post in eastern Mediterranean.

Brotherhood of Railroad Trainmen and major U.S. railroads settled 26-month dispute over wages and rules.

26 **British government** asked International Court of Justice to direct Iran to arbitrate dispute with Anglo-Iranian Oil Co. over nationalization of oil properties.

27 **Gen. Theodor Koerner,** Socialist mayor of Vienna, was elected president of Austria by narrow margin in runoff election.

Chinese Communist government announced incorporation of Tibet into China under agreement signed by representatives of dalai lama, panchen lama and "people's" government for area.

U.N. forces in Korea advanced above 38th parallel at several points on 100-mi. front and cut off estimated 50,000 Communist troops.

28 **U.S. supreme court** upheld Federal Communications commission's right to approve colour television method of Columbia Broadcasting system.

Indian government notified U.S. that it could not sign Japanese peace treaty negotiated with nationalist China.

29 **Lieut. Gen. John B. Coulter,** U.S. 8th army deputy commander, was named liaison officer to U.N. field mission in Korea.

Drastic price-cutting war on former fair-trade items broke out among department stores in New York city.

30 **Adm. Forrest P. Sherman,** chief of naval operations, in testimony before 2 senate committees, advocated a U.N. blockade of China coast fully observed by all member nations.

31 **U.S., Great Britain and France,** in separate notes to soviet government, proposed meeting of Council of Foreign Ministers in Washington, D.C., in July, and outlined 3 alternative agenda for conference.

New Uniform Code of Military Justice went into effect for U.S. armed forces.

JUNE

1 **Indian parliament** approved bill modifying guarantee of freedom of speech contained in Indian constitution.

2 **U.S. government** prohibited all travel by U.S. citizens in Czechoslovakia.

Pres. Truman in signing $365,000,000 deficiency appropriation bill urged repeal of section barring U.S. aid to any nation trading in strategic materials with Communist nations.

4 **People of Puerto Rico** voted in referendum to accept U.S. proposal to hold convention to draw up a constitution to replace organic law.

U.S. supreme court upheld, 6 to 2, the constitutionality of Smith act under which 11 U.S. Communists were tried, and thereby upheld their convictions.

State Secy. Dean Acheson told 2 senate committees that nothing short of full and dangerous U.S. intervention could have prevented Communists from overrunning China.

5 **Pres. Truman** ordered U.S. 6th task fleet in Mediterranean to support North Atlantic command of Gen. Dwight D. Eisenhower.

First overseas shipment of Liberian iron ore was dispatched from Monrovia to the U.S.

U.S. house of representatives completed congressional action on compromise bill extending Reciprocal Trade Agreements act for 2 years.

6 **Wage Stabilization board** approved a 4-cent hourly productivity pay increase for automobile workers.

Walter J. Donnelly, U.S. high commissioner in Austria, revealed that the U.S. had demanded that the soviet government punish soviet soldier who had killed U.S. army corporal in Vienna.

7 **Wage Stabilization board** again broke its 10% ceiling in approving pay increases for shipyard workers.

7 nazi war criminals were executed in Germany after the U.S. supreme court refused to grant a further stay.

British foreign office disclosed that an international search was under way for 2 missing officials who were well informed on inter-Allied secrets.

Syrian government announced rejection of an offer of U.S. technical aid under Point Four program.

8 **Labour Secy. Maurice J. Tobin** directed removal of all Mexican contract workers being used as strikebreakers in Imperial valley, Calif.

9 **U.S. army** forcibly removed 3-man soviet repatriation mission from U.S. zone to soviet zone of Austria.

10 **Soviet government** again demanded in note to U.S. that all nations which had participated in the war against Japan, including Communist China, be included in any Japanese treaty negotiations.

11 **U.S. District Judge Harold R. Medina,** presiding

The pictures on this page are, left to right:

KEFAUVER	May 1
O'DWYER	May 1
NARRIMAN	May 6
ACHESON	June 4
RIDGWAY	June 30

JUNE—*Continued*

judge at trial of 11 U.S. Communist leaders, was named to U.S. court of appeals for 2nd circuit by Pres. Truman.

U.N. troops captured Chorwon and Kumhwa at the base of Communist defense triangle in central Korea.

Rep. Walter E. Brehm was fined and given a suspended jail sentence on conviction of accepting campaign contributions from one of his clerks in violation of Corrupt Practices act.

12 **Wage Stabilization board** approved pay increases for railroad trainmen averaging 5.3% more than its formula.

Investigating committee of Korean national assembly charged that more than 50,000 Republic of Korea draftees had died of starvation or disease in winter training camps.

13 **Eamon de Valera** was renamed prime minister of Ireland by *dail eireann* after serving 3 years as opposition leader.

U.S. defense dept. and Atomic Energy commission revealed recent completion of tests of variety of atomic weapons at Eniwetok.

U.N. forces captured Pyonggang, northern apex of Communist defense triangle in central Korea.

14 **Pres. Truman** in nationwide broadcast warned that price, wage and rent controls were needed for at least another 2 years.

British Foreign Minister Herbert Morrison and U.S. Ambassador John Foster Dulles announced Anglo-U.S. agreement on draft peace treaty with Japan and related questions.

15 **National security council** suspended for 90 days operation of congressional ban on U.S. aid to nations exporting strategic materials to Communist nations.

Pres. Truman signed bill providing for loan of $190,000,000 to India for purchase of grain.

16 **Major part** of U.S. shipping on Atlantic, Pacific and Gulf coasts was tied up by a strike of 3 C.I.O. maritime unions.

Battalion of volunteers from Colombia—first contingent from South America—arrived in Korea.

17 **Gen. Charles de Gaulle's** R.P.F. party made important gains at expense of Communists and Popular Republicans in first French parliamentary elections since 1946.

18 **U.S. army dept.** announced that reservists individually recalled to active service involuntarily would be released by the end of the year.

Gen. Dwight D. Eisenhower named U.S. Adm. Robert B. Carney to command Allied forces in southern Europe.

19 **Negotiations** between Iran and Anglo-Iranian Oil Co. broke down after Iran rejected company's settlement proposal as not in accord with the nationalization law.

Pres. Truman signed bill extending Selective Service to July 1, 1955, lowering draft age to 18½ years, lengthening service to 2 years and setting up universal military training system.

British government ordered licensing of all exports to China and Hong Kong but stated nonstrategic shipments would be freely allowed.

20 **Pres. Galo Plaza Lasso** of Ecuador arrived in Washington, D.C., on a state visit.

21 **U.S. Communist** party leaders were indicted in New York city on charges of conspiring to teach and advocate the overthrow of the U.S. government by force.

New U.S. psychological strategy board headed by Gordon Gray, former army secy., was created by Pres. Truman.

21 **Ernest Gross,** deputy U.S. representative to the U.N., issued appeal to U.N. members to provide more ground troops in Korea.

U.S., British and French governments broke off as of no practical utility negotiations in Paris with the U.S.S.R. on agenda for proposed meeting of Council of Foreign Ministers.

Robert E. Quinn of Rhode Island was named chief judge of new U.S. court of military appeals.

22 **House of representatives** approved by vote of 233 to 160 a $7,200,000,000 tax bill, providing for largest single tax increase in U.S. history.

23 **Soviet U.N. delegate Jacob Malik** proposed as a first step toward peace in Korea the negotiation of a cease-fire and withdrawal of belligerents from 38th parallel.

24 **U.S. government** demanded release by Czechoslovakia of 2 North Atlantic Treaty organization pilots who had landed their planes there.

25 **Communist China** in an editorial in its official newspaper endorsed soviet delegate Jacob Malik's proposal for a truce in Korea.

Combined senate armed services and foreign relations committees concluded hearings on dismissal of Gen. Douglas MacArthur and U.S. policy in the far east.

First U.S. commercial colour telecast was presented in New York city by Columbia Broadcasting system.

26 **British government** ordered the cruiser "Mauritius" to proceed to Abadan, Iranian oil-refining center.

27 **John B. Dunlap** of Texas was appointed to succeed George J. Schoeneman as U.S. commissioner of internal revenue.

28 **Roman Catholic Archbishop Josef Groesz** was convicted of plotting to overthrow the Hungarian government with U.S. aid and was sentenced to 15 years' imprisonment.

Pres. Truman named Navy Secy. Francis P. Matthews to be U.S. ambassador to Ireland and Navy Undersecy. Dan A. Kimball to succeed Matthews.

Iranian Premier Mohammed Mossadegh appealed to Pres. Truman for U.S. aid in Iran's dispute with Great Britain over oil nationalization.

29 **Premier Luang Pibul Songgram** of Thailand was kidnapped in Bangkok by Thai navy and marine forces.

Both houses of U.S. congress approved a 31-day stopgap extension of the Defense Production act barring any price rollbacks during extension period.

30 **Gen. Matthew B. Ridgway** broadcasted from Tokyo an offer to the commander in chief, Communist forces in Korea, to negotiate an armistice in Korea.

Pope Pius XII excommunicated Hungarian Roman Catholics responsible for the arrest, trial and conviction of Archbishop Josef Groesz.

JULY

1 **Kim Il Sung,** North Korean commander, and Gen. Peng Teh-huai, Chinese Communist commander, agreed to meet U.N. representatives for cease-fire negotiations.

Trust Territory of the Pacific Islands and American Samoa were transferred from jurisdiction of navy dept. to that of interior dept.

2 **Treasury Secy. John W. Snyder** announced a budget surplus of $3,509,782,624.25 for fiscal year ended June 30, the second highest in U.S. history.

U.S. again demanded that U.S.S.R. return all lend-lease vessels.

3 **Gen. Matthew B. Ridgway** accepted Communist counterproposal for cease-fire negotiations at Kaesong, northwest of Seoul, but proposed an earlier date.

Gov. Fuller Warren of Florida returned subpoena of U.S. senate crime investigating committee on ground that it was a violation of state sovereignty.

4 **William N. Oatis,** Associated Press correspondent, was sentenced to 10-year imprisonment by Czechoslovak court on conviction of espionage.

British Chancellor of the Exchequer Hugh Gaitskell reported drastic drop in net gold and dollar earnings of the sterling area for second quarter of 1951.

5 **International Court of Justice** ruled, 10 to 2, that Iran should restore Anglo-Iranian Oil Co. to full control of its properties pending final decision on dispute.

7 **U.S. congressional resolution** affirming friendship of the U.S. for all peoples of the world was sent by Pres. Truman to Nikolai Shvernik, president of presidium of supreme soviet of the U.S.S.R.

8 **Arrangements** for formal truce negotiations in Korea were made at preliminary meeting of U.N. and Communist representatives at Kaesong.

Soviet air force displayed 5 new jet fighters, believed to be capable of supersonic speed, at air demonstration in Moscow.

9 **Pres. Truman** requested congress to end state of war between the U.S. and Germany.

National Production authority ordered steel producers to earmark 95% of their ingot production for military and other essential uses under Controlled Materials plan.

10 **U.N. truce negotiators** headed by Vice-Adm. Charles Turner Joy had their first meeting at Kaesong with Communist negotiators led by Lieut. Gen. Nam Il.

11 **Premier Mohammed Mossadegh** of Iran accep-

JULY—*Continued*

ted Pres. Truman's offer to send W. Averell Harriman to Tehran for consultation regarding oil dispute with Britain.

Bond put up by Civil Rights congress for 15 indicted Communists was revoked by U.S. district court in New York city as unworthy of trust.

6 leading U.S. book publishers were accused by Federal Trade commission of discriminating against retail book stores through dealings with book clubs.

Jordanian government complained to U.N. that Israel was interfering with free flow of Jordan river by pumping operations, and increasing the salinity of the water.

12 **U.S. and British governments** formally proposed draft of treaty restoring full sovereignty to Japan.

Gov. Adlai Stevenson called out Illinois national guard to restore order in Cicero, suburb of Chicago, after rioting caused by attempt of Negro family to move into the town.

Israel requested U.N. Security council to force Egypt to lift blockade on passage through Suez canal of Israel-bound oil tankers and other shipping.

U.S. air force announced completion of arrangements with France for use by U.S. of 7 airfields in French Morocco.

13 **Gen. Matthew B. Ridgway** demanded that Communist armed forces be removed from within a 5-mi. radius of Kaesong and that there be no interference with selection of U.N. personnel at truce negotiations.

Elements of U.S. 2nd armoured division began arriving at Bremerhaven, Ger., from the U.S.

U.S. state dept. revealed signing of agreement with Saudi Arabia under which U.S. would continue to use Dhahran airfield.

14 **Chinese and North Korean commanders** accepted Gen. Matthew B. Ridgway's demands for neutralization of conference site at Kaesong and admission of news correspondents to area.

U.S. state dept. disclosed that it had rejected soviet objections to Anglo-U.S. draft of treaty with Japan.

Pres. Truman proclaimed Kansas and Missouri a disaster area as result of floods.

15 **2 Hungarian diplomats** in Washington, D.C., were declared *persona non grata* in retaliation for expulsion of 2 U.S. diplomats from Hungary.

Prime Minister Liaquat Ali Khan of Pakistan charged that 90% of the Indian army was stationed along borders of Pakistan.

Maj. Gen. Clovis E. Byers took over command of U.S. 10th corps in Korea from Lieut. Gen. Edward M. Almond, appointed commandant of War college.

16 **King Leopold III** of Belgium formally abdicated in favour of his son, Prince Baudouin.

Adm. Forrest P. Sherman, U.S. chief of naval operations, began conference at Madrid, Sp., with Gen. Francisco Franco on possible U.S.-Spanish defense pact.

Martial law was proclaimed in Tehran and suburbs of Iranian capital after violent Communist-inspired anti-U.S. riots.

U.N. reported that 30 U.N. members, along with Italy, German Federal Republic, Spain, Viêt-Nam and Laos, had pledged compliance with request for embargo on shipments of strategic materials to Communist China and North Korea.

17 **U.S. state dept.** received formal request from Italy for revision of clauses in Italian peace treaty limiting armed forces to 300,000 men.

18 **National security council** exempted India from provisions of law prohibiting U.S. aid to nations shipping strategic goods to Communist countries.

19 **State Secy. Dean Acheson** declared that U.N. forces must remain in Korea until a genuine peace had been firmly established.

20 **King Abdullah ibn Hussein** of Jordan was assassinated in Jerusalem.

U.S. government formally invited 50 nations, including the U.S.S.R., to meet in San Francisco, Calif., in September to sign peace treaty with Japan.

21 **Korean truce negotiations** were recessed after Communist negotiators were again told that question of withdrawal of foreign troops from Korea could not be included on the agenda.

23 **Pres. Truman** repeated his requests for heavier taxation, strong economic controls and adequate foreign aid in message to congress transmitting midyear economic report.

24 **50-year agreement** to pool national armies in a European army was recommended by 5 signatories in interim report at Paris conference.

Japanese government charged in a White Paper that more than 234,000 Japanese prisoners of war had died in prison camps in Communist territory, 77,657 were still alive and 28,797 missing.

25 **Pres. Truman** nominated Francis P. Whitehair to be navy undersecy. and Gen. Omar Bradley for another 2-year term as chairman of joint chiefs of staff.

26 **U.N. and Communist negotiators** agreed upon a 5-point agenda for discussion of armistice in Korea.

12 leading California Communists were arrested on charges of conspiring to teach and advocate overthrow of U.S. government by force.

U.S. army revealed that it was disbanding its oldest and last-remaining all-Negro unit in the far east command—the 24th infantry regiment in Korea.

British Chancellor of the Exchequer Hugh Gaitskell disclosed government plans to limit corporation dividends and tighten wage and price controls as anti-inflationary measures.

27 **Peking radio** announced that Chinese Communist government had ordered all U.S. and U.S.-supported Christian missions to cease their work in China.

British Defense Minister Emanuel Shinwell estimated that Communist nations in Europe had 5,670,000 soldiers under arms, including 4,600,000 soviet soldiers.

28 **Pres. Truman** in speech at 250th anniversary of Detroit, Mich., warned that soviet leaders were putting themselves in position to commit new acts of aggression at any time.

British, Australian, Canadian, Indian and New Zealand troops in Korea were organized into the 1st commonwealth division.

29 **U.S. Army Secy. Frank Pace, Jr.,** relieved Brig. Gen. David J. Crawford of the command of the Detroit tank arsenal for accepting favours from defense contractors.

30 **Plans of Economic Cooperation administration** to send U.S. aid to Asia were denounced by Sen. Tom Connally, chairman of senate foreign relations committee.

31 **Abadan refinery** in Iran was shut down by Anglo-Iranian Oil Co.

Pres. Truman, in signing Defense Production act amendments of 1951, denounced bill as worst he had ever had to sign.

U.S. Atomic Energy commission in report to congress revealed new advances in development of atomic weapons and in perfecting atomic-powered planes and submarines.

Salary Stabilization board appointed panel headed by Pres. Harry C. Byrd of University of Maryland to study problem of stabilizing salaries of professional athletes.

AUGUST

1 **Pres. Truman** ordered termination of all U.S. tariff concessions to the U.S.S.R. and Communist-dominated areas.

Adm. William M. Fechteler, commander of the Atlantic fleet, was named chief of naval operations to succeed Adm. Forrest P. Sherman, deceased.

British supply ministry revealed that atomic weapons were under construction in Great Britain.

Defense Materials Procurement agency was created to increase supplies of critical and strategic materials in the U.S. and elsewhere.

2 **Pres. Truman** signed bills authorizing veterans of World Wars I and II to continue indefinitely term life insurance policies then in effect.

Mexico and the U.S. signed a new treaty governing temporary admission into the U.S. of Mexican farm workers.

3 **U.S. Military academy** announced dismissal of 90 cadets for breaking the honour code by cheating on examinations.

4 **Kaesong truce negotiation area** was violated by a company of armed Chinese Communist troops.

5 **Gen. Matthew B. Ridgway** suspended truce negotiations because of violation of Kaesong area by Chinese troops.

6 **Renewed soviet proposals** for a 5-power pact and a ban on atomic weapons were communicated to Pres. Truman by Nikolai Shvernik, president of presidium of supreme soviet.

Chinese and North Korean high command notified U.N. command that presence of armed Chinese troops in Kaesong area was a mistake and requested continuance of truce negotiations.

AUGUST—*Continued*

Negotiations on the oil nationalization issue were opened in Tehran by Iranian representatives and special British mission headed by Richard Stokes, lord privy seal.

Pres. Truman vetoed bill to increase pensions of veterans with non-service-connected disabilities.

7 **Interstate Commerce commission** authorized eastern U.S. railroads to raise their freight rates 9% and western and southern railroads 6%.

New York city Police Commissioner George P. Monaghan issued an order forbidding police force members to join a labour union.

8 **Pres. Truman** signed bill prohibiting false and misleading labelling of furs and fur products.

René Pleven was endorsed as premier of France by a vote of 391 to 102 of the national assembly.

Polish government ordered closing of U.S. information service in Warsaw; in retaliation, Polish research and information service in New York city was ordered closed.

9 **U.S. house of representatives** passed, 348 to 2, a record peacetime military appropriation bill of $56,062,405,890 for fiscal year 1952.

10 **Truce negotiations** were resumed at Kaesong after acceptance of Communist assurances that neutral zone would not be violated.

Pres. Truman accepted resignation of Edward U. Condon as director of U.S. bureau of standards.

11 **Ecuadorian government** charged that Peruvian troops had attacked Ecuadorian garrisons in disputed southern border area.

Gen. James A. Van Fleet, U.S. 8th army commander, revealed that an enlarged corps of U.S. military advisers was aiding in training of South Korean troops.

French national assembly approved, 390 to 222, coalition cabinet formed by René Pleven.

12 **Pakistani government** issued White Paper accusing India of aiming at the liquidation of Pakistan.

13 **U.S. state dept.** announced that soviet government had accepted invitation to attend Japanese peace conference.

14 **Proposed U.N. treaty** on freedom of information was rejected at meeting of U.N. Economic and Social council by the U.S. as incompatible with American ideas of freedom to publish and criticize.

15 **Defense dept.** charged that Maj. William V. Holohan, an OSS officer, had been murdered in Italy in 1944 by 2 U.S. servicemen and 2 Italians for refusing to give more aid to Communist partisans.

16 **Pres. Truman** signed bill restoring U.S. citizenship to persons who lost it by voting in Italian elections.

17 **U.S. house of representatives** overrode, 318 to 45, Pres. Truman's veto of bill to increase pensions of veterans with non-service-connected disabilities.

Economic Stabilization Administrator Eric Johnston approved new policy of Wage Stabilization board to allow wages to rise with cost of living.

Members of U.S. senate investigating committees voted, 20 to 3, not to issue a formal report on their inquiry into dismissal of Gen. Douglas MacArthur.

18 **U.S. army medical service** announced development of synthetic drug, primaquine, as possible rapid cure for malaria.

19 **U.N. forces** in Korea moved up under a heavy artillery barrage in what was described as a limited offensive.

20 **Salary Stabilization board** imposed restrictions on bonus and profit-sharing payments to company officers, executives and other salaried employees.

Political favouritism and influence in lending activities of Reconstruction Finance Corp. were criticized in both majority and minority reports of U.S. senate investigating committee.

21 **U.S. navy dept.** announced the letting of a contract for construction of the first atomic-powered submarine.

John J. McCloy, U.S. high commissioner in Germany, stated in quarterly report that neonazism was becoming potentially dangerous in western Germany.

U.S. house of representatives completed congressional action on defense housing bill designed to encourage building in defense areas and relaxing credit terms on new houses costing less than $12,000.

22 **Australian government** announced its refusal to participate in any wool allocation scheme or in any proposal for limitations on wool prices.

Negotiations on oil nationalization issue between Iranian government and British mission ended in disagreement.

Perjury conviction of William W. Remington, former commerce dept. official, was reversed by a U.S. court of appeals.

23 **Treaty of friendship,** commerce and navigation between the U.S. and Israel was signed at Washington, D.C.

U.S. senate approved unanimously concurrent resolution of house of representatives calling for termination of trade relations with Czechoslovakia until release of Associated Press correspondent William Oatis.

Communist truce negotiators announced suspension of truce talks until U.N. had taken responsible action on alleged aerial bombing of Kaesong area.

Pres. Truman asked congress to repeal 3 recent price control amendments to Defense Production act as inflationary and jeopardizing defense program.

24 **Federal Communications commission** granted permission to Western Union Telegraph Co. to make general increase in rates.

25 **Rashin,** North Korean supply port near the Siberian border, was heavily bombed by U.S. planes.

26 **Indian government's** rejection of U.S. invitation to attend Japanese peace conference at San Francisco, Calif. was made public.

27 **Copper and nonferrous mine and smelter workers** began a nation-wide strike which was immediately certified to Wage Stabilization board by Pres. Truman.

28 **United Labor Policy committee** was dissolved as result of withdrawal of American Federation of Labor.

7 Communist leaders in Hawaii were arrested on charges of conspiring to advocate and teach overthrow of U.S. government.

29 **Gen. Matthew B. Ridgway** summarily rejected Communist demand for reinvestigation of charges that a U.N. plane had bombed neutral zone around Kaesong.

30 **Mutual defense treaty** between the U.S. and the Philippines was signed at Washington, D.C.

Pres. Truman invoked national emergency provisions of Taft-Hartley act in copper miners' strike and appointed 3-man investigating board.

31 **U.S. senate crime investigating committee** in final report urged creation of privately supported national crime co-ordinating council to aid work of local crime commissions.

Yugoslav government published new economic plan to decentralize industry and to stimulate production.

4 appropriations bills for government agencies and departments, each requiring in general a 10% pay-roll cut, were signed by Pres. Truman.

Eva Perón, wife of Argentine Pres. Juan Perón, announced her decision not to accept nomination of Peronista party to run with her husband as vice-presidential candidate.

The pictures on this page are, left to right:

JOY	July 10
NAM IL	July 10
HARRIMAN	July 11
BAUDOUIN I	July 16
VAN FLEET	Aug. 11

SEPTEMBER

1 **U.S., Australia and New Zealand** signed treaty of mutual defense at San Francisco, Calif.

U.N. Security council called upon Egypt to lift restrictions on passage of shipping through the Suez canal.

Vice-Chairman Nathan P. Feinsinger became chairman of the Wage Stabilization board.

2 **Newly imposed east German tax** on western nonmilitary vehicles passing through east Germany was denounced by U.S. High commission as a new attempt to cut off Berlin.

3 **Treasury dept.** launched largest U.S. savings bond drive since World War II.

Communist forces in Korea were estimated at 80 divisions totalling 800,000 men by Gen. James Van Fleet, U.S. 8th army commander.

4 **First session** of Japanese Peace conference at San Francisco, Calif., was opened by Pres. Truman in speech made over first transcontinental telecast. Gov. Earl Warren and San Francisco Mayor Elmer E. Robinson also welcomed conference delegates.

French national assembly passed, 370 to 238, bill providing for state scholarships to students of both state and private (Catholic) schools.

Millionth U.S. soldier to die in battle since 1775 was reported to have been killed in Korea.

5 **U.N. command** reported that Communists in Korea had built up large force of soviet satellite troops to intervene if armistice talks broke down.

Delegates at Japanese Peace conference overwhelmingly adopted over soviet protest rules of procedure proposed by the U.S.

Temporary injunction to end nation-wide strike of copper-lead-zinc workers was issued by federal court in Denver, Colo., on petition of Atty. Gen. J. Howard McGrath.

U.S. air force announced that it had awarded a contract to build world's first atomic-powered aeroplane.

6 **Prince Talal,** elder son of King Abdullah, took oath as king of Jordan.

Agreement was signed in Lisbon, Port., granting the U.S. additional rights in the Azores and integrating the islands into the defense framework of the North Atlantic Treaty organization.

7 **Office of Price Stabilization** approved increases averaging 5% to 6% in manufacturers' prices for new automobiles and warned that further increases might be necessary.

8 **Peace treaty with Japan** was signed at San Francisco, Calif., by delegates from 48 non-Communist nations.

Bilateral U.S.-Japanese security pact permitting U.S. troops to be stationed in Japan indefinitely was signed at San Francisco, Calif., by State Secy. Dean Acheson and Premier Shigeru Yoshida.

9 **Federal reserve board** laid down new rules regarding the granting of trade-in allowances under consumer credit controls.

10 **Communist forces** in Korea were reported to be using soviet-type land rockets on the east central front.

11 **U.N. command** admitted that one of its planes had mistakenly strafed the neutral zone at Kaesong the day before.

Complete Czechoslovak railroad train was driven across border into western Germany by engineer seeking asylum.

12 **Resignation** of Gen. George C. Marshall as defense secy. was accepted by Pres. Truman who nominated Deputy Secy. Robert A. Lovett to succeed him.

Chester Bowles, former governor of Connecticut, was nominated as U.S. ambassador to India and Nepal.

U.S. army dept. announced projected federalization early in 1952 of 2 more national guard infantry divisions.

Vatican published encyclical of Pope Pius XII calling upon all Christians to "unite and fight under a single banner" against Communism.

13 **U.S., British and French foreign ministers** agreed upon the use of western German troops in a European army.

U.S. air force announced plans to activate a squadron to operate pilotless bombers.

New super priority rating was created by National Production authority for emergency requirements of defense dept. and Atomic Energy commission.

Allied High commission announced that all Czechoslovak flight privileges over western Germany had been suspended.

U.N. Economic and Social council adopted U.S.-sponsored measure to set up committee to investigate world cartels.

14 **U.S., British and French foreign ministers** called for maintenance of peace through a European army with German units, an industrial pool and, if possible, agreement with the U.S.S.R.

15 **Troops of 7 nations** began large-scale manoeuvres in western Germany.

16 **Office of Price Stabilization** announced higher ceiling prices for most cuts of beef and some cuts of pork.

17 **Pres. Truman** directed treasury dept. to cancel all U.S. tariff concessions on imports from Bulgaria, effective Oct. 17.

U.N. command called upon Communists to resume negotiations for armistice in Korea.

Iranian government stated it was prepared to negotiate a barter agreement with the U.S.S.R. to obtain scarce goods cut off by Great Britain.

18 **U.S. senate** followed house of representatives in overriding Pres. Truman's veto of bill extending special pension privileges for war veterans disabled in private life.

Pope Pius XII excommunicated all Rumanian Catholics who took part in prosecution of Bishop Augustin Pacha or in sacrilegious actions against other Rumanian clerics.

19 **British Prime Minister Clement R. Attlee** stated in radio address that he had asked King George VI to dissolve parliament on Oct. 5 for general election on Oct. 25.

Finland reported that it had delivered $211,300,000 in reparation goods to the U.S.S.R. and that delivery of $15,200,000 more in 1951 would satisfy Finnish liability.

Graft indictments against 18 New York city policemen were dismissed after bookmaker Harry Gross, chief prosecution witness, refused to testify.

20 **Ford C. Frick,** National league president, was elected U.S. commissioner of baseball by major league club representatives.

Communist leaders asked for immediate resumption of armistice negotiations at Kaesong.

North Atlantic council, in meeting at Ottawa, Ont., approved recommendation for admission of Greece and Turkey into the North Atlantic Treaty organization.

Pres. Truman urged senate to raise its pending tax-increase bill from an estimated $5,200,000,000 to a figure as close as possible to the $10,000,000,000 he had recommended.

21 **Queen Juliana** of the Netherlands appealed to Pres. Truman to take the initiative in a new approach to world refugee problem.

22 **Australian people** rejected in a referendum the request of government of Prime Minister Robert G. Menzies for power to outlaw the Australian Communist party.

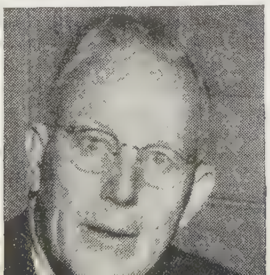
Defense Mobilization Director Charles E. Wilson directed major aluminum companies to prepare plans for possible removal of plants from Pacific northwest because of threatened electric power shortage.

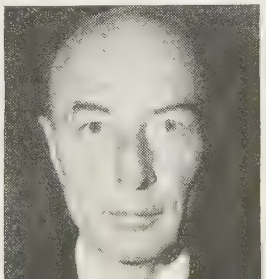
23 **U.S. state and defense depts.** declared in joint communiqué that successful defense of Indochina was of great importance to defense of southeast Asia.

King George VI of Great Britain was reported in satisfactory

The pictures on this page are, left to right:

PERÓN	Aug. 31
WARREN	Sept. 4
YOSHIDA	Sept. 8
LOVETT	Sept. 12
FRICK	Sept. 20





SEPTEMBER—*Continued*

condition following major operation for lung resection.

U.S. senate preparedness subcommittee reported numerous instances of substandard housing and rent gouging of servicemen's families near certain military posts.

24 **Italian Premier Alcide de Gasperi** in address before joint session of U.S. congress requested U.S. support for Italy's claim to Trieste.

Statutory restriction on U.S. economic aid to nations exporting strategic goods to Communist nations was waived by national security council in the case of west Germany and 9 North Atlantic pact countries.

U.N. and Communist liaison officers met to discuss resumption of Korean armistice negotiations.

25 **Pres. Truman** signed executive order placing strict controls on government agencies to prevent release of information of possible help to potential enemies.

Pres. Truman signed new Selective Service regulations authorizing removal of draft deferments of childless husbands and some men deferred for physical reasons.

26 **U.S., British and French governments** in joint communiqué called upon the U.S.S.R. and other signatories of 1947 peace treaty with Italy to reconsider the restrictions and disabilities imposed by the treaty.

27 **Pres. Truman** urged enactment of new law requiring top U.S. officials and political party leaders to file an annual public declaration of their total incomes.

Anglo-Iranian Oil Co.'s huge refinery at Abadan, Iran, was seized by Iranian troops.

Office of Price Stabilization was ordered by Pres. Truman to rescind directive requiring its employees to withhold information of possible embarrassment to the agency.

Gen. Matthew B. Ridgway proposed removal of site of armistice negotiations to Songhyon, 8 mi. S.E. of Kaesong and midway between battle lines.

28 **Pres. Juan D. Perón** of Argentina announced that an attempted revolt against his government had been crushed.

Canadian Prime Minister Louis St. Laurent advised Pres. Truman of Canada's willingness to construct St. Lawrence seaway alone if U.S. did not act.

International Monetary fund dropped rule requiring member nations to obtain its approval before selling gold at more than $35 an ounce.

Brig. Gen. Telford Taylor was nominated administrator of Small Defense Plants administration.

U.S. senate approved by vote of 57 to 19 bill to increase taxes an estimated $5,450,000,000 a year.

29 **Economic Stabilization Director Eric Johnston** created a separate wage stabilization board for railroad and airline employees.

OCTOBER

1 **British government** announced plans for immediate evacuation from Abadan, Iran, of British employees of Anglo-Iranian Oil Co.

Coalition Agrarian-Social Democrat cabinet, formed by Swedish Premier Tage Erlander to replace all-Social Democrat cabinet, took office.

U.N. Security council voted 9 to 2 (U.S.S.R., Yugoslavia) to consider British complaint against Iran over nationalization of Anglo-Iranian Oil Co.

2 **U.S. joint chiefs of staff** were revealed to have agreed to the expansion of the U.S. air force from 87 to about 140 groups.

3 **White House** announced that another atomic bomb had recently been exploded within the U.S.S.R.

Internal Revenue Commissioner John B. Dunlap revealed that he had ordered a thorough examination of income tax returns for 1948, 1949 and 1950 of all internal revenue officials and principal enforcement officers.

U.N. forces launched a new drive along the western and central front in Korea.

4 **Pres. Truman** stated that John Foster Dulles had declined his offer to name Dulles as the first postwar U.S. ambassador to Japan.

5 **Gordon Dean,** chairman of Atomic Energy commission, revealed that the U.S. had entered on an era when atomic weapons could be used tactically as well as strategically.

6 **Moscow radio** broadcast a statement made by Premier Stalin in a *Pravda* interview that the U.S.S.R. had recently tested an atomic bomb and would conduct tests on atomic bombs of various calibres.

Sir Henry Gurney, British high commissioner for the Federation of Malaya, was ambushed and assassinated by Communist guerrillas.

7 **Israeli Premier David Ben-Gurion** formed a new cabinet composed of members of his Mapai (Labour) party and the Religious bloc.

8 **Princess Elizabeth,** heiress presumptive to British throne, and her husband, the Duke of Edinburgh, arrived by air at Montreal, Que., for a tour of Canada and the U.S.

U.N. command accepted Communist proposal that truce negotiations be resumed at Panmunjom, S.E. of Kaesong, but rejected suggestion for enlarged neutral zone.

9 **U.S. senate** rejected by voice vote Pres. Truman's 2 nominees for federal judgeships in Illinois who were opposed by Sen. Paul H. Douglas.

British Foreign Secy. Herbert Morrison declared that the British government would not recognize legality of proposed unilateral denunciation by Egypt of the 1936 treaty and the 1899 condominium agreements on the Sudan.

U.S. house of representatives passed, 307 to 18, first amendment to the Taft-Hartley law, repealing provision for union shop elections and validating union shop contracts, signed at time when C.I.O. and A.F. of L. were not in compliance with filing requirements of act.

10 **New York Yankees** baseball club won their third straight world series, defeating New York Giants, 4–3, in 6th game.

Pres. Truman signed Mutual Security Act of 1951 authorizing $7,483,400,000 in U.S. foreign economic, military and technical aid and creating new Mutual Security agency to administer economic aid and co-ordinate all foreign aid.

11 **Argentine congress** authorized Pres. Juan D. Perón to take leave of absence during forthcoming presidential campaign.

W. Averell Harriman was nominated to be mutual security director in charge of new Mutual Security agency.

12 **French command** in Indochina reported that Viêt-Minh guerrillas had suffered one of their worst defeats in trying to capture Nghia Lo, N.W. of Hanoi.

13 **U.S., British, French and Turkish governments** offered to join with Egypt in establishing an Allied middle east defense command.

William M. Boyle, Jr., resigned as chairman of Democratic national committee for reasons of health.

Venezuela's governing junta announced that it had crushed a left-wing attempt to overthrow it the day before.

14 **U.N. command** admitted Communist charges that U.N. planes had strafed Panmunjom, new site for armistice negotiations.

15 **Egypt declined** invitation to enter into an Allied middle east command, and Egyptian parliament voted to abrogate treaties giving Britain rights in the Suez canal zone and joint rule in the Sudan.

Iranian Premier Mohammed Mossadegh argued before U.N. Security council that it did not have any jurisdiction in the Anglo-Iranian oil dispute.

16 **Prime Minister Liaquat Ali Khan** of Pakistan was assassinated while addressing a meeting at Rawalpindi in the West Punjab province.

U.S. house of representatives by vote of 203 to 157 rejected bill to increase taxes agreed upon by senate and house conferees.

British troops occupied Port Said, northern terminus of Suez canal, and Ismailia in the canal zone after anti-British rioting broke out.

17 **Gov. Gen. Khwaja Nazimuddin** was named prime minister of Pakistan and King George VI named Ghulam Mohammed to succeed him as governor general.

State Secy. Dean Acheson announced U.S. support of Great Britain's decision to defend its position in the Suez canal zone.

18 **1951 Nobel prize** for physiology and medicine was awarded to Max Theiler of the U.S. for his researches into the yellow fever virus.

Pres. Truman signed record peacetime armed forces appropriation bill totalling $56,937,808,030.

British military headquarters in Egypt announced that essential public utilities and key communications posts in the Suez canal zone had been taken over as a security precaution.

19 **U.S. house of representatives** by vote of 185 to 160 completed congressional approv-

OCTOBER—*Continued*

al of slightly changed conference bill providing for record peacetime tax increase of $5,691,000,000 annually.

Defense Mobilization Director Charles E. Wilson requested Columbia Broadcasting system to suspend mass production of colour television receivers in interest of national defense.

U.N. Security council voted to adjourn debate on Anglo-Iranian dispute over oil nationalization pending decision on the matter by International Court of Justice.

20 **First session of 82nd congress** adjourned *sine die* after completing action on several bills, including $7,328,903,976 compromise appropriation for foreign aid.

Pres. Truman nominated Gen. Mark W. Clark, chief of army ground forces, to be the first U.S. ambassador to the Vatican.

Advance units of 43rd national guard division landed at Bremerhaven, Ger., to join the European defense force.

21 **Egyptian note** to Great Britain protesting that British troops in Suez canal zone were acting as if they were patrolling a conquered country was made public.

22 **U.N. and Communist liaison officers** signed agreement providing for full-scale resumption of truce talks and delimitation and joint patrol of truce area at Panmunjom.

Philip C. Jessup received recess appointment as member of U.S. delegation to U.N. general assembly after senate failed to take action on nomination.

White House announced that a third atomic explosion had occurred within the U.S.S.R.

23 **Internal revenue bureau** disclosed that it would seek authority to recruit 4,000 new agents to enforce new taxes on gambling provided for by Revenue Act of 1951.

24 **Pres. Truman** issued proclamation formally ending state of war with Germany pursuant to congressional resolution to that effect.

25 **Principal U.N. and Communist representatives** resumed truce negotiations at Panmunjom.

Conservative party defeated Labour party in British parliamentary elections, winning a 17-member majority over all other parties.

26 **Winston Churchill,** leader of Conservative party, was designated British prime minister by King George VI.

Pres. Truman signed bill making the mutual defense director responsible for limiting U.S. aid to nations trading with Communist nations.

27 **Gen. Nicholas Plastiras** formed a new Greek cabinet composed of members of Liberal party and his own National Progressive party.

28 **Clement Davies,** leader of British Liberal party, declined post in new Conservative cabinet but his party promised support for at least part of the Conservative program.

U.S. National Security Training commission presented master plan for 6 months' compulsory military training for all able-bodied youths attaining age of 18.

29 **U.S. defense dept.** revealed that since the outbreak of war in Korea it had purchased or contracted for $62,900,000,000 in arms and supplies.

Indonesian Premier Sukiman Wirjosandjojo announced that 15,000 persons had been arrested in preceding 2½ months for participating in a plot against lives of Indonesian officials.

30 **Another British infantry division** was ordered dispatched to the middle east.

Bill increasing retirement and survivors benefits under Railroad Retirement act was signed by Pres. Truman.

Large atomic bomb was exploded at atomic proving grounds near Las Vegas, Nev.

31 **Princess Elizabeth** and the Duke of Edinburgh arrived at Washington, D.C., from Canada for a visit with Pres. Truman.

Executive board of the C.I.O. voted to support a contract outlawing and providing for arbitration of jurisdictional conflicts among C.I.O. affiliates.

Frank E. McKinney of Indiana was elected chairman of the Democratic national committee.

National Council of Churches of Christ in the U.S.A. urged Pres. Truman to withdraw or congress to reject nomination of U.S. ambassador to the Vatican.

NOVEMBER

1 **U.N. and Communist negotiators** reached tentative agreement on a truce line in eastern Korea.

Increases in personal income and many federal excise taxes went into effect under Revenue Act of 1951.

2 **Western Union Telegraph Co.** announced that its offices throughout the U.S. had discontinued accepting messages and money orders relating to wagers.

3 **Soviet government** demanded an explanation of Turkey's decision to join the North Atlantic Treaty Organization.

4 **Communist truce negotiators** rejected U.N. proposal that city of Kaesong be neutralized in drawing cease-fire line.

5 **Léon Jouhaux,** veteran anti-Communist French labour leader, was awarded the Nobel peace prize for 1951.

Gen. Dwight D. Eisenhower conferred in Washington, D.C., with Pres. Truman and leading U.S. defense officials on North Atlantic and Allied military problems.

U.S. supreme court ruled in case of 12 California Communist leaders that imposition of unusually high bail without a hearing was arbitrary.

Lieut. Gen. Lemuel C. Shepherd, Jr., was named to succeed Gen. Clifton B. Cates as commandant of U.S. marine corps, effective Jan. 1, 1952.

Order of Merit was conferred on former British Prime Minister Clement R. Attlee by King George VI.

6 **Luis Padilla Nervo** of Mexico was elected president of 6th U.N. general assembly at opening session in Paris.

U.S. court of claims awarded legal fee of $2,800,000 to 70 lawyers who won from the U.S. government a $32,000,000 land claim for the Ute Indians.

Threatened strike by Brotherhood of Locomotive Firemen and Enginemen against 4 major railroad systems was indefinitely postponed after Pres. Truman named emergency board to investigate the dispute.

7 **Chancellor of the Exchequer Richard A. Butler** announced British government plans to cut imports by about 10% during next 12 months.

Pres. Truman in a radio and television broadcast called upon the U.S.S.R. to accept a new world disarmament program based on continuing inventory of all armed forces and armaments, including atomic weapons.

Pres. Theodor Heuss of the German Federal Republic refused invitation of Wilhelm Pieck, president of German Democratic Republic, to discuss question of unification of Germany.

8 **Office of Price Stabilization** authorized increases in the prices of veal, mutton and lamb and of many manufactured goods.

Justin Miller was named chairman of Salary Stabilization board in succession to Raymond B. Allen.

Anglo-U.S.-French world disarmament program was formally presented to U.N. general assembly by State Secy. Dean Acheson.

9 **25-day strike** in New York city harbour was ended by insurgent members of International Longshoremen's Assn. (A.F. of L.).

Britain, France, Turkey and the U.S. informed Israel and Arab nations of their determination to proceed with formation of a middle east defense organization.

10 **Personal transcontinental dial telephone service** was inaugurated on an experimental basis in Englewood, N.J.

11 **Juan D. Perón** was re-elected president of Argentina for 6-year term in national elections.

12 **British Conservative government** defeated, 320 to 281, Labour party motion against proposal in government's program relating to denationalization of iron and steel industry.

Gyantse, Tibetan trade center 170 mi. north of Indian frontier, was reported to have been entered by Chinese Communist troops.

Left-wing Japanese students attempted to disrupt ceremonies during a visit of Emperor Hirohito to Kyoto university.

13 **Pres. Truman** named Edwin A. Locke, Jr. to be coordinator, with personal rank of ambassador, of U.S. economic and technical aid in the near east.

14 **Agreement** was signed in Belgrade, Yugos., providing for U.S. military aid to Yugoslavia under Mutual Security program.

Col. James M. Hanley, chief of judge advocate section of U.S. 8th army, charged that more than 5,500 U.S. prisoners of war had been murdered by Communist forces in Korea.

NOVEMBER—*Continued*

15 **Eric A. Johnston** resigned as economic stabilization administrator to resume post as president of Motion Picture Assn. of America.

1951 Nobel prizes were awarded in chemistry to Edwin M. McMillan and Glenn T. Seaborg of the U.S., in physics to Sir John D. Cockcroft of England and Ernest T. S. Walton of Ireland and in literature to Pär Lagerkvist of Sweden.

16 **Pres. Truman** requested and received the resignation of Asst. Atty. Gen. Theron Lamar Caudle, chief of justice dept.'s tax division, because certain of his outside activities were considered incompatible with his official duties.

M. P. Koirala became Nepal's first commoner premier in succession to Sir Mohan Shumsher Jung Bahadur Rana, the last of a line of hereditary premiers dating back to 1847.

17 **Exchange of shots** between British troops and Egyptian police at Ismailia in the Suez canal zone resulted in several deaths.

World Federation of Trade Unions announced in Berlin new plans to sabotage North Atlantic defense preparations by means of infiltration into non-Communist unions.

18 **U.S. government** filed with U.N. general assembly a Blue Book to support charges that freedom of expression had been wiped out in Rumania.

19 **Chaim Weizmann** was re-elected president of Israel by vote of the *knesset.*

U.S. air force transport plane lost on flight from Munich, Ger., to Belgrade, Yugos., was forced down in Hungary by soviet fighter plane.

20 **Emperor Hirohito** signed ratification of Japanese peace treaty and mutual security pact with the U.S. previously passed by both houses of the diet.

21 **Gen. Hoyt S. Vandenberg,** U.S. air force chief of staff, declared that the Communists were seriously challenging U.N. air superiority in Korea.

Soviet government in note to U.S. denounced, as a new aggressive act, provision in Mutual Security Act of 1951 for funds for alleged support of anti-Communist underground movements.

22 **U.S., British, French and west German foreign ministers** agreed on full domestic sovereignty for western Germany if it joined proposed European army.

23 **U.N. and Communist negotiators** tentatively agreed upon an armistice line across Korean peninsula.

Pres. Truman directed treasury dept. to cancel as of Jan. 5, 1952, all U.S. tariff concessions to the U.S.S.R. and Poland and placed complete ban on fur imports from those 2 nations.

Raymond B. Allen, president of University of Washington, was named director of U.S. Psychological Strategy board.

24 **U.S. government** charged in note to U.N. that a U.S. navy plane missing over northern Japanese waters had been shot down by soviet fighter planes outside soviet territory.

25 **Premier Mohammed Mossadegh** of Iran received a unanimous vote of confidence from Iranian *majlis* on his policies.

U.N. troops won back a 1,000 ft. hill dominating western front sector near Yonchon which had been retaken by Communist forces in surprise attack.

26 **Pres. Truman** named Roger L. Putnam of Massachusetts to succeed Eric A. Johnston as economic stabilization administrator.

27 **Czechoslovak Pres. Klement Gottwald** announced dismissal of Vice-Premier Rudolf Slánský, former secy. gen. of Czechoslovak Communist party, and his arrest on charges of espionage.

U.N. and Communist truce delegations in plenary session approved a provisional cease-fire line across Korea based on current battle line.

28 **Informal cease fire** was reported by newspaper reporters to be in effect along most of the Korean front.

British government advised consultative assembly of Council of Europe that it would not join any European political federation.

31 U.S. internal revenue bureau employees, including James G. Smyth, collector at San Francisco, Calif., were dismissed or asked to resign.

Senate preparedness subcommittee charged that severe lag in production of arms had resulted from failure of defense production agencies to limit civilian production in favour of military needs.

Military coup overthrew Premier Luang Pibul Songgram of Thailand and then restored him to power a few hours later at the head of a new regime described as anti-Communist.

29 **Left-wing Syrian government** in office 1 day was overthrown in a military coup led by Col. Adib el Shishakly, army chief of staff.

30 **U.N. planes** destroyed 7 out of 12 Communist bombers which had crossed the Yalu river from Manchuria into North Korea.

DECEMBER

1 **German Federal Republic** announced cessation of all trade with eastern Germany because of interference with exports from western Berlin.

Members of Insurance Agents International union (A.F. of L.) employed by Prudential Insurance Co. began first nationwide insurance agents' strike.

2 **Defense Mobilization Director Charles E. Wilson** stated after series of conferences with Pres. Truman at Key West, Fla., that civilian production was not being permitted to interfere with military output.

3 **Kuwait Oil Co.** disclosed provisions of new agreement with the Sheikh of Kuwait for equal division of profits from Kuwait petroleum production.

Argentine government announced loan of 20,000,000 pesos to labour unions to purchase Buenos Aires newspaper *La Prensa.*

Pres. Truman created committee to supervise compliance with provisions against religious and racial employment discrimination in U.S. government contracts and subcontracts.

4 **U.S. government** demanded release of 4 U.S. airmen and U.S. plane forced down by soviet fighters over Hungary while en route from western Germany to Yugoslavia.

National Labor Relations board ruled, 3 to 1, that annual Christmas bonus paid over period of years was subject to collective bargaining.

5 **Yugoslav government** announced conditional release from imprisonment of Roman Catholic Archbishop Aloysius Stepinac.

Charles Oliphant, general counsel of bureau of internal revenue, resigned, stating that charges made in house subcommittee investigation had rendered further service unendurable.

6 **Pakistan and Chile** were elected to 2-year terms on U.N. Security council to replace India and Ecuador.

Atty. Gen. J. Howard McGrath ordered a federal grand jury investigation of income tax shakedown charges made before house investigating subcommittee.

British Prime Minister Winston Churchill reported to house of commons that Britain would be unable to complete its defense program on schedule in 1953.

Yemeni government was said to have protested construction by Britain of military airports and roads in Aden protectorate near the Yemeni border.

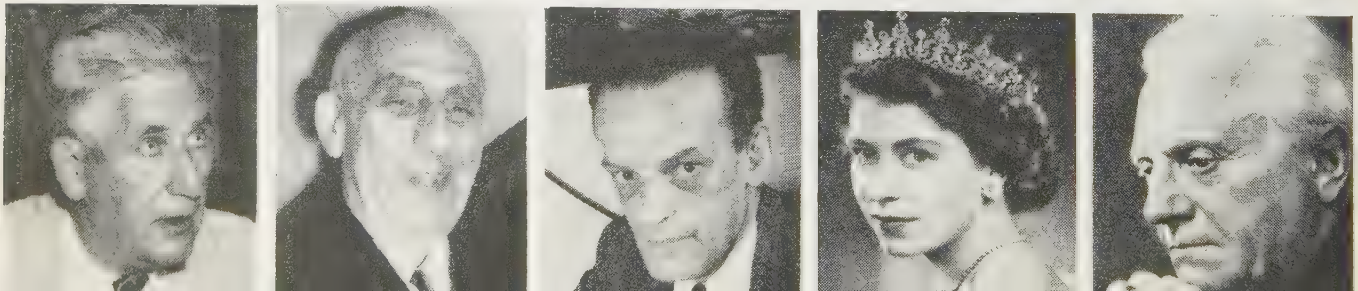
8 **Asst. State Secy.** George C. McGhee was named U.S. ambassador to Turkey.

9 **U.S. government** invoked the Trading with the Enemy act to cut off extorted remittances to Communist China by U.S. Chinese.

People of the states of Baden, Württemberg-Baden and Württ-

The pictures on this page are, left to right:

DOUGLAS	Oct. 9
MOSSADEGH	Oct. 15
THEILER	Oct. 18
ELIZABETH	Oct. 31
LAGERKVIST	Nov. 15



DECEMBER—*Continued*

temberg-Hohenzollern in southwestern Germany voted to merge into one state.

10 **International Court of Justice** announced that Iran had ended its boycott of court by naming an agent to defend it against Britain's complaint over oil nationalization.

King George VI of the United Kingdom reassumed his duties and dissolved the council of state which had acted for him during his illness.

Bureau of internal revenue revealed existence of 907,200 delinquent federal tax cases totalling $632,363,000.

Pres. Truman signed an executive order authorizing Federal Communications commission to prevent radio and television stations from guiding enemy missiles or planes.

11 **European Consultative assembly** endorsed, 60 to 10, the creation of a supranational authority to control proposed European army.

Atty. Gen. J. Howard McGrath defended the administration of his office in testimony before house subcommittee investigating tax scandals.

12 **Chinese Communists** were reported to be infiltrating from Tibet into the Himalayan kingdom of Nepal.

U.N. command admitted that one of its planes had bombed and strafed the neutral area at Kaesong by mistake the day before.

Iranian government issued ultimatum that it would sell petroleum to any potential purchaser if former customers did not place orders on Iranian terms within 10 days.

13 **Egyptian government** announced the recall of its ambassador to the United Kingdom.

U.S. state dept. dismissed John S. Service, a career diplomat, on basis of finding of civil service commission's loyalty review board that there was "reasonable doubt" as to his loyalty to the U.S.

Bogotá charter creating Organization of American States went into effect with deposit of 14th ratification by Colombia.

14 **Economic Stabilization Director Roger N. Putnam** stated that U.S. steel companies would not be allowed a price increase to offset any wage increases they might grant.

Canadian government announced complete abolition of all foreign exchange controls.

San Salvador charter creating Organization of Central American States became effective after ratification by Honduras.

Bolivia's military junta threatened to take to Organization of American States its dispute with the U.S. over price of tin.

15 **2 U.S. and 9 foreign air lines** agreed to initiate transatlantic tourist-class flights at reduced fares on May 1, 1952.

British government announced the reopening on Dec. 17 of British foreign exchange market for the first time since World War II.

16 **56 persons** were killed in crash of nonscheduled air liner near Newark, N.J., airport in second worst U.S. civilian air disaster.

Uruguayan people voted in plebiscite to abolish office of president and create 9-man council to govern the country.

17 **Internal Revenue Commissioner John B. Dunlap** revealed that a large staff of agents and attorneys were investigating internal revenue irregularities in the New York city area.

Plans were announced for the preparation by 1,000 leading world scholars of a 3,000,000-word history of mankind financed in part by U.N.E.S.C.O.

U.S. air force disclosed award of contract to second manufacturer for development work on an atomic aircraft engine.

18 **U.N. and Communist truce delegations** exchanged lists of prisoners of war; Communist list included 3,198 U.S. armed force members, including Maj. Gen. William F. Dean.

National Production authority banned issuance of new automobile license plates in 1953 as a materials conservation measure.

19 **Moscow radio** announced the execution of 2 allegedly U.S.-trained Russian spies said to have been parachuted into southwest Russia from a U.S. plane.

20 **Greece** was elected by U.N. general assembly to seat on Security council by vote of 39 to 16 over Byelorussian S.S.R.

U.N. general assembly voted, 45 to 6, to create 5-nation commission to determine feasibility of holding unification elections under democratic conditions in eastern and western Germany.

21 **10 countries,** including the U.S., Britain and France, renounced peace treaty restrictions on the size and composition of Italy's armed forces.

U.N. general assembly approved, 40 to 5, U.N. 1952 budget of $48,096,789, of which the share of the U.S. was 36.9% and that of the U.S.S.R., 11.49%.

119 men were killed in blast in a coal mine located near West Frankfort, Ill.

U.S. bureau of labour statistics reported that cost-of-living index had risen in Nov. 1951 to record 188.6% of the 1935–39 average.

22 **U.N. command** charged in note to Communists that wide discrepancies had been discovered in Communist prisoner-of-war list turned over to the U.N.

23 **Hungarian government** announced that 4 U.S. airmen forced down in Hungary had been convicted by a military court of violating the Hungarian border.

24 **Independence of new kingdom of Libya** in northern Africa was proclaimed at Bengasi by King Idris I.

King Farouk I of Egypt appointed Hafez Afifi Pasha, prowestern financier, as chief of the royal cabinet.

25 **Iraqi government** nationalized 2 local subsidiaries of the Anglo-Iranian Oil Co.

Senate preparedness subcommittee accused U.S. army of inexcusable waste in the use of manpower.

26 **Appointment** was disclosed of George F. Kennan as U.S. ambassador to the U.S.S.R.

U.S. government announced it would pay $120,000 in fines levied against 4 U.S. fliers forced down in Hungary.

Czechoslovak mission in Tehran revealed that Czechoslovakia would purchase 500,000 tons of refined petroleum from Iran and additional amounts of crude petroleum for refining in Czechoslovak plants.

Communist truce delegation reported that more than 700 U.S. prisoners of war had died, escaped or had been released.

27 **Threatened strike** against steel industry at midnight of Dec. 31, 1951, was called off temporarily by United Steelworkers of America (C.I.O.).

U.N. and Communist armistice delegations failed to reach any agreement, thereby nullifying agreement on cease-fire line made a month before.

28 **4 U.S. airmen** were released by Hungarian authorities after payment of fines by U.S. government.

Yugoslav government announced devaluation of its currency from 50 dinars to the U.S. dollar to 300 to the dollar, effective Jan. 1, 1952.

29 **Production** for first time of useful electric power from atomic energy was revealed by U.S. Atomic Energy commission officials.

30 **Foreign ministers** of Belgium, France, German Federal Republic, Italy, Luxembourg and the Netherlands agreed to propose creation by their countries of a single federal parliament.

31 **United Kingdom** paid $138,527,725.57 to the U.S. as the first instalment on 1946 loan and World War II debt.

The pictures on this page are, left to right:

CAUDLE	Nov. 16
GOTTWALD	Nov. 27
GEORGE VI	Dec. 10
FAROUK I	Dec. 24
KENNAN	Dec. 26

BOOK OF THE YEAR

Abyssinia: *see* Ethiopia.

Academy of Arts and Letters, American: *see* Societies and Associations, U.S.

Academy of Political and Social Science, American: *see* Societies and Associations, U.S.

Accident Insurance: *see* Insurance.

Accident Prevention. Accidents caused 90,000 deaths in the United States in 1950. This total was exceeded only by deaths from heart disease, cancer and cerebral haemorrhage. Information available through Oct. 1951 indicated that the 1951 accidental death total would be somewhat higher than in 1950. Injuries also probably numbered more than the 1950 total of 9,000,000.

In Dec. 1951 the 1,000,000th traffic accident fatality occurred, the first fatal motor vehicle accident on record having occurred in Sept. 1899.

Organized efforts to reduce accidents in the United States are spearheaded by the National Safety council and affiliated local safety councils throughout the nation. Safety work is constantly carried on by industries and by a large number of organizations, both governmental and private.

Serving as a place for group planning and execution by all who take part in the safety movement, the National Safety council attempts to discover the facts of accident occurrence; devises or helps to devise engineering, educational and enforcement measures for prevention; assists in determining engineering requirements for the safe design, construction and use of machines and equipment; helps to formulate model safety legislation; participates in planning and executing training and educational programs; disseminates this information widely to interested groups and to the general public; and encourages and assists the establishment and functioning of community and state safety organizations.

Industrial Safety.—Building on about 40 years of experience in preventing work accidents, the country's progressive industries continued to pursue thoroughgoing safety measures in 1951, recognizing accident prevention as an important element in efficient operation.

Trade associations and other employer groups emphasized accident-prevention programs in their meetings and publications. Labour organizations recognized accident-prevention efforts as an important element in serving their members. Governmental agencies, such as state and national labour departments, also carried on safety programs as important parts of their operations.

Several hundred members of the committees and subcommittees of the president's conference on industrial safety met in Washington, D.C., in May 1951 to report on progress made on programs agreed upon the previous year.

During 1951 several teams of European industrialists visited the United States to study industrial safety methods and progress. They visited representative industrial establishments, several state labour departments, the U.S. department of labour and the National Safety council.

It appeared, late in 1951, that the year's toll of occupational accident fatalities probably was a little greater than the 1950 toll of 15,500.

Traffic Safety.—As 1951 drew to a close, it appeared that the number of traffic accident deaths would be close to 37,500—the largest annual total since 1941. This increase in deaths was apparently matched by the increase in miles travelled by motor

PLAY YARD designed by a traffic engineer at New Rochelle, N.Y., to teach five- to nine-year-old youngsters the art of survival in an automotive world. Objective: to drive the pedal-powered cars without getting a traffic ticket and being summoned for a hearing in the junior traffic court

vehicles.

A meeting of the president's highway safety conference was held in Washington, D.C., in June. Leading points considered by the delegates were adequate accident records and tighter requirements in the issuance of drivers' licences.

In the 1950 National Traffic Safety contest, which took account of good traffic safety records as well as sound programs in all phases of traffic safety, Pennsylvania received the grand award among states and Wichita, Kan., the grand award among cities.

Kansas also received top place among states in the 1950 Pedestrian Protection contest; Wichita was the winner in cities of more than 100,000 population, and Allentown, Pa.; Waterbury, Conn.; and Fall River, Mass., were given awards among cities of less than 100,000 population.

Awards for outstanding performance in traffic law enforcement in 1950 were granted, among the states, to Rhode Island, Maryland, Massachusetts and New Jersey. City winners, in various population groups, were Los Angeles, Calif.; Washington, D.C.; Minneapolis, Minn.; Oakland, Calif.; Dallas, Tex.; Seattle, Wash.; Dayton, O.; Pasadena, Calif.; San Jose, Calif.; Kalamazoo, Mich.; Columbia, S.C.; Oak Ridge, Tenn.; Dubuque, Ia.; Richland, Wash.; Walla Walla, Wash.; and Ventura, Calif.

Awards for outstanding traffic engineering were given to Connecticut, Virginia, Washington and California among states and Detroit, Mich.; Los Angeles, Calif.; Washington, D.C.; Milwaukee, Wis.; Denver, Colo.; Rochester, N.Y.; Sacramento, Calif.; Fresno, Calif.; Lafayette, Ind.; and Peru, Ind., among cities.

Farm Safety.—Recognition of the seriousness of the farm accident problem is indicated by the fact that in 1951, 26 states had state farm safety committees and 12 states had a full-time farm safety specialist, working through many public and private agencies to spread information on the seriousness of the farm accident problem and ways and means of meeting it.

The president of the United States, for the eighth successive year, proclaimed a National Farm Safety week, in July 1951, which brought about unprecedented attention to the problem of rural accidents. More than 1,100,000 pieces of educational material were distributed, and radio, newspaper and magazine support was outstanding.

School and Child Safety.—Among children 1 to 14 years of age accidents are responsible for almost as many deaths as the next five death causes combined. Even so, the accidental death rate among all children under 15 had dropped nearly 50% in the last 45 years.

School authorities showed increasing recognition during 1951 of the importance of safety education—in the classroom, in shops and in other parts of the school program.

A specialized feature of school safety work had been the driver training programs instituted in many high schools throughout the nation. Studies showed that students who had had this training were involved in fewer accidents than those who had not.

Home Safety.—The 1950 toll of deaths in home accidents was 27,500. Ten months' reports indicate that home fatalities in 1951 numbered about the same as in 1950.

Activity in home safety during 1951 consisted in large part of improved and expanded safety education of people generally, both through the general mediums of public information and specific instructional material. In the latter field, a special kit of home safety materials was produced and made available for use in many communities.

Local and state health departments gave increased attention to accident prevention work, concentrating on home safety. Women's clubs and other organizations and agencies attracting the support and interest of homemakers showed an increasing tendency to include safety in the home as a regular program activity.

Community and State Safety Organizations.—Community and state safety organizations serve in their respective areas to provide leadership in a co-operative effort among all groups and individuals working together for the conduct of safety activities. Control of accidents in any community involves the joint efforts of traffic enforcement and engineering authorities, public information mediums of various kinds, industry, labour, service groups and many others. It is the function of the local safety council to harmonize and co-ordinate these and other safety activities.

During 1951 about 85 of the several hundred local and state safety organizations throughout the country qualified for acceptance as chapters of the National Safety council, this relationship signifying that these organizations fully represented the National Safety council in the communities in which they operated, although at the same time retaining their autonomy.

Safety Meetings.—The 39th National Safety congress was held in Chicago, Ill., in Oct. 1951, with an attendance of approximately 12,000. In addition, about 30 regional safety conferences were held during the year. These meetings brought about an exchange of information, plans and programs among leaders in all fields of safety. (R. L. Fo.)

Canada.—Statistics for 1951 indicated that only 35% of the autos on Canadian highways were safely roadworthy, that $52,000,000 was paid out by insurance companies for accident claims occurring in 1950 and that $61,000,000 was the estimated total for 1951 for such claims. In consequence, auto insurance rates for drivers under 25 years of age went up for 1952 coverage.

There were 299 industrial fatalities in Canada during the first quarter of 1951, compared with 273 for the same 1950 period. The 700 federal-government-sponsored labour-management production committees intensified their accident-prevention programs. Federal authorities arranged a conference of provincial workmen's compensation boards to study ways of providing national and provincial tabulations of industrial accidents on a comparable basis (extent, causes, severity), in order to aid accident-prevention work. (C. Cy.)

Great Britain.—*Road Safety.*—The British government's National Road Safety campaign was continued in co-operation with the Royal Society for the Prevention of Accidents. The year's theme, linked to the Festival of Britain, was "Courtesy." Television and radio items included hints to overseas visitors.

One thousand local road safety committees held an average of 450 meetings a month and co-operated in a national safety week. Monthly statistics were published in the press. In June 1951 road casualties since World War II reached the total of 1,000,000. *Fatal Road Accidents to Children—1950* showed that 1950 had the lowest child fatality total for 25 years. The improved trend continued during 1951.

The Pedestrian Crossings (General) regulations, 1951, came into operation on Oct. 31. Their main provision was for precedence to pedestrians at authorized uncontrolled crossings only, in the vicinity of which waiting or parking of vehicles was restricted. All authorized crossings were painted in zebra (black-and-white) lines.

More than 270,000 drivers were entered in the National Safe Driving competition. Two drivers received the society's award for 32 consecutive years of safe driving. The house of lords debated "The problem of road accidents with special reference to road improvements and maintenance."

Home Safety.—The home office electrical branch reported on 42 fatal home electrical accidents during 1950. Press publicity was given to the danger of leaving children unattended at home.

Recommendations for an adequate fire guard were issued by the Women's Advisory Council on Solid Fuel. A report appeared of an inquiry by the chief scientific advisory division, ministry of works, into domestic accidents relating to building design. The research group of Old People's Welfare was investigating safe furniture designs. An exhibition on home fire prevention was staged jointly by the London County council and the home office. The Ideal Home exhibition included a stand on home safety.

Industrial Safety.—The annual report of the chief inspector of factories for 1949 was published. It stated that reportable accidents fell by nearly 10,000. Accidents to young persons continued to decrease; in 1949 they numbered 9,000 as compared with 24,000 in 1944.

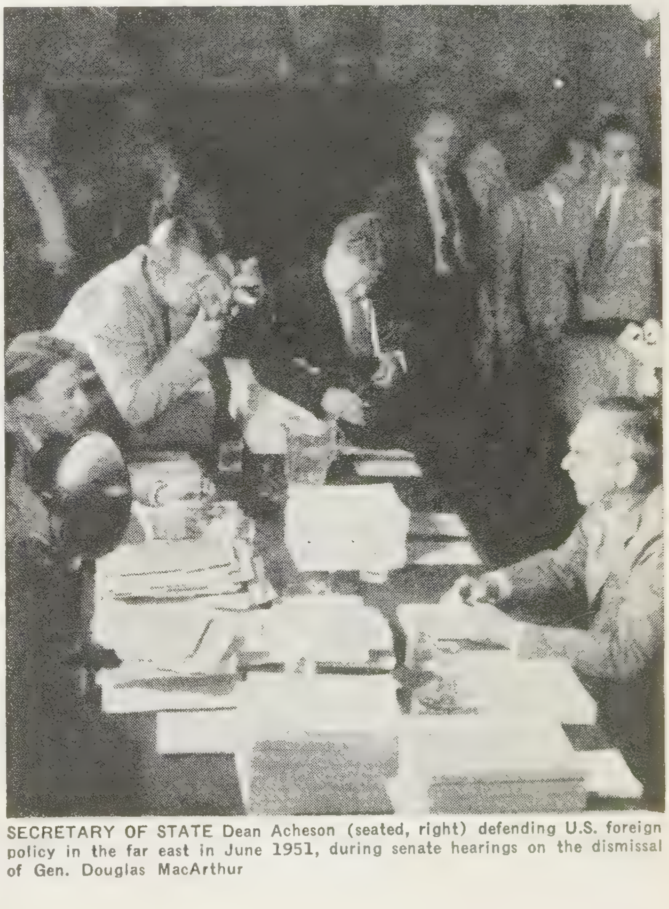
The latest report of the chief inspector of mines (1949) showed reductions in fatal and nonfatal accidents. The chief inspector of factories set up committees to consider safety problems in the use of hydraulic presses and press brakes.

Revised preliminary draft regulations as to safety, health and welfare concerning engineering were published. A memorandum by the senior electrical inspector of factories on the electricity regulations was published for the first time since 1934. (*See* also DEATH STATISTICS; DISASTERS; INDUSTRIAL HEALTH.)

FILMS OF 1951.—*And Then There Were Four* (Socony-Vacuum Oil Co., General Petroleum Corp., Magnolia Petroleum Co. or Modern Talking Picture Service, Inc.); *Case of Tommy Tucker* (Modern Talking Picture Service, Inc.); *Fire! Patty Learns What to Do* (Frith Films); *Live and Learn* (Sid Davis Productions); *Mary Learns Her Traffic Lesson* (Cornell Film Co.); *Safety in the Home* (Encyclopædia Britannica Films Inc.); *Safety on the School Bus* (Young America Films, Inc.). (H. I. S.)

Acheson, Dean Gooderham

(1893–), U.S. secretary of state, was born on April 11 in Middletown, Conn., attended the Groton school and was graduated from Yale in 1915 and from the Harvard law school in 1918. He served in the navy in World War I and was



SECRETARY OF STATE Dean Acheson (seated, right) defending U.S. foreign policy in the far east in June 1951, during senate hearings on the dismissal of Gen. Douglas MacArthur for two years private secretary to Louis Brandeis, associate justice of the U.S. supreme court. He practised law, served for six months as undersecretary of the treasury in 1933, and entered the state department in 1941, first as assistant secretary of state and later (Aug. 1945 to June 1947) as undersecretary. He was sworn in as secretary Jan. 21, 1949.

Acheson was a chief author of the Truman foreign policy, and strongly supported measures for international co-operation, such as the North Atlantic alliance and the United Nations military operations in Korea. Yet because he had been high in government counsels during the wartime and postwar periods when the Soviet Union and international communism gained greatly, he was the continual target of criticism from foreign policy critics within both political parties. Especially after the entry of red China into the Korean war, demands for his resignation grew apace, and Pres. Harry S. Truman repeatedly issued denials that Acheson would leave his post. The storm about him grew hottest after the ouster of Gen. Douglas MacArthur as commander of the U.N. forces in Korea, a move that precipitated a "great debate" over U.S. foreign policy. In hearings before a joint session of the U.S. senate armed services and foreign relations committees, Acheson recapitulated U.S. policy in the far east back to the time of the Yalta conference in 1945. He explained the MacArthur ouster on the grounds that he feared the general's implied threat to bomb and blockade red China would not be supported by other members of the U.N. and that he did not wish to lose them as allies.

ACTH: *see* Allergy; Arthritis; Chemotherapy; Cortisone and ACTH; Endocrinology; Heart and Heart Diseases; Intoxication, Alcoholic; Medicine.

Aden.

British colony and protectorates and a free port on the southern coast of Arabia (*q.v.*).

Colony.—Area: 80 sq.mi. (including Perim Island [5 sq.mi.], the strait of Bab el Mandeb and Kuria Muria Islands). Pop.: (1946 census) 80,876; (1950 est.) 82,000.

Protectorates.—Western and eastern, the latter including the Hadhramaut and Socotra Island. Area: 112,000 sq.mi. Pop. (1950 est.): 650,000. Premier chieftain (western): Fadl Abdul Karim, sultan of Lahej; premier chieftain (eastern): Sir Salih bin Ghalib al Qu'aiti, sultan of Shihr and Mukalla. Governors (1951): Sir Reginald Stuart Champion and (from Aug. 3) Tom Hickinbothom.

History.—A conference held in London in Sept. 1950 with representatives of Yemen bore fruit early in 1951 in an agreement to establish diplomatic relations and the appointment of a joint commission to demarcate frontiers. Relations between Aden and Yemen improved greatly in 1951. Nationalist disorders within the protectorate, in which the sultan of Mukalla and the British agent for the western protectorate had been attacked and several rioters killed and wounded in Dec. 1950, did not recur and the year was one of peaceful progress. Excellent progress continued to be made on the Abyan irrigation scheme, under which it was hoped to irrigate about 100,000 ac. of good land, mostly for cotton growing.

Education.—Colony, 4,000 primary scholars; protectorate, 6,500.

Finance and Trade.—Currency: Indian rupee (R. 1=21 cents U.S.); (from Oct. 1951) East African shilling (14 cents U.S.). Budget (1951 est.): revenue Rs. 14,700,000; expenditure (including development) Rs. 20,000,000. Foreign trade: imports (1950) Rs. 42,000,000; exports Rs. 19,000,000. Principal exports of local origin: salt (255,865 tons in 1950) and fish (120,000 tons in 1949). In 1950 the port was used by 4,283 ships (tonnage 17,984,884). (K. G. B.)

See Lord Belhaven, *The Eagle and the Sun* (London, 1951).

Adjusted Compensation: *see* Veterans Administration (U.S.).

Adult Education: *see* Education; Libraries; Motion Pictures.

Advertising.

The volume of advertising bought in the United States in 1951 was estimated by Robert Coen, McCann-Erickson, Inc., to be approximately $6,500,000,000, an increase of 15% over the amount for 1950. Especial vigour was shown by television, magazines and direct mail as advertising media. Advertising costs continued to rise, but not with the speed of other costs. While the bureau of labour statistics wholesale price index had risen 65% since the end of World War II, it was estimated that the cost of advertising had risen only 23%. This estimate was based upon the use of certain units of newspaper, magazine and radio advertising.

The department of commerce released its summary of data on service trades compiled by the census of business in 1948. There were 3,279 advertising agencies reported that had receipts of $394,872,000, pay roll of $194,342,000 and 38,739 employees.

Television.—Television continued to show phenomenal growth, sets in use by the public on Jan. 1, 1952, being estimated at 14,500,000, compared with 10,000,000 at the beginning of 1951; 3,950,000 in 1950; 1,000,000 in 1949; 189,000 in 1948; and 16,476 in 1947. From a few television stations on the air five years earlier, the number rose to 108, covering 63 major market areas with 60 hours a week of regularly scheduled network programs. It was estimated that 29% of U.S. families had television sets by Oct. 1951.

It was estimated by the Publishers Information bureau that television time charges on the four major networks were $113,834,346 for the first 11 months of 1951. The Columbia Broadcasting system estimated that all television time, talent and other attendant costs amounted to about $355,000,000 in the year.

The growing television market brought higher time and talent costs. In general, stations, and as a result networks, had been revising their time rates approximately every six months, and new cards were expected from the networks by the first of 1952. Basic hourly rates were increased as of Dec. 1, 1951, or Jan. 1, 1952, for stations in the following cities, as examples of the amounts of increase: Birmingham, Ala., from $300 to $400; Chicago, Ill., from $1,600 to $2,000; Detroit, Mich., from $1,000 to $1,500; Jacksonville, Fla., from $300 to $400; Los Angeles, Calif., from $1,500 to $2,000. A station in New York city was expected to boost its basic hourly nighttime price from $4,000 to between $4,500 and $4,700.

Talent-production costs of the average half-hour dramatic telecast in 1951 were up $2,500 to $4,000 above the figure for the same program in 1950, according to an estimate by *Variety*. An hourly television show with top rating paid time charges of $36,375 weekly, or more than $1,000,000 for the 39 weeks, with a talent-production cost of less than $40,000 for each telecast.

A study by the National Broadcasting company showed that the most efficient commercials on television were those that were well liked. Sales messages irritating to the viewer brought only half as many customers to the product for the television dollar as those that were well liked, and the average commercial was liked by 65.1% of viewers, the survey showed.

The National Association of Radio and Television Broadcasters announced that a code of practices for television would become effective March 1, 1952, and that a national review board would be established to investigate complaints against television stations. Nearly half the code was devoted to advertising. It stated that messages were to be presented with courtesy and good taste, that liquor advertising should be rejected and wine and beer accepted only in compliance with local law. Contests and premiums offers should be carefully supervised. (*See* also Television.)

BERLINERS rigged out in "space suits" and helmets to advertise the U.S. motion picture *Destination Moon.* They are shown, in midsummer 1951, pausing at an outdoor café for a stein of beer

Radio.—Radio continued to grow during 1951, the number of radio homes at the beginning of 1952 standing at 42,700,000, a gain of 800,000 during the year. However, radio did not grow so rapidly as television, the number of television homes increasing from 25% of radio homes to 35% during the period.

The increase in the number of radio homes tended to offset the decline in usage of radio sets. However, in 1951 the total home hours of radio usage were approximately 14% below the 1949 level, according to data supplied by A. C. Nielsen company.

In order to meet the competition of television, radio reduced its rates and resorted to other expedients. The Columbia Broadcasting system cut its nighttime network rates approximately 10% in the spring, and the other networks followed with similar reductions.

Advertisers were also given more latitude in buying time on network stations. The National Broadcasting company revised its line-up of stations so that an advertiser was permitted to choose stations based upon the number of homes they reached, rather than upon the old basis of minimum groups designed by the network. The National Broadcasting company also guaranteed that an average of not less than 5,300,000 full one-minute advertising messages would be heard each week on three designated programs at a cost of $2.75 per 1,000. The Columbia Broadcasting system offered to sell advertisers a piece of a particular show, which could be used for special merchandising activities or a special promotion. The advertiser could buy the show in whatever markets he chose and in the weeks he selected.

It was realized that radio still reached more homes that had only radio than those that had both radio and television in the 63 markets where television had extended by July 1, 1951. On that date there were about 13,100,000 radio homes in the area that were not equipped with television sets. And radio still reached areas that did not have television. Moreover, a number of important advertisers returned to radio after an experience in television, and there was considerable interest by advertisers in morning radio programs, and less in afternoon or evening hours. It was also realized that the purchase of a television set did not mean that radios were thrown out, as more families were buying extra radio sets. Moreover, the potential radio audience is greater than that indicated by the number of radio homes. It was estimated that while there were 42,700,000 homes with radios at the end of 1951, there was a total of 105,700,000 sets in use. This included extra sets in homes, and those in automobiles, hotels, bars, stores and in institutions, and portable sets.

The Columbia Broadcasting system estimated that advertising expenditures on the four major networks were $145,745,097 for the first ten months of 1951, a 4.1% drop from the same period in 1950. (*See* also RADIO.)

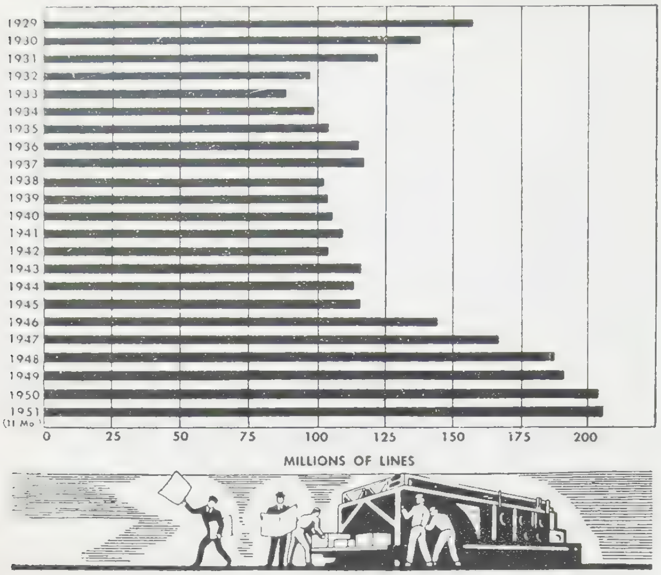
Newspapers.—An estimate by Media Records based upon newspaper advertising in 52 cities showed that total advertising linage was 1.9% higher during the first 11 months of 1951 than for the same period of 1950. The dollar volume of all newspaper advertising in 1950 was more than $2,000,000,000. National advertising linage was down 5.7%, declines being noted in both the general and automotive classifications. Local (retail) advertising showed no change from its 1950 volume. Classified advertising linage increased 14.3%, however, saving the total newspaper advertising figure from a loss. Declines in national newspaper advertising were found in most classifications, laundry soaps and cleansers and alcoholic beverages being the most important classifications revealing gains. Advertising of new passenger cars and of groceries was off. These were the two largest classifications in volume. It was estimated the dollar volume of national newspaper advertising would be close to 1950's figure of $499,000,000, the drop in linage being offset by increases in rates.

The circulation of newspapers continued to increase. A study of newspaper members of the Audit Bureau of Circulations showed that in the six months ended March 31, 1951, circulation of both morning and evening papers was 1.58% higher than for the same period of 1949–50, evening papers having gained 2.15% and morning papers 0.96%. The circulation of Sunday papers was down 0.79%.

In order to determine the effect of television on newspaper circulation, the advertising agency of Geyer, Newell & Ganger studied circulations on Sept. 30, 1950, of 168 newspapers in 62 cities that had television reception. It found that in spite of rapid growth in television, the circulation of these newspapers had risen 2.1% in a two-year period. The 72 morning papers showed a gain of 1.2% and the 96 evening papers an increase of 3.1%.

Magazines.—The volume of advertising in magazines was estimated by the Magazine Advertising bureau to be $508,000,000 for 1951, an increase of approximately 11% over 1950. Actual data for 11 months showed volume at $468,963,000, compared with $422,406,000 for the same period of 1950. These figures cover all general and national farm magazines included in the Publishers Information Bureau service. Sunday newspaper supplements and sections are not included. The 11-months total for magazine advertising was the highest on record.

The circulation of magazines was also at an all-time peak. The average circulation of all magazines that were members of the Audit Bureau of Circulations (excluding comics) was 150,-



NEWSPAPER ADVERTISING (total linage in 52 cities of the United States): average per month. Compiled by Media Records, Inc.

638,004 copies an issue during the first six months of 1951, an increase of 2.7% over the 147,300,000 for 1950. This represented a circulation per 100 persons of 98.5. The average single-copy (newsstand) sales an issue were 62,900,000 for the first six months of 1951, compared with 63,600,000 for the like period in 1950.

Magazine advertising costs on a page-per-thousand basis increased approximately 3% for the first six months of 1951 over the preceding year, for both black-and-white and four-colour advertising. During 1951 many magazines announced rate increases, to take effect both in 1951 and in 1952. On the basis of these increases it appeared that magazine advertising costs in 1952 would be approximately 6% higher than those for the first six months of 1951. This would bring them to a level about 12% higher than prior to World War II.

Magazines in Canada also prospered. The Magazine Advertising Bureau of Canada revealed that the average net paid circulation of 13 national magazines during the first six months of 1951 was 132,088 more than for the same period of 1950, and that advertising expenditures in these magazines during the first four months of the year were 22% higher than for the same period in 1950.

Maintaining that it sought to combat a certain degree of natural resistance engendered by a general rate increase and to offset seasonal variations in space sales, *Good Housekeeping* reduced rates for the months of January, February, July and August by 7.5%. Its move was based upon studies of advertising in seven magazines whose advertising revenue in 1950 represented 51% of that of all general magazines. These studies showed decided slumps in advertising income during the four months mentioned. (*See* also NEWSPAPERS AND MAGAZINES.)

Other Media.—The dollar volume of direct mail advertising during the first ten months of 1951 was $878,754,746, according to an estimate by the Direct Mail Advertising association. This represented a gain of 14.5% over the same period of 1950.

An estimate by Outdoor Advertising, Inc., put the national volume of outdoor advertising in 1951 at $90,000,000, a gain of 4.5% over 1950. It estimated that the total volume of outdoor advertising was approximately $120,000,000. There was still a shortage of outdoor advertising space, it being difficult to secure stainless steel for outdoor panels because of war demands. Automotive advertising held up especially well during 1951, but most of the increase during the year resulted from new advertisers using outdoor posters.

Advertising in Other Countries.—An International Advertising conference was held in London, Eng., July 7–13. It was the first international meeting of advertising practitioners since the Wembley conference of 1924. Approximately one-third of the 2,824 delegates were drawn from 38 countries other than Great Britain. The theme of the conference was "The Tasks of Advertising in a Free World." Specific subjects discussed included what advertising could do to help international trade, whether governments should advertise, and how advertising could better help the consumer.

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(R. A. BN.)

Aeronautics: *see* AVIATION, CIVIL; AVIATION, MILITARY.

Afghanistan.

An independent kingdom in the centre of Asia, Afghanistan is bounded north by the U.S.S.R., west by Iran, south and southeast by Pakistan and east by China (Sinkiang). Area: *c.* 270,000 sq.mi. Pop. (1950 est.): 12,000,000. Races: Afghans or Pathans or Pashtuns 53%, Tajiks 36%, others 11%. Language: Pashtu or Pakhtu, some Persian. Religion: Moslem. Chief towns (pop. 1950 est.): Kabul (cap., 206,000); Herat (85,000); Kandahar (77,000); Mazar-i-Sharif (55,000). King: Mohammed Zahir Shah; prime minister (from May 1946): Shah Mahmud Khan, the king's uncle.

History.—As in the previous year, relations between Afghanistan and Pakistan were not happy in 1951, because of charges and countercharges regarding border incidents and, on the Pakistan side, particularly because of the alleged encouragement by Afghanistan of the so-called "Pashtunistan" movement.

Under the Point Four program, an agreement with the United States was signed in Kabul in February to assist the Afghan government in the economic development of the country. With India, the Afghan government maintained, through the year, a cordial relationship of which an indication was given by the visit of the Afghan prime minister, Shah Mahmud Khan, to New Delhi in January, when he was entertained by the government of India and a tribute to Indo-Afghan relations was paid by Chakravarti Rajagopalachari, who was then home minister.

The assassination of Liaquat Ali Khan, prime minister of Pakistan, called forth from Kabul a sympathetic message and a tribute to his ability. The Pakistan government on its side was careful to stress the point that, although the assassin was stated to be of Afghan origin, there was no sinister significance in that fact, especially as he had been an exile in Pakistan for some time.

On Sept. 5 the Afghan prime minister, who was paying yet another visit to Delhi, was invited to address members of the Indian parliament, and he reaffirmed his hope that the close and sincere relations already existing between Afghanistan and India would remain for the benefit of world peace. At a press conference Shah Mahmud Khan stressed the friendliness of Afghan policy toward Pakistan, and maintained that in supporting the "Pashtunistan" movement Afghanistan was not animated by hostility to Pakistan. (E. HD.)

Education.—Schools (1948): primary 400, secondary 25, higher 7, teachers' training colleges 2. University at Kabul with four faculties.

Finance and Banking.—Note circulation (March 20, 1950) 845,000,000 afghanis. Monetary unit: afghani, which under exchange rates existing in Nov. 1951 was worth 5.9 cents U.S.

Foreign Trade.—Principal imports: textiles, sugar, china, motor fuel (1949: 4,500,000 gal.), cement (1949: 18,100 metric tons), machinery, tea, coffee and cocoa. Principal exports: karakul skins (1950: $26,000,000), carpets, cotton, raw wool, spices and fruit.

Communications.—Roads (1949) 2,265 mi. Licensed motor vehicles (Dec. 1950): cars 975; commercial 3,735. Telephone subscribers (Jan. 1949): 3,899. Radio receiving sets (1949): 4,800.

Agriculture.—Main food crops: wheat, barley, rice, millet, maize and fruit. Production (metric tons): cotton (1949) 4,000; sugar beets (1950) 33,000; wool (1950) 8,000. Livestock (Jan. 1948): cattle 3,000,000; sheep 14,000,000; goats 6,000,000; camels 350,000; horses 500,000; asses 1,000,000; poultry 40,030,000.

Industry.—Fuel and power: coal (1950) 7,100 metric tons. Raw materials (1949, metric tons) chrome ore 907; salt 10,373; skins and hides (number) 7,250,000.

A. F. of L.: *see* LABOUR UNIONS.

Africa: *see* BRITISH EAST AFRICA; BRITISH SOUTH AFRICAN PROTECTORATES; BRITISH WEST AFRICA; ERITREA; FRENCH UNION; LIBYA; PORTUGUESE COLONIAL EMPIRE; SOMALILAND, FRENCH; SOMALILAND, ITALIAN; SOUTH AFRICA, THE UNION OF; SPANISH COLONIAL EMPIRE; TRUST TERRITORIES; etc.

Agricultural and Industrial Chemistry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Agricultural Research Administration.

The Agricultural Research administration, established in 1942, supervises and directs most of the scientific research in the U.S. department of agriculture. The research administrator also administers the Research and Marketing act, which provides for an expanded program of agricultural research and services in which the U.S. department of agriculture, state experiment stations, extension services and departments of agriculture and other public and private agencies co-operate.

Details of a new cotton-opening machine, developed by the bureau of agricultural and industrial chemistry, for fluffing up cotton from the bale in preparation for cleaning and carding, were released to the textile industry. Within nine months, six licences had been granted to machinery manufacturers and textile mills for use of the government-owned patent, and four of the openers were already in operation in cotton mills.

A new vat-fermentation process for the production of vitamin B_{12} concentrate for use in animal feeds was developed by the bureau's northern regional laboratory, which released for general use a more productive microorganism (a strain of *Streptomyces olivaceous*) and directions for using it.

Experiments in co-operation with a manufacturer of wire-bound boxmaking machinery demonstrated that the wood veneer commonly used in wire-bound shipping containers could be replaced by thin, compact panels of strawboard protected on exposed edges with thin strips of sheet iron. The general use of strawboard for this purpose could double the industrial consumption of straw.

In studies concerning rate of growth of twin calves, the bureau of animal industry found that young growing calves fed reduced rations made as economical gains as their identical twin calves fed full rations. Since most of the twins were identical, conclusions were made on considerably fewer animals than would have been needed otherwise.

Two new lines of swine were admitted to the Inbred Livestock Registry association as new breeds. The Landrace-Poland China, designated as Beltsville no. 1, dressed 80% and averaged 49.5% of live weight in the five preferred cuts. The Landrace-Berkshire, designated as Maryland no. 1, dressed 79% and averaged about 50% in preferred cuts.

Experiments showed that the new Silver Cornish chicken was a superior broiler variety, growing as rapidly as a fast-growing strain of New Hampshire and developing a body conformation approaching that of the wide-breasted Dark Cornish.

Evidence was obtained that psoroptic mites (cause of common scabies) of sheep passed from these animals onto a cow in contact with them and readily passed back again to the sheep but did not pass onto calves. Heretofore, it had been commonly accepted that psoroptic mites of sheep were not transmissible to cattle or any other animals.

Records received and tabulated by the bureau of dairy industry showed that cows in dairy-herd-improvement association herds established a new all-time high production average in 1950, when the 1,088,872 cows on test produced an average of 9,172 lb. of milk and 370 lb. of butterfat. The national average of all cows milked in the United States was 5,292 lb. of milk and 210 lb. of butterfat per cow.

In a study to find what relationship, if any, excess amounts of molybdenum in soils had to hyperkeratosis, or X-disease, in cattle, bureau scientists fed sodium molybdate to two calves for 129 days, beginning at 190 and 217 days of age, respectively. Growth rate was reduced materially during the feeding period, and the hair began to turn gray. No symptoms of X-disease were evident, however, and no effect was noted on the blood levels of calcium, phosphorus or phosphatase. The haemoglobin content was lowered.

A process was developed for converting the protein of Swiss cheese whey into a product that could be used in food spreads and as an ingredient in other foods. The new product was called hydrolyzed whey protein. It was made by precipitating the protein from whey, by means of heat and acid, and treating the protein with a commercial enzyme which hydrolyzed it into a smooth, bland, pasty substance.

Early-season application of insecticides in cotton fields not only gave seasonal control of thrips, flea hoppers and bollworms but also speeded up early fruiting and resulted in the production of high-grade cotton. The experiments, conducted by the bureau of entomology and plant quarantine, included three early-season applications of insecticides, with sprays used on 93% of the acreage and dusts on the other 7%. It was demonstrated that this method of control, if applied in the cotton belt, would significantly reduce the amount of insecticide, manpower and equipment necessary to protect the crop from insect attack.

Co-operative experiments demonstrated that impregnating wool cloth with DDT at the rate of 0.3% to 0.4% of the weight of the cloth protected rolls of the cloth in storage for at least three years. Spraying the outer surface of the rolls with DDT spray also provided excellent protection. Special equipment was designed and constructed for spraying rolls of cloth prior to storage.

Extensive tests conducted in Arizona and Montana definitely established the value of aldrin in sprays, dusts or baits and as an insecticide to control grasshoppers. In some of the large-scale aeroplane spraying tests, 95% of the grasshoppers were dead three days after the application. Ground treatments resulted in similarly high kills. No adverse effects on livestock, game animals or birds were observed.

A series of commodity reports begun by the bureau of human nutrition and home economics showed the variation among families in their use of an important food and the effect on purchases of other foods and on the nutritive value of diets when its consumption was relatively high or low. When city families used relatively large amounts of meat, for example, they also used more potatoes but smaller amounts of poultry, fish, milk and certain vegetables and fruits than did families that ate less meat. The meals containing large amounts of meat were higher in protein, iron, thiamine and niacin than those containing little meat. The latter, however, provided more calcium and vitamins A and C. The findings emphasized the advantage of variety and balance in diets for best nutritional results.

In the course of research with rats fed diets short in vitamin E, some of the young were found to develop eye abnormalities of a kind not previously observed in these laboratory animals. Inasmuch as small prematurely born human infants sometimes develop a serious eye impairment which had recently been linked by ophthalmologists with a shortage of vitamin E, the bureau's finding was considered to be useful to those seeking to investigate further the nature, cause and prevention of the infant disorder known as retrolental fibroplasia.

Introductions of plant material from foreign countries by the bureau of plant industry, soils and agricultural engineering included 1,500 fruit and vegetable plants, 3,822 field crop plants and 1,000 specialty crop plants, including 619 that might have value as a source of cortisone.

In research on peach tree diseases, it was found that mild forms of peach mosaic virus arise from the severe forms, and that trees infected with the milder forms are protected against the severe forms from which the milder forms came and are as productive as mosaic-free trees. Mild forms were therefore being inoculated into nursery trees of the important susceptible varieties to protect them against this severe virus disease, which is prevalent in the southwestern United States.

Tests in tung orchards showed the value of high-level applications of both nitrogen and potassium on the oil content of tung nuts. The oil content in nuts of trees fertilized with nitrogen without a correspondingly balanced application of potassium was about 4% below that of trees receiving a high level of both elements. This was a difference of 20% in the oil content.

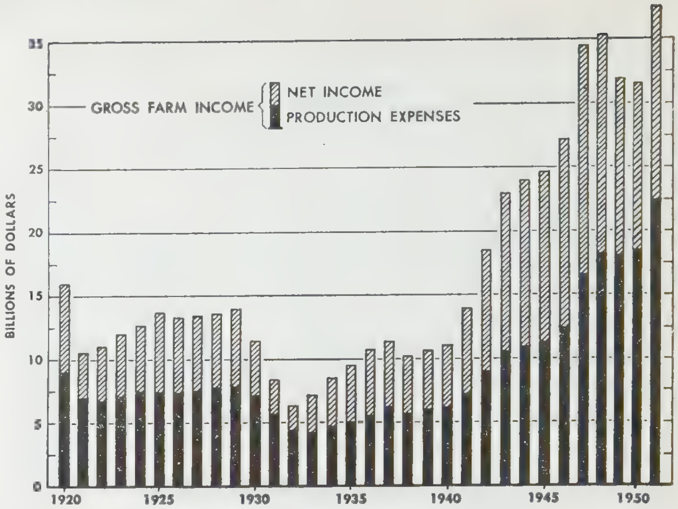
In grain-storage studies it was found that cold air ventilation appeared to be more beneficial than surface stirring to control the accumulation of moisture in surface layers of stored grain. A shelled-corn and small-grain drier, which permitted continuous operation of the heater and fan in each of the two chambers, reduced moisture in corn from 26% to 14% at a cost of two and one-half cents a bushel for fuel and power.

The office of experiment stations, as in former years, was responsible for the administration of federal-grant research funds appropriated to state agricultural experiment stations. The office reviewed and approved 782 new and revised research proposals and reviewed activities under 4,521 specific lines of research under way during the year. The administration of the federal experiment station at Mayagüez, Puerto Rico, remained a further responsibility. (P. V. C.)

Agriculture.

Abundant production by U.S. agriculture in 1951 contributed its major share toward damping inflation in the economy. Total agricultural production was 3% larger than in 1950 and total food production was the same as in 1950, 40% more than before World War II. Food livestock contributed 2% more to the total than in 1950, food crops 6% less.

Highlights of the year were the placing of ceilings on the prices of some foods and agricultural products early in the year; beef became a very prominent item in the public press. Wheat for India was a much discussed matter for months prior to the granting of a $190,000,000 loan to that country in June. Major flood damage in an area centring on northeast Kansas and later great damage by drought and insects to the winter wheat crop of the southern Great Plains, the late-season decline in cotton and corn, particularly the former—all received considerable attention. Yet, in summary, the year was a very favourable one and U.S. agriculture operated at a high level, without, however, many new records and with some developing problems. Incomes were reasonably favourable, but costs to farmers were rising more rapidly than prices. An attack on the parity principle appeared probable. Export markets for some agricultural products appeared to be sustained in considerable degree by grants of U.S. funds or by defense spending. Financial problems in the principal importing countries appeared to be increasing with no easy solution evident. Land values mounted to a level which made it more difficult for farm operators, particularly the young, to become farm owners. At the end of the year, emphasis, official and unofficial, was on an increased level of production in 1952.



GROSS FARM INCOME: net income and production expenses of U.S. farm operators, 1920–51, including government payments beginning in 1933. Compiled by the U.S. bureau of agricultural economics. Data on 1951 are tentative estimates

Table I.—*Index Numbers of the Volume of U.S. Agricultural Production through Two War Periods**

(1935–39 = 100)

	1915	1920	1925	1930	1935	1940	1945	1947	1948	1949	1950	1951
Crops												
Food grains . .	147	126	95	109	81	110	155	197	189	166	148	144
Feed grains and hay	126	149	128	83	91	114	144	131	207	187	175	160
Cotton	86	100	122	105	81	95	68	91	115	125	77	118
Tobacco . . .	80	104	95	113	89	101	137	145	136	136	140	157
Truck crops (vegetables) .	35	51	74	91	92	110	142	140	143	144	145	158
Fruits and nuts .	73	76	74	89	95	110	112	126	115	122	126	126
Sugar crops . .	73	98	73	85	89	104	94	110	91	93	112	87
Total crops .	95	102	99	96	89	107	122	135	152	147	134	139
Livestock												
Meat animals .	92	99	107	100	90	118	147	145	134	139	141	143
Poultry and eggs	78	78	93	106	92	109	170	157	153	170	182	194
Dairy products .	70	72	85	94	98	105	119	117	114	117	118	117
Total livestock	81	85	96	99	93	112	141	137	130	137	140	143
Grand total .	86	92	97	98	91	110	134	136	138	141	138	141

*Estimates by the U.S. department of agriculture; 1951 figures are preliminary.

Crop Production.—In spite of unusual weather and other problems, U.S. crops in 1951 were the third largest on record, exceeded only in 1948 and 1949. The total volume of all U.S. 1951 crops increased to 139% of the 1935–39 base compared with 134% in 1950, but was, nevertheless, well below the 152% of 1948 and the 147% of 1949. Food grains declined moderately to an index of 144 as compared with 148 in 1950; the harvested wheat crop was less than 1,000,000,000 bu. for the first time since 1943. Feed and hay declined to 160, from 175 in 1950, and for the second consecutive year more corn was used than was produced, in spite of official efforts at expanding production. Only a few crops set new production records: grapes, rice, truck crops for processing, hops and a few of the fruits; hay, soybeans, tobacco, pecans and cranberries were high in relation to previous crops, but not at record levels.

The 52 principal crops for 1951 were planted or growing on a total of 362,207,000 ac., about 9,000,000 ac. more than in 1950; much of the increase was in cotton and wheat, corn increasing only about 1,000,000 ac. But acreage losses prior to harvest were the largest since 1936, amounting to 26,390,000 ac., as compared with 16,732,000 ac. in 1950. Thus the 335,817,000 ac. harvested were 647,000 ac. less than in 1950 and less than any year since 1941.

Yields per acre were relatively high, giving a composite-yield, all-crop index of 143, the same as in 1950 and exceeded only in 1948. New high yields were set for all hay, tobacco, hops, dry beans and sugar beets. Spring wheat, oats, rye, cotton and several of the legume seeds exceeded 1950 but were not new records.

The harvest included 146,500,000 tons of the eight major grains, exceeded in several recent years but more than for any year prior to 1942. Feed grains amounted to only 114,000,000 tons as compared with 122,000,000 tons in 1950, a shortage which was partly compensated by 108,000,000 tons of new hay. The oilseeds outturn of 16,345,000 tons was 7% larger than in 1950 and one-third above average. The tobacco crop was the second largest, the fourth to exceed 2,000,000,000 lb. Sugar beets and white potatoes were about one-fourth less than in 1950; the price of potatoes was not supported.

Deciduous fruits were about 10% more abundant than in 1950 and 6% above average. Truck crops for the fresh market, though above average, were 6% less abundant than in 1950, but vegetables for processing were about 20% more abundant than in the previous peak year, 1946. The cotton crop of 15,290,000 bales was a large one compared with the average or with the 10,012,000 bales in 1950.

Table II.—*Production of Principal U.S. Crops*

(In thousands)

Year	Corn bu.	Oats bu.	Wheat bu.	Cotton bales	Tame hay tons	Rice bu.	Tobacco lb.	Potatoes bu.
1933	2,399,632	733,166	551,683	13,049	66,530	37,651	1,371,131	342,306
1934	1,461,123	542,306	526,393	9,636	55,270	39,047	1,081,629	406,105
1935	2,303,747	1,194,902	626,344	10,638	78,138	38,784	1,297,155	386,380
1936	1,507,089	785,506	626,766	12,399	63,536	49,002	1,154,131	331,918
1937	2,644,995	1,146,258	873,993	18,946	73,785	53,364	1,553,405	393,289
1938	2,542,238	1,053,839	930,801	11,943	80,299	52,303	1,378,534	371,617
1939	2,619,137	937,215	754,971	11,817	75,726	52,306	1,848,654	364,016
1940	2,449,200	1,235,628	816,698	12,566	86,312	52,754	1,451,966	397,722
1941	2,672,541	1,176,107	945,937	10,744	82,358	54,028	1,261,364	357,783
1942	3,175,154	1,358,730	981,327	12,824	92,245	66,363	1,412,437	371,150
1943	3,034,354	1,137,504	841,023	11,427	87,244	64,843	1,402,988	464,999
1944	3,203,310	1,154,666	1,072,177	12,230	84,076	68,161	1,956,022	383,134
1945	2,880,933	1,535,676	1,108,224	9,015	95,289	68,150	1,993,837	418,020
1946	3,249,950	1,497,904	1,153,046	8,640	89,195	72,216	2,319,409	484,174
1947	2,383,970	1,199,422	1,367,186	11,857	89,286	78,259	2,109,581	389,048
1948	3,681,793	1,493,304	1,313,534	14,877	86,793	85,056	1,980,325	454,654
1949	3,379,436	1,329,473	1,141,188	16,128	87,240	90,549	1,972,359	411,565
1950	3,057,803	1,410,464	1,019,389	10,012	90,325	85,977	2,030,645	429,896
1951	2,941,423	1,316,396	987,474	15,290	95,788	99,791	2,282,386	325,708

The U.S. department of agriculture late in 1951 called for an enlargement of 1952 planted acreage by about 3,000,000 ac. total, with about 7,000,000 ac. more to be devoted to feed crops.

Livestock Production.—Abundant livestock production in 1951 filled some gaps left by lower crop production. Farmers and ranchers in the U.S. increased their cattle herds further during 1951, holding 84,179,000 head at the beginning of the year, as compared with 80,052,000 a year earlier. It was forecast that cattle on farms and ranches at the beginning of 1952 might exceed 90,000,000 head. Meanwhile, during a hectic year of price controls and high cattle prices, enough animals came to market to provide 9,000,000,000 lb. of beef, about 800,000,000 lb. less than had been forecast for the year and 580,000,000 lb. less than in 1950, but nevertheless far more than prewar. The average price paid to farmers for beef cattle in Dec. 1951 was $27.50 per hundredweight, as compared with $25.40 per hundredweight a year earlier.

Table III.—*U.S. Production and Yield Per Acre*

	1951		1950	
	Yield	Production in thousands	Yield	Production in thousands
Field Crops				
Corn, bu.	36.2	2,941,423	37.4	3,057,803
Wheat, bu.	16.1	987,474	16.5	1,019,389
Oats, bu.	36.1	1,316,396	34.6	1,410,464
Barley, bu.	27.1	254,668	27.2	303,533
Rye, bu.	12.5	21,395	12.3	21,264
Flaxseed, bu.	8.7	33,802	9.8	40,236
Rice, bags (yield in lb.)	2,250.0	43,805	2,388.0	38,689
Hay, all, tons	1.45	108,351	1.38	102,340
Beans, bags (yield in lb.)	1,231.0	16,000	1,117.0	15,155
Soybeans, bu.	21.2	280,512	21.7	299,279
Peanuts, lb.	802.0	1,595,025	893.0	2,021,730
Potatoes, bu.	240.7	325,708	253.4	429,896
Sweet potatoes, bu.	91.8	28,278	101.2	49,825
Tobacco, lb.	1,281.0	2,282,386	1,270.0	2,030,645
Sugar beets, short tons	15.1	10,584	14.6	13,535
Cotton, bales (yield in lb.)	274.5	15,290	269.0	10,012
Fruit Crops				
Apples, bu.	...	112,935	...	123,126
Peaches, bu.	...	70,265	...	53,485
Pears, bu.	...	32,687	...	31,140
Grapes, tons	...	3,281	...	2,707
Oranges, boxes	...	117,325	...	116,810
Grapefruit, boxes	...	40,690	...	46,580

STACKING CHEESE for storage at a dairy in Monroe, Wis., in 1951

Of the total cattle, 24,579,000 were classed as milk cows and heifers, a figure which had changed only slightly in late years, of which about 22,700,000 were milk cows. And, as in late years, those cows produced milk at a level approximating 120,-

000,000,000 lb. for the year, and perhaps a new record of more than 5,292 lb. per cow. It appeared at the end of the year that supplies of dairy products were ample in 1951 at prices above support levels and below ceilings. In December the dairy products price index was 314, 15% higher than a year before and the highest on record for the month except in 1946 and 1947. However, it appeared that if much expansion should be desired in this sector of the economy it would be difficult to obtain because of an acute labour problem and competition with more profitable agricultural programs. Milk cows had an average farm value of $218 in Jan. 1951, as compared with $177 per cow a year earlier.

There were 65,028,000 hogs on farms at the beginning of the year and a pig crop of 105,818,000 during the year; yet there were indications in late 1951 that a five-year period of expansion in numbers had ended, primarily because of a smaller than hoped for corn crop and an unprofitable corn-hog price ratio of about one to nine late in the year as a result of rising corn prices. About 86,000,000 head were slaughtered during the year, yielding about 11,800,000,000 lb. of pork. However, the pig crop of the autumn of 1951 was only 2% larger than the year before and the December pig crop report indicated that the spring pig crop of 1952 would probably be 9% below that of 1951; hence it appeared that pork production in 1952 would be about 100,000,000 lb. less than in 1951 when the food supply included an average of 73 lb. per civilian. Hog prices to farmers in Dec. 1951 were $17.60 per hundredweight as compared with $17.80 per hundredweight a year earlier.

In spite of the high price for lamb and mutton, sheep numbers on farms made a 4% recovery from record low numbers; the 31,505,000 on farms on Jan. 1, 1951, probably increased further during the year and meanwhile 515,000,000 lb. of lamb and mutton were produced, with 600,000,000 lb. forecast for 1952. Lambs at $28.50 per hundredweight in Dec. 1951 were higher than the $27.60 per hundredweight a year earlier. Wool, domestically and internationally, had an unusual year. Total production in the U.S. in 1951 was about 260,000,000 lb. (grease basis); of that amount, 229,100,000 lb. was shorn wool, with somewhat larger production expected in 1952. Imports of apparel wool for consumption amounted to 325,000,000 lb. during the first eight months of 1951; in 1950, carpet wool in an amount of 315,000,000 lb. was imported. In the latter part of the year consumption was declining; in view of that fact and that world production was estimated at 4,070,000,000 lb., 60,000,000 lb. more than in 1950, it appeared that the greatly reduced world stocks might again build up a bit. The gyrations of wool prices during the year were very rapid and extreme, but U.S. farmers in Dec. 1951 were receiving 62.7 cents per pound as compared with 82.8 cents per pound a year earlier. Great Britain and three other British Commonwealth countries shared profits of £180,000,000 ($504,000,000) made in liquidating the wool stocks of the Joint organization, which in 1946 consisted of 10,500,000 bales.

Poultry played a very significant part in supplying the meat demand of 1951. Approximately 703,000,000 farm chickens, a production of broiler chickens as much as 25% to 30% over the 616,000,000 of 1950, and about 53,000,000 turkeys contributed about 35 lb. of food per consumer during the year, much larger than the total for veal, lamb and fish. Prices were rather low and storage stocks very large, hence there was some anticipation that the tight feed situation would cut production in 1952.

Price controls and slaughter quotas were much-discussed features of the livestock production picture in 1951, and were in force on all meats beginning with Jan. 28, 1951. Price ceilings on beef at wholesale and retail were specified in great detail by cut and grade for various classes of dealers and stores and for various regions. These ceilings in general limited prices of slaughter cattle. In June over-all ceiling limitations were put on slaughter cattle. Ceiling prices on veal and on lamb and mutton were under the general ceiling price regulation; pork prices were generally below ceiling levels.

World numbers of most types of livestock appeared to be increasing. Cattle, estimated at 806,300,000 head, were 2% more than in the previous year and 8% above prewar. Hog numbers, not including many produced and marketed within a year, were a record 297,200,000 head, 6% more than in 1950 and 2% more than prewar. Sheep, estimated at 761,700,000 head, were 4% more than in 1950 and 2% more than prewar. Poultry flocks also increased, but work stock declined slightly.

In terms of meat, a major livestock product, the world total was more than 72,500,000,000 lb. (excluding Asia), 5% more than a year earlier and 6% more than prewar. Of that amount, about 4,000,000,000 lb. entered into world trade, still well below the prewar level. As usual, much of the movement was from the southern hemisphere to western Europe. Great Britain executed new agreements or revisions with three of its main overseas meat suppliers during 1951.

Food Stocks and Exports.—In spite of generally good crops, supplies of some of the major and minor agricultural commodities declined during 1951. This was especially the case as to the storable bread grains and feed grains, but almost as true of butter, cheese and dried milk.

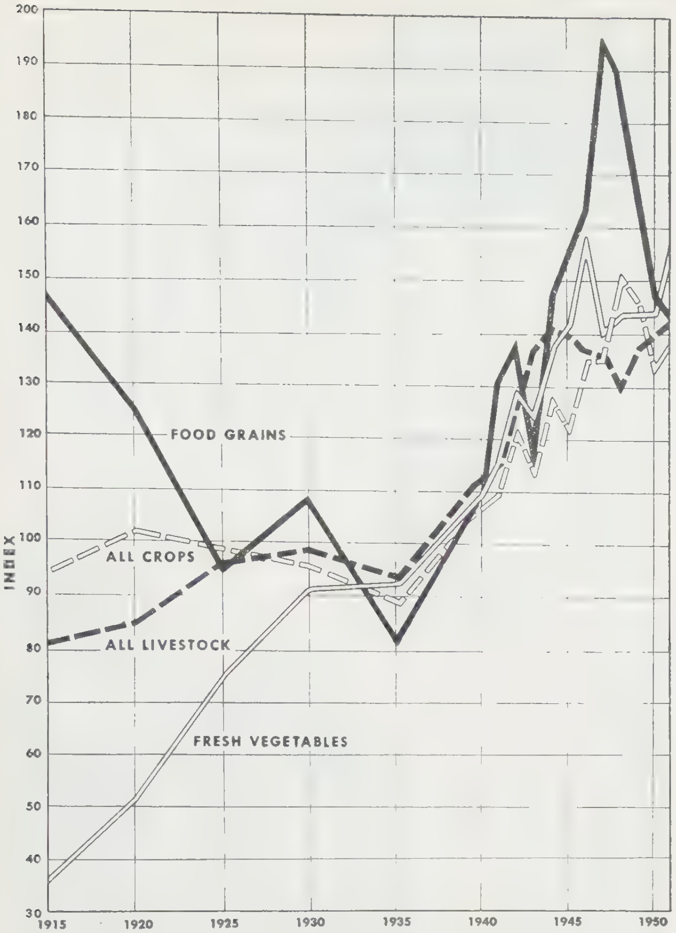
U.S. exports of farm products in 1950–51 accounted for 27% of the nation's total exports and amounted to a value of $3,409,245,000, about 14% more than in the previous year. Exports of cotton ($935,332,000), wheat ($747,570,000) and tobacco ($273,262,000) accounted for 57% of the farm products, by value. The cotton export was the next highest on record. Imports of agricultural products also increased, by 16% to $5,135,584,000, and represented 48% of total imports. Thus agricultural imports, which had exceeded agricultural exports very slightly in 1949–50, went ahead by $1,726,339,000 in 1950–51. Coffee ($1,370,126,000), rubber ($734,265,000), sugar ($412,912,000) and wool ($170,764,000) were the major imports. At the end of the year it appeared that exports would perhaps bulk larger in 1951–52—wheat was moving out at a very rapid rate under the International Wheat agreement, and rather more cotton would move as compared with the previous year.

Farm Product Prices.—The price effects of inflation and inventory accumulation of the latter half of 1950 carried over strongly into early 1951, so that, in spite of comparative abundance of most agricultural products, in mid-Feb. 1951 farm prices stood at an all-time price peak, at 313% of the 1910–14 level and 32% higher than a year before, about 26.5% higher than when the fighting started in Korea and 2% higher than the previous record set in Jan. 1948. Higher prices for meat animals were in considerable part responsible for the strong

Table IV.—*Farmers' Average Prices, Certain U.S. Crops, on Selected Dates*

(In cents per unit)

	Wheat per bu.	Corn per bu.	Oats per bu.	Barley per bu.	Rye per bu.	Buck-wheat per bu.	Pota-toes per bu.	Eggs per doz.	Cot-ton per lb.
Oct. average, 1909–13	88.1	64.8	38.4	60.5	72.0	71.1	65.0	23.8	12.10
Oct. 15, 1936	106.8	97.9	43.1	84.2	80.4	78.3	97.9	27.6	12.23
Oct. 15, 1937	88.7	58.9	28.8	52.0	63.8	62.4	48.5	25.2	8.10
Oct. 15, 1938	52.2	41.9	22.1	36.1	32.9	54.9	51.0	27.1	8.53
Oct. 15, 1939	70.3	47.6	30.3	42.2	45.1	62.7	66.4	22.9	8.73
Oct. 15, 1940	68.2	59.4	28.3	38.2	40.5	54.4	52.0	23.7	9.35
Oct. 15, 1941	91.0	64.9	38.9	49.1	51.3	64.3	67.2	31.8	16.55
Oct. 15, 1942	103.5	77.5	43.2	57.6	52.9	77.0	102.5	37.4	18.87
Oct. 15, 1943	135.0	107.0	77.4	103.0	101.0	110.0	128.0	45.2	20.28
Oct. 15, 1944	142.0	113.0	65.9	95.4	108.0	102.0	142.0	38.8	21.25
Oct 15, 1945	151.0	113.0	62.8	101.0	138.0	106.0	126.0	42.6	22.30
Oct. 15, 1946	188.0	171.0	79.9	135.0	199.0	144.0	122.0	51.5	37.69
Oct. 15, 1947	266.0	223.0	109.0	177.0	249.0	197.0	150.0	55.3	30.65
Oct. 15, 1948	198.0	138.0	70.0	110.0	143.0	117.0	142.0	54.7	31.07
Oct. 15, 1949	189.0	109.0	62.3	107.0	128.0	97.9	130.0	51.4	28.70
Oct. 15, 1950	191.0	137.0	73.5	112.0	127.0	106.0	85.8	43.2	38.90
Oct. 15, 1951	210.0	164.0	81.9	123.0	152.0	134.0	139.0	55.6	36.21



FOOD PRODUCTION in the United States, as measured by index number (1935–39=100). Estimates by the department of agriculture; 1951 is preliminary

upturn, though soybeans, cotton, cottonseed, rice and wool, as well as beef cattle, veal calves, sheep and lambs, were at or above probable legal minimum ceiling levels.

Then demand moderated somewhat and favourable prospects began to affect the situation. Prices declined until September to a level 291% of the 1910–14 average, then turned up again, ending the year at 305% of the average, 19 points, or nearly 7%, above the previous December and 58 points, or 23%, above June 1950, taken as pre-Korean war. Prices of all crops had an index number of 280 (1910–14=100) as compared with 258 in Dec. 1950, whereas livestock and livestock products had an index of 328, as compared with 311 a year earlier.

Farm Income.—Estimated gross farm income for 1951 was $37,500,000,000, 14% higher than in 1950. Of that total about $4,700,000,000 was included as the value of home-consumed farm products, the rental value of farm dwellings and government payments to farmers. The remaining $32,800,000,000 was farmers' cash receipts from marketings, also a 14% increase as compared with 1950; of that increase 2% was credited to larger volume of marketings and 12% to higher average prices. Receipts from livestock and livestock products were estimated at $19,500,000,000, 20% higher than in 1950, whereas the estimated total for crops of $13,300,000,000 was only 6% larger than in the previous year. The volume of marketings was slightly larger for both types of products than in 1950. It was anticipated that the volume of marketings would remain large in 1952 and that farmers' cash receipts would probably increase moderately.

Agricultural production expenses also increased from a record $20,000,000,000 in 1950 to $22,500,000,000 in 1951; livestock purchased was about 30% higher; feed expenditures were up about 15%; the total costs of hired labour, fertilizer and interest charges were up about 10%; seed costs and building and machinery depreciation were up 8%; the cost of operating motor vehicles increased 7%; rents were up 5%, taxes 4%.

Thus the farmers' realized net farm income—the difference between gross income and total production expenses—was estimated at $15,000,000,000, up $2,300,000,000, or 18%, as compared with 1950, but substantially lower than either 1948 or the 1947 record of about $17,000,000,000. Prospects were for a modest increase in 1952.

The balance sheet for agriculture in 1951 showed over-all assets totalling $142,775,000,000 as compared with $126,864,000,000 in the previous year. Of that total, real estate made up $72,650,000,000 as compared with $63,527,000,000 a year before. Livestock values increased from $13,184,000,000 in 1950 to $17,517,000,000 in 1951, and the value of machinery and motor vehicles increased by more than $1,000,000,000.

Farm Land Values.—More and more of the inflationary spiral and the generally favourable situation which had existed in agriculture during the past decade were capitalized into land values in 1951. Farm land values increased sharply, about 15% between Nov. 1950 and Nov. 1951, some areas increasing more than one-fifth during that period. The increase, nationally, since the outbreak of the Korean war was about 20%. In comparison with pre-World War II, the national index stood at 249, but it exceeded 300 in eight states. In the later part of the year the market slowed down, few farms were changing hands, a higher percentage of buyers were nonfarmers and a greater degree of caution, even hesitancy, seemed to be developing.

Farm Population and Farms.—Not nearly all the agricultural information to be derived from the 1950 census was yet available in 1951. But the trend toward fewer, larger and better-equipped farms was confirmed. Farms decreased by 713,000 as compared with 1940, from 6,097,000 to 5,384,000; the average-sized farm unit grew from 174 ac. to 210.5 ac. The new definition of farm population excluded residents of institutional farms, about 150,000 in total, and a larger group, about 2,000,000 in all, who lived in houses located on farms, paid cash rent for the house and yard only, without any farm land, and received their income from nonagricultural pursuits. Tenancy declined materially to 27% of the total as compared with 39% in 1940.

Farm Labour.—It was estimated that agricultural employment in 1951 was about 400,000 less than in 1950, partly because of increased mechanization of farming but even more because of the strong drawing power of defense and defense industries in a period of nearly full employment. Hired farm workers make up only about one-fifth of total farm employment, which included in late Sept. 1951 (the normal peak period of farm employment) 13,352,000 persons. However, the average number of workers, Jan. through Sept. 1951, was only 10,350,000, of which 7,971,000 were farm family workers, including the farm operator, and 2,379,000 were hired workers. Wage rates, which were frozen early in the year, were somewhat relaxed under an order permitting up to a 10% increase without special authorization, but nevertheless averaged only about 66 cents per hour cash wages on Oct. 1, about 12% more than a year earlier. As of Jan. 1951, regular hired farm workers were covered under the old age and survivors insurance program of the Social Security act as amended in 1950. It appeared (from 1950 data) that only about 775,000 of the 5,500,000 farm wage workers were regular hands who worked as much as six months continuously on one farm. An additional 600,000 did sufficient farm wage work to make that their chief activity during the year—and 1,600,000 in the course of the whole year did less than 25 days of farm wage work on one or more farms.

The President's Commission on Migratory Labor, which reported in March 1951, dealt with problems of domestic migratory farm workers as well as the use in agriculture of foreign workers. The "wetback" problem, which involved, among other aspects, the apprehension and deportation during 1951 of an estimated 666,000 illegally entered Mexican aliens, was also recognized by congress in public law 78, which provided for the recruitment and transportation of workers from Mexico for employment on farms and in agricultural processing industries only if the secretary of labour certified the need for such labour. Also Mexico and the United States, in signing the Migrant Labor agreement of 1951, acknowledged the necessity of eliminating illegal traffic.

Farm Machinery and Fertilizer.—Production of farm machinery was generally adequate in 1951 but the rate of production dropped very sharply in the latter half of the year and it was anticipated that production would go still lower in 1952 as necessary allocated materials became more restricted. Exports of machinery in the first half of the year were 13% higher than a year earlier. Prices advanced very moderately during the year.

Supplies of fertilizer were somewhat scarce in 1951—below the amounts which farmers would have taken if supplies had been more abundant, and far less than might have been used to advantage in the production effort. During 1950–51 there were record quantities of about 1,285,000 tons of nitrogen fertilizer available to farmers, and the 1951–52 supply was expected to amount to 1,350,000 tons. The phosphate fertilizer supply of 1950–51 amounted to 2,235,000 tons, available phosphoric oxide (P_2O_5) basis. Sulphuric acid scarcity constituted the bottleneck, and a cutback of 8% seemed likely in 1951–52. A record 1,445,000 tons of potash (K_2O) were available in 1950–51. The 1951–52 supply was estimated at an increase of 5%, with larger amounts due in later years as a result of a long-term development which was already under way. Fertilizer prices advanced about 6% in 1950–51 and perhaps 5% more in 1951–52. (*See* also FERTILIZERS.)

Commodity Credit Corporation.—This financing organization of the U.S. department of agriculture made considerable progress in 1951 in liquidating accumulated stocks of grains and other agricultural items acquired as a result of price support operations, mostly in previous years; notably, 1951 white potatoes and eggs were not under support, and prices were sufficiently high in the market during much of 1951 so that government loans on eligible crops were not being requested in large amounts. Such liquidation provided some of the necessary items to keep inflation in check and at the same time moved stocks about to go out of condition. But at the same time a safety reserve of some foods was thereby exhausted. The loss sustained in inventory liquidation in 1950–51 was a record high of about $345,599,000, much of it chargeable to dairy products ($111,000,000), dried eggs ($76,000,000) and potatoes ($63,000,000). As of Nov. 30, $2,028,794,000 was invested in price support program loans and inventories. A net realized loss of $40,550,000 had been sustained in carrying out this program during the first five months of the fiscal year which was to end June 30, 1952. Of the total investment of $2,028,794,000, loans outstanding totalled $795,899,000 (including $244,520,000 of commodity loans held by lending agencies, $503,680,000 held by the Commodity Credit corporation and $47,699,000 of loans approved but not fully processed) while inventories acquired under loan, purchase agreement and direct purchase operations represented an investment of $1,232,895,000. Price support operations in four commodities, wheat, tobacco, cotton and corn, accounted for the bulk of the loan total.

Table V.—*Inventory of the Commodity Credit Corporation, Nov. 30, 1951*

Commodity	Quantity	Cost
Corn	401,516,571 bu.	$630,657,953
Wheat	142,816,747 bu.	363,709,184
Linseed oil	213,513,151 lb.	60,678,409
Dry edible beans	5,079,352 cwt.	42,067,894
Barley	17,667,743 bu.	28,720,543
Field seed	359,816,446 lb.	20,553,281
Peanuts	186,411,045 lb.	19,715,439
Grain sorghums	6,777,875 cwt.	17,544,485
Dried eggs	15,430,723 lb.	15,456,021
Gum rosin	144,164,380 lb.	10,235,969
Dried milk	56,159,010 lb.	8,600,082
Oats	7,646,385 bu.	7,616,862
Other	....	7,338,842
Total	....	$1,232,894,964

"BARNYARD BAZOOKA" (bottom, right) shooting a bale of hay into a barn loft after 1951 harvesting. The machine, operated by compressed air, was invented by F. W. Moffett, Jr., of Idylbrook Farms, Rochester, N.Y.

Items in the inventory of the Commodity Credit corporation as of Nov. 30, the quantities involved and the cost were as shown in Table V.

Commodity Trading.—The Commodity Exchange authority reported that futures trading in 20 regulated commodities had a value of $47,143,639,000 in 1951, as compared with only $32,351,445,000 in 1950. Cotton led with $16,726,624,000; wheat was second with $11,104,823,000; and soybeans, first in 1950, dropped to third place with a value of $8,899,167,000. Speculative limits were put into effect on trades and positions of large traders in soybean and egg futures. Trading in grain sorghums on the Chicago Board of Trade began during the year.

Agricultural Legislation.—As to basic agricultural legislation, 1951 was a quiet year and 1952 gave similar prospects. Amendments to the Defense Production act of 1950 rescinded slaughter quotas and provided a third standard for figuring legal price ceilings of farm products—90% of farm price, by grades, as of May 19, 1951, in addition to the old standards of parity, or the highest price between May 24 and June 24, 1951, with the highest controlling. The same treatment was accorded to manufacturing milk and butterfat, formerly applicable to fluid milk. Authority to control imports of fats and oils was extended until June 30, 1952. No imports of peanuts, butter or other fats and oils (including oil-bearing materials, fatty acids and soap and soap products, but excluding coconuts and coconut products), should be admitted if they would (1) impair or reduce domestic production, (2) interfere with orderly domestic storing and marketing or (3) result in any unnecessary burden of expenditure under any government price support program.

The Sugar act of 1948 was extended to 1956, with some modifications, particularly to increase the quotas of Puerto Rico and the Virgin Islands, beginning with 1953. The secretary of labour was authorized (public law 78) to supply foreign agricultural workers from Mexico to assist agricultural production. The Agricultural Adjustment act was amended (public law 17) to provide for some rearrangement of the national acreage allotment for peanuts.

Other Countries.—In spite of reductions in some areas and some commodities, the over-all agricultural picture in 1951 presented the most favourable situation since World War II. It was a favourable picture in terms of total volume and progress made in increasing production beyond prewar levels, but not particularly encouraging in terms of nutrients available per capita; for, in spite of more fertilizer, more machinery and better control of diseases and insects, population continued to grow more rapidly than the food supply.

Food livestock was at an all-time high, exceeding 1950 and prewar, but less meat entered into international trade than prewar. Milk production increased in practically every producing country, and milk products as well. World egg production was estimated at about 1% more than in 1950 and about 40% more than prewar. The 1951 bread grain crop was a near record one, and carry-over stocks on July 1, though far from record levels, were above average. The world sugar crop was a very abundant one and prices declined rather sharply after June. Supplies of fats and oils, one of the scarcer food items since the war, were sufficiently abundant to result in sharp price declines. The world cotton crop was 23% larger than in the previous year. Tobacco was more abundant in 1951 than in 1950 or prewar. Feed grains were in relatively tight supply in relation to expanding livestock numbers.

Table VI.—*World Food Production by Commodities and by Areas, Compared with pre-World War II*

	Per cent of prewar					
	1946–47	1947–48	1948–49	1949–50	1950–51	1951–52*
Food Commodity						
Bread grains	94	96	102	101	104	104
Rice	92	93	97	98	102	101
Coarse grains	104	97	110	104	102	100
Fats and oils	85	88	94	100	100	104
Sugar	90	92	108	106	120	126
Meat	94	93	94	97	99	104
Dairy products	88	87	90	95	97	100
Potatoes	84	83	105	96	101	91
Area						
Far east	90	92	95	96	97	95
Europe (excluding the U.S.S.R.)	76	79	89	93	97	96
U.S. and Canada	135	128	138	133	134	138
Latin America	114	114	118	118	120	118
Australia and New Zealand	96	109	106	107	108	105
Africa and near east	—	101	116	117	119	121
World average (excluding the U.S.S.R.)	95	97	104	105	109	110

*Preliminary estimate.

Vegetables and fruits were abundant, but the world potato crop was about 10% smaller than in 1950 and below the prewar average. Rice was less abundant than in 1950, but slightly above the average of prewar production.

Mediterranean Europe, with a good wheat crop and a record oil crop, fared better as compared with 1950 than other parts of

SHAH OF IRAN (left) handing a land deed to a peasant in the village of Davoudabad. As announced in Jan. 1951, the shah's royal estates, including more than 1,000 villages and surrounding farmland, were being broken up and sold to peasants in small holdings the continent, excepting probably the lower Danube area, which made substantial recovery from the drought of 1950. Not that western Europe suffered any great decrease in production; but the spring was late and wet, sugar beets were off, potato blight took a toll and hoof-and-mouth disease broke out in cattle herds. Prices seemed to be more of a problem than supplies.

In November food supplies in the United Kingdom were at an 11-year low. The British ministry of food announced in December that the retail price of bacon and cheese would be raised tenpence a pound, with a consequent rise of about one point in the index of retail prices and an increase of between fourpence and fivepence per person in weekly expenditure. Apparently this represented a major change in policy trend. The total U.K. bill for food subsidies in 1950–51 came to £400,000,000; that on basic foods amounted to £384,000,000, of which £183,000,000 was paid on imported foods, mainly flour and butter. Welfare cost £36,000,000, and feeding stuffs, fertilizers, etc., £21,000,000. The total of the above was offset by £41,000,000, profits made at sales above cost on the so-called "less essential foods"—canned fruits, coffee, cocoa, dried fruit, egg products and fresh fruit—and also on the sale of oils, fats and sugar to manufacturers and exporters. Long-term contracts were executed with three meat-exporting countries in 1951.

About the agricultural picture for 1951 in the U.S.S.R., little was certain. Some experts thought that food production had not kept up with population increase, that only cotton exceeded the goal and that livestock numbers were low. But by other reports it was a good year. Grains, especially wheat, were probably more abundant than in 1950. In September it was announced that the U.S.S.R. would supply the U.K. with 1,000,000 tons of grain, 200,000 tons of it wheat. Collectives were being merged, 252,000 to become 123,000. Food prices were lowered early in the year.

In the far east the important rice crop was smaller than in the previous year, particularly in China and Japan, though somewhat larger in the surplus areas of southeast Asia. That, plus reports from China and India, appeared to add up to a difficult situation, though statistically the over-all change did not appear more severe than in Europe.

Australia and New Zealand, depending heavily on the livestock industries, appeared to have a favourable market for all exportable surplus, and pastures were good. Nevertheless, there were complaints about rising costs and especially about the very sharp decline in wool prices from, to be sure, record levels. In addition, the sharply lower Australian wheat crop cut supplies below a level from which it was possible to supply all of that country's quota of 87,700,000 bu. under the International Wheat agreement.

Latin America, particularly Argentina and Brazil, had a serious drought problem in 1951, with a result that grain exports were sharply lower; November rains came early enough to mend the situation somewhat. Meat exports were lower, partly because of long inability to agree on price and larger domestic consumption. Coffee moved at high prices. Mexico and Cuba appeared to have done very well in 1951, the latter producing a record sugar crop.

In Africa and the middle east, the year was a favourable one agriculturally, though the situation differed with area and commodity. Peanuts were a large crop in important exporting areas. The North African wheat crop was smaller than in 1950; that of Turkey was one-third larger. The cotton and wool crops were good ones, as was coffee.

Canada produced very large grain crops in addition to a large carry-over of feed grains; hence livestock numbers were increased.

Thus the production of 1951, though abundant, appeared to concentrate supplies to an even greater degree than formerly in North America and to cut supplies in areas normally deficient, at the same time reducing surplus supplies for export in two of three major southern hemisphere areas.

International Agricultural Organizations.—The F.A.O. (Food and Agriculture Organization of the United Nations) moved from Washington, D.C., to Rome, It., early in 1951. Norris E. Dodd continued as director general. The sixth conference of the full membership, held in November and December, emphasized that accomplishments to date had fallen very far below the goals that had been set. It was recommended that over-all targets for increased food production for the next five years be broken down into specific increase goals for each nation. It continued to operate on an annual budget of about $5,000,000, with the membership increased during the year to 70 by admission of Jordan, Spain, Argentina, Japan, Nepal and Laos. Hungary and China gave notice of withdrawal.

The International Wheat Agreement.—The second year of operation under the agreement was completed on July 31, with 41 importing members and 4 exporting members. Japan was added as an importer beginning with the third year. At the beginning of the third year, guaranteed purchases and sales were 581,000,000 bu. (as compared with 456,000,000 bu. in the first year), of which 255,000,000 bu. would come from the U.S., 233,000,000 bu. from Canada, 88,700,000 bu. from Australia and 4,100,000 bu. from France. Sales in 1950–51 were 531,000,000 bu., somewhat short of the 562,000,000 bu. of guaranteed purchases, mostly a result of the fact that a large part of the Canadian 1950 crop was frosted. The U.S. quota was filled four months before the end of the year, and on the 1951–52 schedule slightly more than 200,000,000 bu. of the U.S. total 255,000,000 bu. had been contracted for by the end of 1951.

Thus nearly 60% of the wheat moving in the world market was sold under the agreement. The major problem that had arisen by the third year was one that some had foreseen when the agreement was initiated: it was costing exporting countries approximately 75 cents on each bushel sold because the maximum prices under the agreement, conceived in fear of depression and wheat surplus, were well below world price levels, or even those established by the price support program in the U.S. (*See* also AGRICULTURAL RESEARCH ADMINISTRATION; CENSUS DATA, U.S.; CHEMURGY; FERTILIZERS; FRUIT; HORTICULTURE; IRRIGATION; LAW; LIVESTOCK; METEOROLOGY; PRICES; RURAL ELECTRIFICATION; SOIL EROSION AND SOIL CONSERVATION; VEGETABLES; etc.; and also under principal crops.)

FILMS OF 1951.—*Grasslands Farming* (The March of Time Forum Films). (J. K. R.)

Agriculture, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Aircraft Manufacture.

Dominating the United States aviation picture in 1951 was the effort devoted to increasing the country's military air power, particularly the element making up the military aircraft production base. By the year's end, deliveries of completed aircraft to the military services had increased to more than twice the late 1950 production levels. New plants and facilities were completed, and initial deliveries of finished products were beginning to flow from newly expanded production lines. During 1951 the major emphasis was placed on the expansion of productive capacity.

One of the most significant aspects of the mobilization program was the degree of subcontracting undertaken by the aircraft manufacturing industry. In a survey conducted by the Aircraft Industries association in May, it was revealed that approximately 50% of the dollar volume received by the aircraft industry was subcontracted and that of this 50%, approximately 60% went to small business. The survey further revealed that more than 60,000 subcontractors and suppliers were used by the aircraft industry, of which 87%, or about 52,000, were small business firms. Companies later reported additional steps taken to increase the use of outside productive capacity, and the percentage of work distributed to subcontractors and suppliers increased after the May report.

Appropriations in excess of $14,000,000,000 were provided by congress for aircraft procurement during the year. With fiscal 1951 appropriations, the two-year total exceeded $25,000,000,000 and represented more than half of the funds provided by congress for the procurement of military hard goods. This total compares with appropriations of about $35,000,000,000 for the first two years of World War II.

In 1950 it was estimated that about 3,000 military aircraft were produced. Based on reports by the Office of Defense Mobilization and the defense department, a reasonable estimate would place aircraft production for 1951 between 4,500 and 5,000 units.

Although approximately 95% of the aircraft manufacturing industry's efforts in the year were devoted to the production of military aircraft, the demand for commercial transports increased, with unfilled orders for approximately 500 units standing at the end of the year—an all-time high for the industry. Despite the size of the commercial transport backlog, there was a further decline in the number of transports produced during 1951. Only 65 units were delivered to United States and foreign air lines, compared with 91 in 1950. An additional 50 twin-engined executive type transports were produced.

Production of light utility aircraft was materially affected by materials shortages and by the preoccupation of the manufacturers with direct military production activities. About 2,300 light planes were produced during the year, compared with 3,400 in 1950.

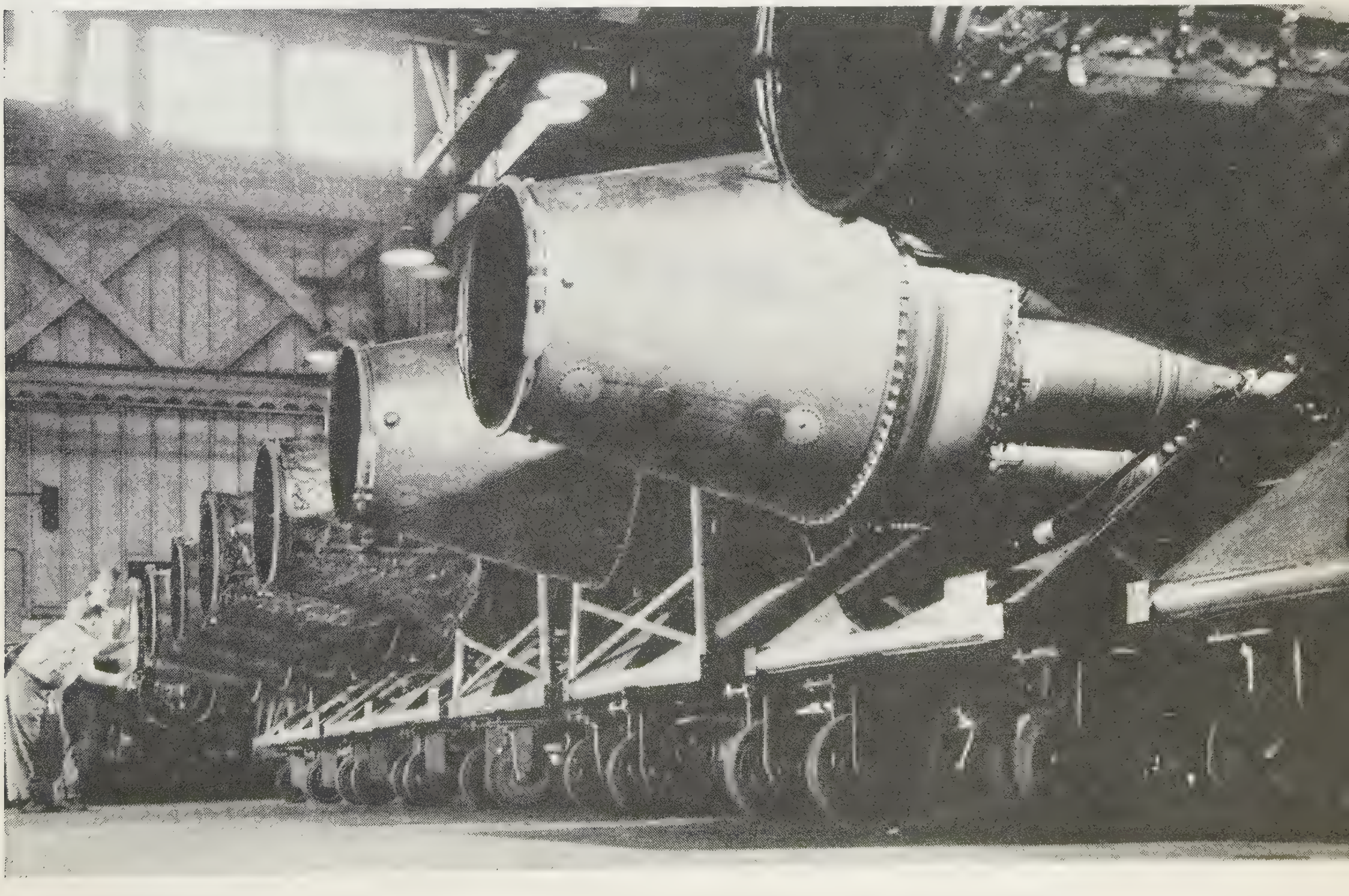
At the close of the year 1951, the aircraft industry—air frame, engine, propeller and parts and components manufacturers—was employing more than 600,000 people. This was more than double its employment at the beginning of hostilities in Korea and compares with the World War II peak of more than 2,000,000 aircraft workers.

The sales volume of the 15 largest air frame, engine and propeller companies was expected to approach $2,500,000,000 in 1951, compared with 1950 sales of $1,809,000,000. This represented an increase of 20% in the year and was the largest volume of sales reported by those companies since World War II.

Despite the increased sales volume, it was anticipated that profits would be substantially less than the $83,500,000 reported by the same 15 major companies in the 1950 period. This was attributable to the effects of the excess profits tax, delivery delays caused by materials and machine tools shortages, the effect of strikes in both primary and component manufacturing establishments, rising wage rates (the average hourly pay which increased from $1.64 in 1950 to $1.80 in Sept. 1951), increased costs of materials and the increased costs of inducting and training new employees.

Several new aircraft with superior performance were placed in production during the year. These planes, which would come off assembly lines in 1952, were the result of many years of intensive research and development activity. They incorporated the latest innovations in components and accessories and were provided with new jet power plants—having thrust ratings far greater than any in use during the year.

One of the most significant developments in aviation in 1951



JET ENGINES for U.S. air force planes in production at Lynn, Mass., in 1951, at the General Electric company's centre for jet engine development, testing and production was the tremendous growth in helicopter activity. Manufacturers of rotary wing aircraft reported backlog in excess of $500,000,000, resulting in unfilled orders greatly in excess of any previous commitments.

During the year, design competitions were undertaken for new interceptors, and engineers began building prototypes of the supersonic fighters of the future. The year also marked the award of contracts to develop nuclear power plants and an air frame capable of using this new power source.

Missile development continued in all categories—air to air, air to surface, surface to air and surface to surface—and the efforts of many years' research and development in the missile field culminated in the award of production contracts for missiles in several of these categories.

Continued expansion of the aircraft manufacturing industry was anticipated throughout 1952. It appeared that fiscal 1953 appropriations for aircraft procurement would exceed $10,000,000,000. It was anticipated that the production rate would exceed a 1,500-planes-per-month level by late 1952, unless unforeseen conditions should intervene.

With transport aircraft backlogs at an all-time peak as the year ended, it was expected that deliveries of these aircraft to United States and foreign air lines in 1952 would nearly triple 1951 figures and would provide the means for further increasing the volume of air travel.

Despite the tight labour supply (especially in skilled technicians) it was anticipated that employment in the aircraft industry, including the parts and components manufacturers, would approach the 1,000,000 mark by the close of 1952. Although aircraft production, measured in terms of units, would not compare with World War II aircraft production when employment was at the 1,000,000 mark, in terms of air-frame pounds the industry's efforts should approximate the World War II record. In this connection it must be remembered that the aircraft of 1951 on the average was more than twice as heavy as its World War II counterpart. (*See* also AVIATION, CIVIL; AVIATION, MILITARY; JET PROPULSION; MUNITIONS OF WAR.) (DE. C. R.)

Air Forces of the World: *see* AVIATION, MILITARY.
Air Mail: *see* POST OFFICE.
Airports and Flying Fields: *see* CIVIL AERONAUTICS ADMINISTRATION.

Air Races and Records.

In 1951 the National Air races were resumed after an absence of one year, but pilots of the armed forces just about monopolized the big show held at the Detroit-Wayne airport in August. Col. Fred J. Ascani twice exceeded the listed world record on his way to winning the Thompson trophy. Only entry in the final, Colonel Ascani streaked around six pylons over the 100-km. closed course at 628.698 m.p.h. More than 100,000 persons saw the flight of the F-86E jet fighter plane on Aug. 19.

The pilot from the Edwards Air Force base at Muroc, Calif., had been clocked at 635.411 m.p.h. in a qualifying trial, and National Aeronautic association officials submitted that time for consideration as a new world standard for such a course. The recognized mark of 605.230 m.p.h. was set by Douglas Derry of Great Britain April 12, 1948, with a British de Havilland.

Another record fell when Col. Keith K. Compton of the air force captured the Bendix trophy in a transcontinental race against six other jet fighters and bombers. His time for the 1,191-mi. course from Muroc, Calif., to the meet at Detroit was unofficially given as 3 hr. 27 min. 56.4 sec. for a speed of 553.761 m.p.h. Colonel Compton, a test pilot from Florida, flew an F-86 Sabre in surpassing the record made at Cleveland, O., in 1949. Two F-84 Thunderjets followed Colonel Compton in, Col. Emmett Davis of Compton, Calif., just edging out Maj. Gilbert A. Pederson of Arcadia, Calif., for second honours. The race was restricted to members of the armed forces.

CHARLES BLAIR (seated in small plane), first pilot to cross the north pole alone in a single-engined plane. He flew a converted F-51 fighter plane nonstop from Norway to Alaska on May 29, 1951. He is shown arriving in New York city on May 30 after a nonstop flight from Alaska

Eighteen fliers took part in qualifying tests for the $25,000 Continental Motors Trophy race, only event open to civilian pilots. John Paul Jones of Van Nuys, Calif., piloting a plane called "Shoestring," captured the big prize for the second straight time with a record of 197.218 m.p.h. over a closed course of two and one-half miles. Steve J. Wittman of Oshkosh, Wis., was runner-up.

The fifth annual all-Woman Transcontinental Air race (Powder Puff derby) was scheduled to coincide with the National Air races and 44 planes took part in this all-feminine race from Santa Ana, Calif. The winner of this event for light craft is determined on the basis of advertised cruising speed and other factors, with the rules insisting on overnight stops within 30 min. after sundown. First to bring her plane down in Detroit was Mrs. Arleen Davis of Cleveland, flying a Cessna 195. However, in the final tabulation, Claire McMillen of Santa Ana, with Mrs. Frances Bera of Bellflower, Calif., as copilot, was declared the victor. The elapsed time of their Cessna 140 was a little more than 48 hr. Peggy Lennox of Tampa, Fla., finished first in the annual All-Women's International Air race from Orlando, Fla., to Windsor, Ont.

The annual two-day Miami (Fla.) show drew big fields and major winners included the following: George Young, Muncie, Ind., low-wing, executive-type class; Bill Murphy, Miami, Fla., unlimited open class; and Rodney Jocelyn, Langhorne, Pa., national aeronautics class.

With major events in Great Britain, including the King's cup, cancelled, it fell the lot of a bomber pilot to write a page for English aviation history. R. P. Beaumont, 31-year-old World War II ace, streaked across the Atlantic from Aldergrove field at Belfast, N. Ire., to Gander, Nfd., in 4 hr. 19 min. on Aug. 31, eclipsing the former mark of 4 hr. 40 min. Flying a royal air force twin-jet Canberra, Beaumont covered 2,072.79 mi. of the great-circle route at an average speed of 480.2 m.p.h. (T. V. H.)

Air Travel: *see* AVIATION, CIVIL.

A.L.A.: *see* AMERICAN LIBRARY ASSOCIATION.

Alabama. Alabama, "the heart of Dixie," was admitted to the union as the 22nd state on Dec. 14, 1819. It is bounded on the north by Tennessee, on the east by Georgia, on the south by Florida and the Gulf of Mexico and on the west by Mississippi. Called the "Cotton state" or the "Yellow-Hammer state," its area includes 51,078 sq.mi. of land and 531 sq.mi. of water.

The 1950 census gave Alabama a population of 3,061,743, compared with 2,832,961 in 1940. Of Alabama's total population, 43.8% is defined as urban and 56.2% as rural. Birmingham, with 326,037 people, is the largest city. Mobile is second, with 129,009. Montgomery, the state capital, has 106,525 citizens. Other large cities include Gadsden, 55,725; Tuscaloosa, 46,396; Bessemer, 28,445; Anniston, 31,066; Dothan, 21,584; Decatur, 19,974; Huntsville, 16,437; Phenix City, 23,305; Selma, 22,840.

The principal elective officials, who serve four years, included in 1951: Governor, Gordon S. Persons; lieutenant governor, James B. Allen; attorney general, Silas Coma Garrett, III; state auditor, John Brandon; commissioner of agriculture and industries, Frank M. Stewart; secretary of state, Mrs. Agnes Baggett; state treasurer, Sibyl Pool; state superintendent of education, W. J. Terry.

History.—Governor Persons took office on Jan. 16, 1951. On Feb. 2, Persons abolished the use of the lash in Alabama's 35 correctional institutions. During his first year in office, he succeeded in increasing the 1% sales tax to 3%, the revenue to go to education; obtained a $3 car licence tag, effective in 1953; put through a $25,000,000 road bond issue, in a state vote. On Dec. 11, 1951, Alabama voters rejected a plan to reapportion the state legislature, with each of the 67 counties to have a senator, instead of the existing 35 upper-house members. A new voter qualification law was approved by 369 votes in a ballot that attracted 120,345 voters. Although the new voter registration amendment made no mention of race, creed or colour, many contended that it was aimed at Negro voters. It required prospective voters to be of "good character"; to embrace the "duties and obligations of citizenship"; to fill out a written questionnaire; and to sign an anti-Communist oath. The various county boards of registrars were to administer the law.

Education.—During the academic year 1950–51 (ending June 30, 1951) the total number of public schools in Alabama was 3,258. Total enrolment was 681,007. Of this number, 443,255 were enrolled in elementary schools and 237,752 in high schools. There were 13,332 elementary school teachers and 8,908 high school teachers. There were nine state-supported institutions of higher learning.

In the school year 1950 there were 43,120 students enrolled on college campuses and a teaching staff of 1,828. Of these, 7,739 were Negroes, with teachers numbering 160. The total on- and off-campus enrolment, including attendance at the university centres, was 62,481, with 2,092 teachers. Of this enrolment, 8,879 were Negroes, with 256 Negro teachers. There were 12 denominational and private colleges, with approximate enrolment of 21,084.

Social Insurance and Assistance, Public Welfare and Related Programs.—Amounts spent for public assistance categories in Alabama during the 1950–51 fiscal year (ending Sept. 30, 1951) and average number of recipients (in parentheses) during 1950–51 were as follows: old-age assistance, $20,154,623.17 (81,082); aid to the blind, $414,186.50 (1,550); aid to the handicapped, $2,118,047.43 (8,310); aid to dependent children, $7,558,537.67 (18,649); aid to children in foster care, $177,075.78 (526); temporary aid, $26,905.71 (92). During the fiscal year 1950–51 $30,449,376.26 was paid to 110,209 persons in the various aid phases. Alabama's prison population on Oct. 1, 1951, the end of the fiscal year, was 4,312. Total expenditures for the department of corrections and institutions were $3,819,466.49.

Communications.—The state highway system included 7,805 mi. of road. The county systems had 52,763 mi., and there were approximately 4,000 mi. of municipal streets. For 1950–51, state highway department expenditures for roads were $25,320,020.90. The estimated railroad mileage was 5,000. The state had 455,000 telephones. There were 101 public, commercial and private airports, 2 government fields (Tennessee Valley authority) and 16 that belonged to the air force and navy. Included were 1,394 mi. of controlled airways and 1,903 mi. of off-airway carrier routes.

Banking and Finance.—On June 30, 1951, there were in Alabama 155 state banks and 1 branch, with total deposits of $286,282,450.56. Total resources were estimated at $314,768,040.77. There were 70 national banks, 20 branches and 1 facility, which had total deposits of $938,194,000 and total resources of $1,015,464,000. On Dec. 30, 1950, 8 Alabama savings and loan associations had resources of $11,956,397.92. On the same date there were 64 credit unions with total resources of $156,797.31.

Agriculture.—Alabama's total principal crop value in 1951 (exclusive of livestock, swine and poultry) was $336,300,000, an increase of 15% over 1950. The cotton crop (lint and seed) grossed $193,000,000 compared with $133,000,000 in 1950; peanuts grossed $19,000,000 in 1951. The estimated over-all value of Alabama agricultural production ranged from $425,000,000 to $450,000,000. Income to Alabama farmers from cattle sales was expected to be about $50,000,000, compared with $38,000,000 for 1950; poultry, $30,000,000; dairy products, about $26,000,000.

Table I.—*Leading Agricultural Products of Alabama*

	1951	1950	Average 1940–49
Cotton, bales	920,000	575,000	919,000
Cottonseed, tons	359,000	225,000	355,000
Corn, bu.	46,303,000	56,954,000	46,983,000
Peanuts, lb.	202,320,000	324,950,000	310,160,000
Hay, tons	556,000	641,000	750,000
Sweet potatoes, bu.	1,365,000	3,150,000	5,376,000
Irish potatoes, bu.	4,216,000	3,712,000	4,186,000
Oats, bu.	2,052,000	2,938,000	5,055,000
Soybeans, bu.	1,584,000	1,387,000	468,000
Sorghum grain, bu.	323,000	595,000	632,000
Sorgo syrup, gal.	275,000	528,000	1,580,000
Sugar cane syrup, gal.	480,000	1,150,000	2,360,000
Peaches, bu.	644,000	440,000	1,309,000
Pecans, lb.	25,000,000	13,200,000	11,825,000

Source: U.S. Department of Agriculture.

Manufacturing.—In 1950, 5,041 Alabama manufacturing establishments, with an active value of $529,000,000, employed 226,000 persons. Income from pay rolls and profits was $888,000,000; cost of materials and service was $1,636,000,000; sales or receipts totalled $2,524,000,000. The primary metals industry employed 47,000 workers, with sales or receipts totalling $672,000,000. Textiles employed 55,000, with sales or receipts totalling $548,000,000; lumber, 42,000 workers with sales or receipts, $205,000,000; food products, 15,000 workers, with sales or receipts, $287,000,000. (B. BT.)

Mineral Production.—Table II shows the tonnage and value of those mineral commodities produced in the state in 1949 the values of which exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Alabama ranks third among the states as a producer of iron ore.

Table II.—*Mineral Production of Alabama*

(In short tons, except as noted)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Cement (bbl.)	9,394,348	$20,320,658	10,574,955	$23,175,772
Clays	856,719	934,262	992,836	1,045,217
Coal	12,933,830	79,187,827	14,421,810	88,343,572
Coke*	5,161,397	55,493,394	5,833,142	64,331,998
Ferroalloys*	99,268	14,275,595	165,002	23,402,834
Iron ore	8,191,908	27,553,175	8,290,473	28,932,801
Iron, pig*	3,664,801	131,162,133	4,307,035	167,984,326
Lime	359,446	3,203,564	389,071	3,577,850
Petroleum (bbl.)	462,000	†	735,000	?
Sand and gravel	3,296,582	2,268,013	3,613,363	2,463,722
Stone	2,636,930	6,039,867	2,587,500	6,038,220
Other minerals	...	5,306,340	...	?
Total		144,813,706		?

*Values for processed materials are not included in the totals.

†Value included with other minerals.

Åland Islands: *see* FINLAND.

Alaska. Alaska, the northernmost territory of the United States, is separated from Siberian U.S.S.R. by the Bering strait. The boundary line follows the international date line between Big Diomede Island, which is soviet soil and in the eastern hemisphere, and Little Diomede Island, which is on the U.S. side in the western hemisphere. These islands are about three miles apart. Alaska has an area of 586,400 sq.mi. Its population according to the 1950 census was 128,643, compared with 72,524 in 1940. The gain of 77.4% in the ten-year period did not include the military, naval or coast guard per-

ALASKAN COLONY FARM at Matanuska. As a federal resettlement project, the colony was begun in 1935 as a tent town of 202 families. By 1951 the population was 4,500 and there were 12,000 ac. in production

sonnel stationed in the territory. The bureau of the census estimated the population as of July 1, 1951, at 136,000. The Aleutian Islands, a chain of small islands extending about 1,200 mi. westward from the extremity of the Alaskan peninsula, constitute part of the territory of Alaska. The largest town is Anchorage, with a 1950 population of 11,060. Other towns and their preliminary 1950 populations were as follows: Juneau (5,818); Ketchikan (5,202); Petersburg (2,291); Sitka (2,080); Kodiak (1,625); Wrangell (1,227); Seward (2,063); Nome (1,852); Fairbanks (5,625); Seldovia-Homer district (1,526). Chief officers of the territory in 1951: Ernest Gruening, governor since 1939; Joseph W. Kehoe, secretary of Alaska. Elected by the people: E. L. Bartlett, delegate in congress; Henry Roden, territorial treasurer; Frank A. Metcalf, highway engineer; J. Gerald Williams, attorney general; Henry Benson, commissioner of labour.

History.—The most significant event occurring in Alaska during 1951 was the announcement of construction of a $40,000,000 pulp mill near Ketchikan. This basic forest industry was expected to do much to stabilize the economy of the southeastern region, which had been of a seasonal character, based on salmon and halibut fishing. Construction plans for Alaska's first plywood mill, at Juneau, also were announced.

Construction activities reached a new peak in 1950, the total program being estimated at $500,000,000. Although the bulk of activities centred on defense installations, numerous projects important to development of the territory were undertaken. Construction commenced on Alaska's first large hydroelectric plant (30,000 kw. installed capacity) at Eklutna, near Anchorage. Great strides were taken toward alleviating the critical housing shortage with the erection of numerous apartment buildings in Anchorage, Fairbanks, Juneau, Ketchikan and other communities. Paving of the interior highway system continued throughout the year. New road construction included the linking of Anchorage with Seward on Kenai peninsula by a 128-mi. highway. (*See* also FORESTS.)

Education.—Alaska in 1951 had 27 high schools with 2,363 pupils and 207 teachers. The elementary schools, 73 in number, had an enrolment of 12,234 and 543 teachers. For native children the Alaska native service, a division of the department of the interior, maintained 93 day schools and 3 boarding schools with an enrolment of 5,407.

Banking and Finance.—The territory had a net cash balance of $4,331,687.97 as of Dec. 15, 1951. Alaska has no bonded indebtedness and operates on a cash basis. Funds of the territory were deposited in the 17 territorial banks and 5 national banks located within Alaska.

Fisheries.—Alaska's salmon pack, considered the largest in the world, totalled 3,473,592 cases in 1951 with a value of about $90,000,000. The halibut, shrimp, crab and cod fishery brought the total value of the seafood pack of the territory up to more than $110,000,000 for the year.

Agriculture.—The total value of production was $2,186,000, of which $1,275,000 came from the Matanuska valley. Tanana valley accounted for $496,000, Kenai peninsula $66,000 and southeastern Alaska $349,000. Dairy products were valued at $997,000, vegetables $528,000, poultry $329,000, livestock $177,000 and fur farms $125,000. A total of 1,061 ac. of new cropland was cleared during the year. (ER. GR.)

Mineral Production.—The table shows the tonnage and value of mineral production in the territory in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Mineral Production of Alaska

(In short tons, except as noted)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Coal	433,533	$3,309,303	412,455	$3,033,445
Gold (oz.)	229,416	8,029,560	289,272	10,124,520
Sand and gravel	?	*	3,050,020	2,377,407
Tin concentrate	57	114,800	?	*
Other minerals		4,096,009		2,463,000
Total		15,549,672		17,798,000

*Value included with other minerals.

FILMS OF 1951.—*How to Build an Igloo* (Young America Films, Inc.); *Keni-Lake George Exposition, The Voice of the Pribilofs* (International Film Foundation).

Alaska Highway: *see* ROADS AND HIGHWAYS.

Albania. A people's republic in the western Balkans, Albania is bounded north and east by Yugoslavia and south by Greece, with an Adriatic coast line of 200 mi. Area: 10,629 sq.mi. Pop.: (1930 census) 1,003,097; (mid-1950 est.) 1,200,000. Language: literary Albanian and two dialects, Gheg north of the river Shkumbi and Tosk in the south. Religion: Moslem 65%, Greek Orthodox 23%, Roman Catholic 11%. Chief towns (1949 est.): Tiranë (cap. 40,000); Scutari or Shkodër (30,000); Koritsa or Korçë (28,000); Elbasan (18,000). Chairman of the presidium of the people's assembly, Omer Nishani; prime minister, Gen. Enver Hoxha.

History.—The theme that ran through events in 1951 was isolation. The main preoccupation of the Communist government was with real or imaginary attempts to overthrow a regime apparently cut off from outside help. The soviet government continued to exploit to the best of its ability Albania's natural resources without committing itself to Albania's defense. In the capital numbers of soviet advisers and technicians were to be seen and the soviet press gave considerable publicity to Albania, but no moves were made to sign a soviet-Albanian mutual defense treaty.

Throughout the year state security was emphasized. The most striking news to reach the outside world (although not officially confirmed) was the reported explosion of a time bomb outside the soviet legation in Tiranë on Feb. 19. The explosion apparently did little damage and casualties were few, but the incident was followed by the arrest of between 300 and 400 Albanians, of whom 40 were executed immediately without trial. Shortly afterward, on Feb. 25, the government issued instructions calling for a ten-day intensive campaign against elements hostile to the regime and ordering the immediate surrender of all firearms and close-combat weapons.

The government frequently announced the death or capture of "enemy agents" who had allegedly entered Albania illegally on instructions from western governments; these amounted to 65 during the year. At the same time, Albania maintained its hostile attitude to Yugoslavia, Greece and Italy, dispatching frequent protests against alleged violations of Albania's frontiers and air space.

In this uneasy situation the Albanian government pressed on as best it could with the economic and social measures outlined in the two-year plan. The government's agricultural policy, proclaimed at a session of the central committee of the Albanian Workers' (Communist) party on April 12 as further development of the collectivization of agriculture, was reversed at a second meeting of the committee on May 14. A warning was then issued against undue haste, and the party's policy was laid down as consolidation of results so far achieved. The government continued to make exaggerated claims to industrial progress, and on Sept. 26 it announced the introduction of a new five-year plan based on soviet experience.

Major changes in the Albanian cabinet during the year were: in March Spiro Spano, one of the deputy premiers, was dismissed; in September Mehmet Shehu, member of the Politburo of the Albanian Communist party, deputy premier and minister of the interior, was relieved of all his duties and succeeded by Iosif Pasko.

An interesting development was the decree published on Aug. 3 of a new statute for the Albanian Roman Catholic Church. Under this decree, the church was required to break off all relations with the Vatican and to conduct its external relations through the Albanian government.

Albania's diplomatic representation in western Europe was restricted to legations in Italy and France. The negotiations between Great Britain and Albania over compensation for the loss of two British destroyers and 44 British lives in the Corfu channel mining incident of 1947 continued during the year, but no settlement was reached. (M. MACK.)

Education.—Schools (1949): elementary 1,910, pupils 162,000; higher elementary 145, secondary 20, total pupils 19,140. A teachers' college was opened at Tiranë in 1946.

Finance.—Monetary unit: lek, until mid-1948 at par with Yugoslav dinar, with an official exchange rate (Nov. 1951) of 139.25 leks to the pound sterling and 49.6 leks to the U.S. $1.

Transport and Communications.—Roads (1949): 1,766 mi. Licensed motor vehicles (Dec. 1950): cars 500; commercial 1,200. Railways (1950): 26 mi. Shipping (1949): merchant vessels 6. Post and telegraph offices: 53. Radio receiving sets (1950): 40,025.

Agriculture.—Main crops (metric tons): wheat (1947) 54,000; maize (1947) 140,000; olives (prewar) 17,000; grapes (prewar) 14,000; potatoes (1949) 4,000; tobacco (1945) 1,500. Livestock (1946 est.): cattle and buffaloes 371,000; sheep 1,700,000; horses 50,000; pigs 35,000; goats 854,000; asses 40,000; mules 10,000.

Industry.—Crude-oil production (1950): 150,000 metric tons.

Alberta. The most westerly of the three prairie provinces of Canada, Alberta was created by parliament in 1905. Area: 255,285 sq.mi., of which 6,485 sq.mi. are water; pop.: (1941) 796,169, (1951 prelim. census) 936,556. Largest city: the provincial capital, Edmonton, (1951 prelim. census) 158,709; metropolitan area, 172,112.

History.—Spectacular oil development, expanded provincial revenues and general buoyancy marked the year 1951 in Alberta. The legislature sat from Feb. 22 to April 7, and its major new enactments included the prohibition of aerial photographic surveys of natural resources without provincial permit; the bringing of all the cities of the province under one law (instead of separate charters); the preparation for emergencies with a new civil defense and disaster act; and the extension of extra financial aid to municipalities. Amendments were made to existing laws respecting natural resources, agriculture, highway accidents, co-operatives, irrigation, public utilities, education and nearly 90 other items within provincial jurisdiction.

When the federal government dropped rental controls, the province took over by working out a plan of landlord-tenant cooperation in setting rents, with a rental board to arbitrate disputes. The federal government sent an expedition to survey the northern British Columbia-Alberta boundary.

Education.—By Sept. 1951 nearly $16,000,000 had been loaned by the provincial government to boards of education after the School Borrowing Assistance act went into force in 1950. The latest available revised statistics for provincially controlled schools were for the year ending 1948: total enrolment, 156,629; average daily attendance, 133,410; teachers, 5,559; total revenues, $22,381,830.

Highways.—An $18,500,000 program of main highway construction, and improvement to 1,000 mi. of existing roads, got under way during 1951, including $4,000,000 to be spent on the Alberta section of the Trans-Canada highway.

Finance.—The provincial budget for the 1951–52 fiscal year was: revenue, $94,223,090; expenditure, $93,969,610; surplus, $253,480. Provincial revenues from oil royalties, leases and development rights had, by Nov. 1951, reached a total of $110,750,000. On Sept. 30, 1951, the funded provincial debt was $97,992,487 (1936: $167,000,000).

Agriculture.—Heavy September snow and freezing rain cut the wheat crop by an estimated 10,000,000 bu. and the oat crop by 15,000,000 bu., from estimated yields of 168,000,000 and 129,000,000 bu., respectively. During the summer there had been an unprecedented 62 days of hail, causing $30,000,000 damage. In 1950 the value of all agricultural production was set at $510,973,000.

Manufacturing.—Industrial expansion was estimated at $100,000,000 for 1951 (1950: $40,000,000). Involved, in the Edmonton area, were oil refineries, a pulp and paper mill and a cellulose acetate plant.

Minerals.—In the first eight months of 1951, 862 oil wells and 23 gas wells were completed. By October there were 2,667 active oil wells in the province, with a peak daily flow in mid-October of 176,427 bbl. During the first ten months of 1951 production was 38,203,896 bbl. of crude. (C. CY.)

Alcohol, Industrial. The end of 1951 found industrial alcohol in good supply, with prices at 89½ to 91½ cents per gallon, basis pure in cars. One major producer established a contract price for early 1952 of 75 cents per gallon, subject to quarterly adjustment. Some denatured synthetic production was approximately $1 per gallon.

U.S. production during the year 1951 was 444,935,011 proof gal., as compared with 313,535,129 proof gal. in the previous year. Stocks were much larger than a year previous; as of June 30, 1951, they were 99,684,133 proof gal., as compared with only 23,247,967 gal. a year earlier. (J. K. R.)

Alcoholic Foundation, Inc. (Alcoholics Anonymous): *see* SOCIETIES AND ASSOCIATIONS, U.S.

Alcoholic Intoxication: *see* INTOXICATION, ALCOHOLIC.

Alcoholic Liquor: *see* BREWING AND BEER; LIQUORS, ALCOHOLIC; WINES.

Alemán, Miguel (1903–), president of Mexico, was born on Sept. 29 in Sayula, Veracruz, Mexico. He studied at the National Preparatory school in Mexico City and later at the National University of Mexico, also in Mexico City, where he received his law degree in 1928. He was successively consulting attorney for the Mexican ministry of agriculture; judge of the federal court; senator from Veracruz; governor of that state (1936–40); and minister of the interior under Pres. Manuel Avila Camacho, whom he succeeded as president in 1946. He was the republic's first civilian president since Francisco I. Madero, who served from 1911 to 1913.

During World War II and afterward, Alemán championed inter-American solidarity, while vigorously pursuing a domestic program emphasizing education, industrialization, irrigation and the modernization of agriculture, source of income for 70% of Mexico's population. In March 1951 when 3,500 striking coal miners reached Mexico City, he offered them food, camping facilities, medical attention and transportation to their homes, provided that they would accept non-Communist leadership of their union.

Under his presidency Mexican finances improved to the point that it was reported early in 1951 that Mexico would not ask further loans from the U.S. Alemán discouraged some of his followers in congress who wished to amend the constitution so that he might succeed himself in the 1952 elections.

Aleutian Islands: *see* ALASKA.
Alfalfa: *see* HAY.

Algeria. A French territory of North Africa, Algeria is situated between Morocco (west) and Tunisia (east), with a status of government-general of the French union. Total area: 846,124 sq.mi., administered in two parts: northern Algeria (80,966 sq.mi.), comprising the overseas *départements* of Algiers, Oran and Constantine; and the four territories of southern Algeria (765,158 sq.mi.). Pop.: (1936 census) 7,234,684; (1948 census) 8,676,016, including 816,993 (9.4%) in the southern territories; (1950 est.) 8,900,000. Arabs and Berbers, who are Moslem, constitute 86.7% of the population; Europeans (1936) 987,252, predominantly Roman Catholic; Jews (1949 est.) 130,000. Administration: Algerian assembly, 120 members elected by two colleges; in the first college, citizens of French status and Moslems distinguished by military, university, administrative or judicial qualifications; in the second, all other Moslem citizens. The assembly manages Algerian affairs in agreement with the governor general, who has wide powers.

Chief towns (1948 census): Algiers (cap., 315,210); Oran (256,661); Constantine (118,774); Bône (102,823); Tlemçen (69,668). Governor general: Roger Leonard.

History.—The elections on June 17, 1951, to the national assembly in Paris were notable for the total victory, in the second college, of the moderate independents over the nationalists of the Mouvement pour le Triomphe des Libertés Démocratiques (M.T.L.D.), autonomists of the Union Démocratique du Manifeste Algérien (U.D.M.A.) and Communists. In the first college, victory went to the independents and the Rassemblement du Peuple Français (12 seats against 1 Socialist and 2 Communists). Similar results had attended the elections to the Algerian assembly in February and were to attend those to the general councils (of the three *départements*) in October; in the latter the M.T.L.D. and the U.D.M.A. did not take part, alleging pressure by the authorities. On Aug. 5 these parties formed an Algerian freedom front (Front Algérien de la Liberté) with the Communists and the religious movement of the ulemas. New communes, with elected municipal councils, were set up.

The yearly increase of population reached 150,000, the number of departures for France 85,000. Output of citrus fruits, livestock, minerals and industrial produce was higher.

Education.—Schools (1949): primary 2,188, pupils 331,700; secondary 128, pupils 23,400; technical, pupils 3,000; University of Algiers, students 4,977.

Finance.—Budget (1951–52 est.): balanced at 72,000,000,000 fr. Currency: Algerian franc = metropolitan franc, with an exchange rate of 350 to the U.S. dollar in Sept. 1951.

Foreign Trade.—(1950) Imports 983,000,000 fr.; exports 112,232,000,000 fr. (including 82,279,000,000 fr. to France).

Transport and Communications.—(1950) Railways 4,500 km.; state roads 8,500 km.; secondary roads 26,000 km.; tracks in the Sahara 11,000 km. Motor vehicles licensed: 173,000. Ships entered: Algiers 3,621; Oran 2,660. Aircraft landed: 10,792.

Agriculture.—Main crops (metric tons, 1950): wheat 1,030,000; barley 780,000; oats 150,000; citrus fruits 250,000; olives 100,000; figs 50,000; dates 20,000; potatoes 210,000; vegetables 450,000; tobacco 19,000; wine 14,000,000 hl. Livestock (1950): cattle 766,000; sheep 4,500,000; goats 2,900,000; horses 220,000; asses 330,000; mules 230,000; camels 120,000.

Industry.—Mineral production (metric tons, 1950): coal 250,000; iron ore 2,572,000; phosphates 585,000; zinc 16,000. Industrial production (metric tons, 1950): cement 324,000,000; superphosphates 90,853,000; paper 12,000,000; pig iron 5,900,000; copper wire 3,500,000; matches 181,000,000 boxes; electricity 500,000,000 kw.hr. (HU. DE.)

Aliens. **United States.**—In spite of a definite interest in U.S. naturalization, evidenced by larger citizenship classes and more applications for declarations and petitions, the actual number of persons naturalized (54,716) was low in 1951—lower than in any year since 1910. Of the 54,716, only 14,864 were naturalized under the general provisions of the nationality law. Two-thirds of those who received certificates were persons married to citizens who were not required to file petitions, and 975 were military naturalizations, also not requiring declarations.

Principal Countries of Former Allegiance of Persons Naturalized in U.S.

Former nationality	Years ended June 30 1951	1950	1949	1948	1947
British	10,867	12,697	13,284	12,361	20,328
Canadian	5,872	5,882	5,347	3,860	*
German	5,439	6,065	5,777	7,486	10,703
Italian	5,975	8,743	8,301	9,452	11,516
Polish	3,100	3,793	4,371	5,136	6,495
U.S.S.R.	1,830	2,122	2,752	3,143	3,562
Filipino	1,595	3,257	3,478	5,768	10,764
Mexican	1,969	2,323	2,227	1,895	3,336
Other	18,069	21,464	21,057	21,049	27,200
Total	54,716	66,346	66,594	70,150	93,904

*Included with British.

Seventy per cent of the 2,395 naturalization petitions denied were rejected for want of prosecution. Most of the remaining cases were denied for lack of knowledge and understanding of the fundamentals of the history, principles and form of government of the United States.

Of the 403 judgments of naturalization revoked, 392 were cases in which the foreign service of the department of state initiated action because naturalized citizens had become residents of other nations within five years of U.S. naturalization. In 19 cases action was initiated by the immigration and naturalization service because naturalization had been fraudulently or illegally procured.

In addition to those persons whose United States citizenship was revoked, there were 4,443 persons who expatriated themselves by affirmative action: 1,401 by voting in a foreign political election or plebiscite; 1,084 through naturalization in a foreign state; 836 by taking up residence in a foreign state; 565 by serving in the armed forces of a foreign state; 557 by departing from the United States to avoid military service and for other reasons.

New Legislation.—On Aug. 27, 1951, S. 2055, an omnibus bill, was introduced into the senate; this was a refinement of two bills introduced previously. These bills had as their purpose the recodification, and in many particulars the revision, of immigration and nationality laws.

Of the public laws enacted during 1951 relating to immigration and naturalization, the most important was the Internal Security act of 1950 (public law 831, 81st congress, effective Sept. 23, 1950).

The purpose of the statute was to protect the United States from subversive activities. The law required in part that Communist organizations be registered; it required of each resident alien an annually recurring report of his address; it amended the immigration and nationality laws by refining, clarifying and augmenting the classes of persons to be considered as risks

"WETBACKS" hopping a freight car after slipping across the U.S.-Mexican border. They were part of an army of Mexican labourers invading the U.S. in 1951 in search of temporary farm work (mainly in California) or more permanent employment in factories farther north

to internal security; it established that membership *per se* in Communist or other totalitarian groups should be cause for exclusion, deportation or denial of naturalization. It added ability to read and write English to ability to speak it as a prerequisite for naturalization.

The Internal Security act specified that all members of Communist or totalitarian groups be excluded, deported or denied naturalization in appropriate cases. Enforcement of these provisions meant that nominal members of such groups, who may have joined youth groups or labour unions to obtain work, or for other similar reasons, had to be denied entry. Public law 14 (82nd congress, 1st session), approved March 28, 1951, clarified the immigration status of such aliens by defining membership in the proscribed organizations as being voluntary membership only.

An act of June 28, 1951 (public law 60, 82nd congress, 1st session), amended the Displaced Persons act of 1948, as amended, by extending from June 30, 1951, to Dec. 31, 1951, the terminal date of visa issuance for the major categories of displaced persons.

Other public laws relating to immigration included an act of Aug. 19, 1950 (public law 717, 81st congress, 2nd session), to permit the admission of racially ineligible spouses and minor children of citizen members of the U.S. armed forces. The time limit of this act was extended by public law 6 (82nd congress, 1st session), approved March 19, 1951.

Another noteworthy legislative development was public law 843 (81st congress, enacted Sept. 27, 1950), which exempted the conduct of deportation proceedings from sections 5, 7 and 8 of the Administrative Procedures act. From Feb. 20, 1950, the date of the supreme court decision in the case of *Wong Yang Sung* v. *McGrath*, until Sept. 27, 1950, the immigration and naturalization service conducted hearings with the full formalities required by the Administrative Procedures act. The new regulations and policies, drafted on the basis of public law 843, aimed at a concise hearing to determine alienage, deportability and eligibility for discretionary relief. At the same time, all the rights of the alien to a fair hearing were safeguarded. (*See* also IMMIGRATION AND EMIGRATION; LAW.) (A. R. MY.)

United Kingdom.—The number of aliens registered in the United Kingdom on Oct. 1, 1951, was 420,595 (males 254,547; females 166,048). The principal nationalities represented and the numbers of each compared with similar figures at the same date in 1950 were: Austrian 9,737 (10,037); Belgian 5,295 (5,520); Chinese 9,966 (9,725); Czechoslovak 5,223 (6,017); Dutch 9,363 (9,117); French 15,316 (14,901); German 47,359 (47,762); Italian 25,664 (21,672); Latvian 13,427 (13,794); Lithuanian 6,303 (6,860); Norwegian 6,096 (5,966); Polish 138,439 (145,524); Russian, including White Russian, 35,743 (38,172); Swiss 12,255 (12,878); U.S. 20,894 (18,283); Yugoslav 9,151 (9,391). The figures included 10,000 aliens to whom no nationality could be attributed. The number of incoming travellers to the U.K. during the first nine months was more than 630,000. In July 1951, 128,015 foreigners landed at U.K. ports and 106,772 embarked. Figures for July 1950 were 114,738 and 97,062.

In March 1951 the United Kingdom concluded a visa abolition agreement with Cuba. As the result of earlier agreements the nationals of the following countries were not required to obtain visas for travel to the U.K.: Belgium, Denmark, France, Iceland, Italy, Liechtenstein, Luxembourg, Monaco, the Netherlands, Norway, San Marino, Sweden, Switzerland and the United States. The provisions of the Aliens order, 1951 (statutory instrument 966/1951), included the extension from two to three months of the initial period during which a foreigner arriving in the U.K. was not required to register with the police and the extension from two weeks to two months of the period during which a foreigner living in the U.K. might be absent from his registered address without reporting the fact.

In 1951 about 36,000 permits were issued for nonresident foreigners to go to the United Kingdom and work for periods of varying length. The majority of permits were for domestic employment in hospitals, institutions and private households. In addition, the number of German, Austrian and Italian women received under official schemes for employment in hospitals, institutions and the undermanned industries rose to 10,000, 2,300 and 2,000, respectively. Recruiting teams went to Italy to select men for work in coal mining and other undermanned industries, and by Oct. 1951, 1,100 men for the coal mines and 1,100 for other industries had arrived in the U.K.

There were also 77,000 foreigners, mostly of Polish or Baltic origin, who were temporarily accommodated in displaced persons camps on the continent immediately after the end of World War II and had subsequently, prior to 1951, been admitted for employment in the United Kingdom with a view to settlement. With them came nearly 4,000 dependents. From Jan. 1, 1951, onward, those with three years' residence were free to take any work they could obtain. In addition, about 15,000 former members of the German armed forces, 8,500 former Ukrainian prisoners of war and 1,000 Italian former prisoners of war, who volunteered to remain in the U.K. to work in agriculture instead of accepting repatriation at the end of 1948, would be free to take any work they could obtain from Jan. 1, 1952, onward.

Between Jan. 1 and Oct. 1, 1951, 3,576 new applications for naturalization were lodged compared with 5,702 for the same period in 1950. Certificates granted during the same period numbered 3,501.

FILMS OF 1951.—*Service and Citizenship* (Coronet Films).
(T. G. W.)

Alimentary System, Disorders of: *see* STOMACH AND INTESTINES, DISEASES OF.

Allergy. Among conditions believed in 1951 to be to some extent allergic disorders, according to Leo H. Criep, were rheumatic fever, periarteritis nodosa and certain types of nephritis (collagen disease).

Since many instances of allergic rhinitis and bronchial asthma become secondarily complicated by infection, benefit might be obtained in these cases by antibiotic treatment, taken either by aerosol (breathing in) or by injection.

Much research was being conducted in immunochemistry as applied to allergy. The antibody may be obtained in pure form. Since allergy is one phase of immunology, these studies helped to make clear the nature of the allergic reaction.

Allergic manifestations are the result of antigen-antibody reaction. Light was being shed on this problem by research which involved the labelling of antigen molecules with radioactive isotopes. The localization of the antigen in the body was then determined by means of the Geiger counter or radioautographs. Frank Dixon and collaborators reported on the study of the fate of antibodies labelled with radioactive isotopes and late in 1951 were studying the life of antibodies in various species.

A new book dealt with regional factors in allergy, including a study of climate, humidity, temperature, etc., in various parts of the country with respect to the manner in which they affect the incidence, severity and extent of allergic disease.

Further studies showed that ACTH and cortisone are of value only as temporary expedients in the relief of the very acute stage of asthma or certain types of allergic dermatosis. According to Sidney Friedlaender, oral cortisone treatment is equally as effective in the treatment of asthma, hay fever, urticaria and other allergic diseases as comparable doses of the drug given intramuscularly.

Antihistaminic agents continued to enjoy popularity. They offer symptomatic relief only. Reports appeared on the serious and occasionally fatal results obtained from the prolonged and indiscriminate use of these drugs, indicating the danger of self-medication with these agents. Other reports indicated their uselessness as specific agents in the treatment of the common cold. Thurman Dannenberg and Samuel Feinberg pointed out that clinical tolerance may develop after prolonged administration of antihistaminic drugs.

W. C. Spain pointed out the shifting pattern of the agents which produce allergic conditions. This came about by the substitution of nonallergic materials such as rubber and others for feathers, rabbit hair, goat hair, wool, cotton, silk in beddings, furniture and toys. Neither horse serum nor horse dander retained any importance as allergens, because of reduced contact. Cosmetic manufacturers were substituting innocuous ingredients in place of orris root. Attempts were made in many areas to reduce ragweed pollen by spraying with 2, 4-D. To counterbalance such reductions in allergens, it should be stated that many new drugs, synthetics, plastics, new chemicals and dyes had been added to the list of agents which could produce allergic skin disorders of all kinds.

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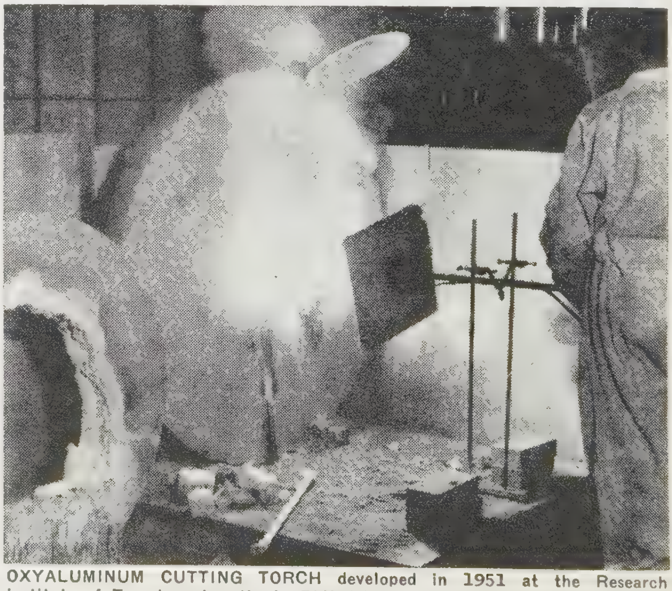
(L. H. C.)

Alloys: *see* METALLURGY; NICKEL.

Almonds: *see* NUTS.

Aluminum. World production of aluminum advanced by 13% in 1950. The bulk of the increase (60%) was in the



OXYALUMINUM CUTTING TORCH developed in 1951 at the Research institute of Temple university in Philadelphia, Pa. Combustion of powdered aluminum in oxygen produced heat equal to that of the sun, permitting the torch to eat into the concrete drum at left within seconds

STANTON GRIFFIS (waving) driving home after presenting his credentials to Gen. Francisco Franco in March 1951. He was the first full-ranking U.S. ambassador appointed to Spain in more than five years

United States, followed by Canada and the U.S.S.R., these three major producers accounting for 92% of the total increase, while most of the minor producers also showed small improvements, as indicated in Table I.

Table I.—*World Production of Aluminum*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Austria . .	44.3	5.8	1.1	5.0	14.7	16.4	19.8
Canada . .	462.1	215.7	193.4	299.0	367.1	369.5	394.6
France . . .	28.8	41.0	52.9	58.6	71.4	59.7	67.2
Germany . .	210.5	22?	...	...	8.0	31.8	29.7
Great Britain	39.7	35.7	35.4	32.4	33.6	34.0	33.0
Italy	18.5	4.8	12.2	27.6	36.5	28.3	40.9
Japan . . .	120.7	18.1	3.5	3.0	7.7	23.4	27.3
Norway . .	22.1	5.1	18.4	23.9	34.2	38.6	51.4
Switzerland .	10.7	5.5	14.4	20.3	20.9	23.1	23.1
U.S.S.R. . .	78?	95?	115?	132?	154?	182?	210?
United States	776.4	495.1	409.6	571.8	623.5	603.5	718.6
Others . . .	54.3	13.6	12.7	15.8	25.7	29.7	15.8
Total . .	1,866	958	870	1,189	1,398	1,440	1,631

United States.—The outstanding features of the aluminum industry in the U.S. are shown in Table II, as reported by the U.S. bureau of mines.

Table II.—*Data of Aluminum Industry in U.S.*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Production, primary . .	495.1	409.6	571.8	623.5	603.5	718.6
Imports, primary . . .	334.1	42.6	15.6	89.1	85.2	187.2
Exports, primary . . .	5.7	16.7	62.3	49.1	36.8	20.5
Producers' stocks . . .	+26.2	−26.3	+0.8	+2.4	+15.9	−12.5
Available new supply .	794.7	461.9	524.2	661.9	636.0	897.8
Secondary recovery .	298.4	278.1	344.8	286.8	180.8	243.7
From old scrap . .	27.3	90.5	163.8	95.6	44.6	76.4
Secondary imports . .	5.2	14.5	15.7	71.7	40.1	67.2
Total supply.	837.2	566.9	703.7	829.2	720.7	1,041.4
Consumption, primary .	696.8	575.7	571.8	684.6	636.0	897.8

Production began to improve at the end of the first quarter of 1950, and demand created by the Korean situation kept the 1951 output at the highest level since 1943. Output during the first nine months of 1951 totalled 619,535 short tons, equivalent to an annual rate of 826,000 tons. (G. A. Ro.)

Ambassadors and Envoys.

The following is a list of ambassadors and envoys to and from the United States, Jan. 1, 1952.

To the United States	Country	From the United States
*Naim, H.R.H. Sardar Mohammad . . .	Afghanistan	*Merrell, George R.
*Paz, Hipólito J.	Argentina	*Bunker, Ellsworth
*Spender, P. C.	Australia	*Jarman, Pete
Kleinwaechter, Ludwig	Austria	*Donnelly, Walter J.[1]
*Silvercruys, Baron	Belgium	*Murphy, Robert D.
*Martínez Vargas, Don Ricardo . . .	Bolivia	*Sparks, Edward J.
*Nabuco, Mauricio	Brazil	*Johnson, Herschel V.
	Bulgaria[2]	
*Barrington, James	Burma	*Key, David McK.
Kimny, Nong	Cambodia	Heath, Donald R.[3]
*Wrong, Hume	Canada	*Woodward, Stanley
*Corea, G. C. S.	Ceylon	*Satterthwaite, Joseph C.
*Nieto del Río, Félix	Chile	*Bowers, Claude G.
*Koo, V. K. Wellington	China	Rankin, Karl L.[4]
*Restrepo-Jaramillo, Don Cipriano . .	Colombia	*Waynick, Capus M.
*Oreamuno, Don J. Rafael	Costa Rica	*Fleming, Philip B.
*Machado, Luis	Cuba	*Beaulac, Willard L.
*Procházka, Vladimír	Czechoslovakia	*Briggs, Ellis O.
*Kauffmann, Henrik de	Denmark	*Anderson, Eugenie
*Thomen, Luis Francisco	Dominican Rep.	*Ackerman, Ralph H.
*Peñaherrera, Luis Antonio	Ecuador	*Daniels, Paul C.
*Abdul Rahim, Mohamed Kamil Bey . .	Egypt	*Caffery, Jefferson
*Castro, Don Héctor David	El Salvador	*Shaw, George P.
*Kaiv, Johannes[5]	Estonia	(Legation at Tallinn closed)
*Imru, Ras H. S.	Ethiopia	*Childs, J. Rives
Nykopp, Johan A.	Finland	Cabot, John M.
*Bonnet, Henri	France	*Bruce, David K. E.
Krekeler, Heinrich L.[6]	Germany	McCloy, John J.[7]
*Franks, Sir Oliver Shewell	Great Britain	*Gifford, Walter S.
*Politis, Athanase G.	Greece	*Peurifoy, John E.
*Aldana-Sandoval, Carlos H..	Guatemala	*Schoenfeld, Rudolf E.

To the United States	Country	From the United States
*Laraque, Gustave	Haiti	*Travers, Howard K.
*Valle, Don Rafael Heliodoro	Honduras	*Erwin, John D.
Weil, Emil	Hungary	Ravndal, Christian M.
Thors, Thor	Iceland	Lawson, Edward B.
*Sen, B. R.	India	*Bowles, Chester
*Sastroamidjojo, Ali	Indonesia	*Cochran, H. Merle
*Entezam, Nasrollah	Iran	*Henderson, Loy W.
Bakr, Abdullah Ibrahim[8]	Iraq	*Crocker, Edward S., 2nd
*Hearne, John Joseph	Ireland	*Matthews, Francis P.
*Eban, Abba	Israel	*Davis, Monnett B.
*Tarchiani, Alberto	Italy	*Dunn, James Clement
	Japan	Sebald, William J.[9]
Haikal, Yusuf	Jordan	Drew, Gerald A.
*You Chan Yang	Korea	*Muccio, John J.
	Laos	Heath, Donald R.[3]
Feldmans, Jules	Latvia	(Legation at Riga closed)
Malik, Charles	Lebanon	Minor, Harold B.
*King, Charles D. B.	Liberia	*Dudley, Edward R.
	Libya	(Vacancy)
Žadeikis, Povilas	Lithuania	(Legation at Kaunas closed)
Le Gallais, Hugues	Luxembourg	Mesta, Perle
*Colina, Don Rafael de la	Mexico	*O'Dwyer, William
	Morocco	Vincent, John Carter[10]
Shanker Shum Shere Jung Bahadur Rana, Gen.[11]	Nepal	Bowles, Chester[12]
*Roijen, J. H. van	Netherlands	*Chapin, Selden
*Berendsen, Sir Carl	New Zealand	*Scotten, Robert M.
*Sevilla-Sacasa, Don Guillermo	Nicaragua	*Whelan, Thomas E.
*Munthe de Morgenstierne, Wilhelm	Norway	*Bay, Charles U.
*Ispahani, M. A. H.	Pakistan	*Warren, Avra M.
	Palestine	Tyler, S. Roger, Jr.[18]
*Heurtematte, Don Roberto M.	Panamá	*Wiley, John C.
*Boettner, Don Luis Oscar	Paraguay	*Tewksbury, Howard H.
*Berckemeyer, Don Fernando	Peru	*Tittmann, Harold H., Jr.
*Elizalde, Joaquin M.	Philippines, Republic of the	*(Vacancy)
*Winiewicz, Jozef	Poland	*Flack, Joseph
*Fernandes, Luis Esteves	Portugal	*MacVeagh, Lincoln
Magheru, Mihai	Rumania	*(Vacancy)
*Al-Faqih, Sheikh Asad	Saudi Arabia	*Hare, Raymond A.
*Jooste, G. P.	South Africa, Union of	*Gallman, Waldemar J.
*Lequerica y Erquiza, Don José Félix de	Spain	*Griffis, Stanton
*Boheman, Erik	Sweden	*Butterworth, W. Walton
*Bruggmann, Charles	Switzerland	Patterson, Richard C., Jr.
El-Khouri, Faiz	Syria	Cannon, Cavendish W.
*Waithayakon, H.R.H. Prince Wan	Thailand	*Stanton, Edwin F.
*Erkin, Feridun C.	Turkey	*McGhee, George C.
*Panyushkin, Alexander S.	U.S.S.R.	*Kirk, Adm. Alan G.
*Mora, José A.	Uruguay	*Roddan, Edward L.
*Martín Araujo, Antonio	Venezuela	*Warren, Fletcher
	Viêt-Nam	Heath, Donald R.
Abu-Taleb, Sayed Abdurrahman ibn Abdussamed	Yemen	Hare, Raymond A.[14]
*Popovic, Vladimir	Yugoslavia	*Allen, George V.

*Ambassador. Unstarred—Minister.

[1] U.S. high commissioner.

[2] Diplomatic relations severed, Feb. 24, 1950.

[3] Resident in Saigon.

[4] Chargé d'affaires *ad interim*; minister and consul general; resident at Taipei, Formosa; embassy at Nanking closed, March 5, 1950.

[5] Acting consul general.

[6] Chargé d'affaires.

[7] U.S. high commissioner and chief of mission.

[8] Minister plenipotentiary, chargé d'affaires *ad interim*.

[9] U.S. political adviser with personal rank of ambassador.

[10] Diplomatic agent with personal rank of minister; consul.

[11] Resident in London.

[12] Resident in New Delhi.

[13] Consul.

[14] Resident in Jidda.

American Academy of Arts and Letters: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Academy of General Practice: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Academy of Political and Social Science: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Association for the Advancement of Science: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Association of Law Libraries: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Association of University Professors: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Association of University Women: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Bankers Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Bar Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Bible Society: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Chemical Society: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Citizens Abroad. United States citizens residing outside the U.S. on Jan. 1, 1951, had increased in number by about 6,000 since Jan. 1, 1950. This was small compared with the increase of more than 50,000 between Jan. 1, 1949, and Jan. 1, 1950. However, there was a great change in the distribution of U.S. citizens in various areas of the world. In the continent of Asia there was a decrease of more than 50%, or 37,000 people. This decrease was offset by moderate increases in other areas: 10% in Mexico and Central America; 25% in Australia and New Zealand; 10% in the West Indies and Bermuda; and approximately 29% increase in Europe.

Military permits for private U.S. citizens desiring to proceed to Germany were abolished Jan. 15, 1951, and those wishing to make visits for education, reunion with family or for business or similar reasons were able to obtain visas from German consular officials in the United States permitting a stay of six months or longer. They were not entitled to military care and privileges.

On April 30, 1951, the restriction on travel to Hungary, pre-

STREAM OF PASSENGERS at New York International airport where about 15,000 travellers weekly, including U.S. tourists and business personnel, arrived and departed for foreign countries in 1951

viously imposed, was lifted but was again imposed Dec. 28, 1951, because of the inability of the U.S. government to assure against molestation those of its citizens proceeding to Hungary.

Travel to Czechoslovakia was forbidden as of June 2, 1951, but the passports of those already resident there were not invalidated.

The military authorities, in Sept. 1951, enlarged the categories of persons permitted to travel to Japan to include the dependents of military and civilian personnel. Permits had to be obtained from the military authorities before travel was started.

U.S. specialists, technicians, educators, nurses and doctors proceeded from the United States to less fortunate areas of the world to act as advisers and helpers in raising living and working conditions pursuant to the Point Four program of the United States as well as under the similar United Nations program. In most cases, this work entailed a two- to three-year residence abroad.

A comparative summary of U.S. citizens residing abroad Jan. 1, 1950, and Jan. 1, 1951, is shown in the table.

Estimate of American Citizens Residing Abroad

	Jan. 1, 1950	Jan. 1, 1951
South America	38,522	34,774
Mexico and Central America	44,195	48,389
Europe	91,886	118,815
Asia	68,887	31,716
Africa	9,073	10,243
Australia and New Zealand	4,855	6,136
West Indies and Bermuda	20,398	22,104
Canada and Newfoundland	131,062	142,955
Philippines	24,044	23,987
Iceland	926	742
New Caledonia	41	89
Totals	433,889	439,950

(*See* also Tourist Travel.) (R. B. S.)

American College of Dentists: *see* Societies and Associations, U.S.

American College of Life Underwriters: *see* Societies and Associations, U.S.

American College of Physicians: *see* Societies and Associations, U.S.

American College of Surgeons: *see* Societies and Associations, U.S.

American Dental Association: *see* Societies and Associations, U.S.

American Dialect Society: *see* Societies and Associations, U.S.

American Economic Association: *see* Societies and Associations, U.S.

American Federation of Labor: *see* Labour Unions.

American Geographical Society: *see* Geography; Societies and Associations, U.S.

American Historical Association: *see* Societies and Associations, U.S.

American Indians: *see* Indians, American.

American Institute for Property and Liability Underwriters, Inc.: *see* Societies and Associations, U.S.

American Institute of Accountants: *see* Societies and Associations, U.S.

American Institute of Chemical Engineers: *see* Societies and Associations, U.S.

American Institute of Electrical Engineers: *see* Societies and Associations, U.S.

American Institute of Mining and Metallurgical Engineers: *see* Societies and Associations, U.S.

American Iron and Steel Institute: *see* Societies and Associations, U.S.

American Law Institute: *see* Societies and Associations, U.S.

American Legion: *see* Veterans' Organizations.

American Library Association. Celebrating its 75th anniversary on Oct. 4, 1951, which was proclaimed National Library day by many governors and mayors, the American Library association (A.L.A.), the official organization of librarians in the United States and Canada, is the oldest professional association for librarians and those interested in the development of library service. In 1951 the A.L.A., which was affiliated with more than 70 other library associations throughout the world, had a membership of about 20,000 in the U.S. and possessions, Canada and more than 50 foreign countries. The association had an endowment capital of approximately $2,163,000 in 1951 and a total income of about $904,000.

Headquarters are located at 50 E. Huron St., Chicago 11, Ill., with David H. Clift, formerly associate librarian of the Yale University library, the new executive secretary. The Washington, D.C., office, located in the Hotel Congressional, maintains liaison with all federal agencies and represents libraries on many projects.

In addition to a historical celebration, held in Philadelphia, Pa., its founding city, on Oct. 4, the A.L.A. sponsored during 1951 nation-wide adult discussion groups under public library leadership on the American heritage and its application to present-day problems. This project was financed by a grant of $150,000 from the Fund for Adult Education, which was established by the Ford foundation. Six regional and local libraries, representing various types of communities, were chosen for the demonstration.

The A.L.A. also helped in the creation of three books on its anniversary theme, "The Heritage of the U.S.A. in Times of Crisis": Gerald Johnson's *This American People,* Henry Steele Commager's *Living Ideas in America* and Genevieve Foster's *Birthdays of Freedom.*

Conferences during 1951 were held in Chicago: the midwinter meeting, Jan. 30–Feb. 3, and the 70th annual and 75th anniversary conference, July 8–14. Future conference plans called for a midwinter meeting in Chicago, Jan. 29–Feb. 2, 1952, and annual conferences in New York city, June 29–July 5, 1952, and in Los Angeles, Calif., June 21–27, 1953.

Officers, elected by ballot, who assumed their duties at the annual conference were: president, Loleta D. Fyan, Michigan State library, Lansing; first vice-president and president-elect, Robert B. Downs, University of Illinois library, Urbana; second vice-president, Marian McFadden, Indianapolis Public library, Indianapolis, Ind.; and treasurer, R. Russell Munn, Akron Public library, Akron, O.

The annual A.L.A. citations for distinguished service as library trustees were awarded to Mayor Charles P. Farnsley, Louisville, Ky., and Milton G. Farris, Atlanta, Ga. The 30th Newbery medal was received by Elizabeth Yates for *Amos Fortune, Free Man,* judged to be the most distinguished children's book of 1950. Katherine Milhous received the 14th annual Caldecott medal for *The Egg Tree,* chosen as the best illustrated children's volume of the year.

Helen E. Haines, author, editor and reviewer, received the Joseph W. Lippincott award ($500) for outstanding professional achievement in the field of librarianship.

The Ada McCormick *Letter* librarian award ($100) was received by Alice M. Dugas, librarian of the Mexico City College library, Mexico, for an outstanding demonstration of the human qualities of librarianship. The Delta Sigma Theta bookmobile, operating as a service of the West Georgia Regional library in Carroll, Heard and Haralson counties, received the *Letter* library award for "demonstrating the importance of extending library service to all groups in the population, particularly those in rural areas."

The first recipient of the Margaret Mann award, established by the A.L.A. division of cataloguing and classification, was Lucile M. Morsch of the Library of Congress, for outstanding professional achievement in cataloguing and classification.

Janina Nowakowska and Richard Wiebe of the Northern Regional Research laboratory, Peoria, Ill., received the Oberly Memorial award given every two years to the compilers of the best bibliography in the field of agriculture or natural sciences.

Nine libraries were presented with the 1951 John Cotton Dana Publicity awards, sponsored by the *Wilson Library Bulletin* and the A.L.A. public relations committee, for effective public relations programs.

The association was concerned particularly with the extension of complete and adequate library service for all citizens; the role of the library in the national emergency; censorship and intellectual freedom as applied to libraries; and the continuance of the U.S. information libraries and exchange of persons and books programs. During the year the A.L.A. approved new standards for the accreditation of library schools and minimum salary standards for librarians; conducted, in co-operation with the U.S. army, the Japan Library school; and supported the library services bill (S. 1452), which was introduced in the U.S. senate on May 9, 1951, designed to promote the further development of public-library service in rural areas.

(*See* also LIBRARIES.) (D. H. C.)

American Literature. The 11,000 titles published in the United States in 1951 offered the reader infinite choice. Two general kinds of works were widely read. One group, of fact and opinion, confronted the complexities of the surrounding world. The other, notably in fiction, turned inward to the private emotions, especially those of children. There was a downpour of books about the far east, the near east, both sides of the "iron curtain," North America and South America, as well as about the problems and policies of the United States. In fiction, although some of the best books dealt with World War II, a number of skilful books were concerned with the simple complexities of the adolescent mind.

The phenomenal sale of paper-bound books amazed regular publishers. Harry Bennett's sensational story of his years as Henry Ford's right-hand man, *We Never Called Him Henry,* rejected by various trade publishers, became a maverick best seller in paper covers, and some established writers were considering this form of publication. Reprinted in this form, serious fiction sold almost as many thousands of copies as did detective stories.

Nonfiction came close to outselling fiction. Such trouble spots as the U.S.S.R., China, Japan, Israel, Argentina and the near east were much discussed. Many of the popular books seemed more speculative and wishful than informed and objective. Edward Crankshaw analyzed the strength and weakness in the U.S.S.R. today in *Cracks in the Kremlin Wall.* Robert J. Alexander's *The Peron Era* gave a history of the Argentine dictatorship. Justice William O. Douglas, after a trip through the middle east, questioned the wisdom of United States foreign policy there in *Strange Lands and Friendly People.* James A. Michener, in *Return to Paradise,* found less of romance and more of politics and economics to report than he had in *Tales of the South Pacific.* Paul Blanshard covered controversial territory in *Communism, Democracy, and Catholic Power.*

Two important books which discussed the role of the United States in world politics were George Kennan's *American Diplomacy, 1900–1950,* an authoritative statement of present policies in their historical context, and Hans J. Morgenthau's *In Defense of the National Interest,* which was critical of those policies.

There were surprisingly few books about the war in Korea and a distinct falling off in the number of books about World War II. Most of the leaders had already written their stories. The Forrestal *Diaries,* edited by Walter Millis and E. S. Duffield, covered the war years. Omar N. Bradley told of his role in *A Soldier's Story.* Samuel E. Morison added another volume to *The History of United States Naval Operations in World War II,* "The Aleutians, Gilberts and Marshalls," covering amphibious warfare from June 1942 to April 1944. Eliot Janeway's *The Struggle for Survival,* one of the "Chronicles of America Series," surveyed the country's economic mobilization for World War II. Sumner Welles wrote about Franklin D. Roosevelt's important diplomatic decisions in *Seven Decisions That Shaped History.*

The American Scene.—All aspects of the current U.S. scene were material for writers. The conflicting demands of free speech and loyalty concerned many. Alan Barth, in his balanced study *The Loyalty of Free Men,* examined the methods by which loyalty was being determined and found them not invariably proper. Nathaniel Weyl's *The Battle against Disloyalty* was less critical of the methods officially employed and of the whole concept of the administrative loyalty check. Six public figures, Henry Steele Commager, Robert K. Carr, Zechariah Chafee, Jr., Walter Gellhorn, Curtis Bok and James P. Baxter, discussed the problem in *Civil Liberties under Attack.*

More sensational in their appeal were the books about crime. In *Crime in America* Estes Kefauver drew up a report of the connections the senate special committee to investigate organized crime in interstate commerce found between local politicians and the crime syndicates. Howard Whitman, in *Terror in the Streets,* developed the theory that the current wave of hoodlum terrorism was based on a psychological love of violence. Jack Lait and Lee Mortimer appeared again on the best-seller lists with their latest low-down report, *Washington Confidential.* Karl Schriftgiesser's *The Lobbyists* was a study of pressure politics.

In *The Conduct of Life,* the final volume of his distinguished series, Lewis Mumford proposed individual regeneration as the basis of a social philosophy for survival in our time. James B. Conant wrote *Science and Common Sense* in an attempt to interpret the world of science to the layman, and Hans Reichenbach's *The Rise of Scientific Philosophy* studied the background and growth of the new scientific philosophy.

Amid the current perplexities, nature kept its perennial appeal. One of the most widely read and praised books of the year was Rachel L. Carson's *The Sea around Us,* a beautifully written discussion of the sea, its history and inhabitants. Edwin Way Teale, in his elegiac *North with the Spring,* described the varying aspects of spring as it travelled north from Florida to New England. Jay Williams' *Fall of the Sparrow* reported on the species of wildlife that have died out or are dying; and Brooks Atkinson, in *Once around the Sun,* wrote an affectionate account of the natural phenomena to be seen in the city of New York.

The past and the passing scene were appealing, too, in historical and biographical studies. Marshall B. Davidson's impressive two-volume *Life in America* was a profusely illustrated social history of the country. Meyer Berger's *The Story of the New York Times, 1851–1951* reflected the civilization of those 100 years. Malcolm Cowley's revised and expanded *Exile's Return* was a personal account of the trek of the "lost generation" from Greenwich Village to the Left Bank and back. Alfred Kazin, in *A Walker in the City,* described his immigrant childhood in Brooklyn's Brownsville, and Stark Young, in *The Pavilion,* wrote about his early years in the deep south and later years in New York. Angelo Pellegrini's *Immigrant's Return* contained his memories of childhood on the west coast, his reflections as a professor on education and his experiences in visiting his Italian homeland. Selden Rodman made a social and psychological study in his *Portrait of the Artist as an American: Ben Shahn.*

Dale Kramer's *Ross and The New Yorker,* which appeared only a few weeks before the death of Harold Ross, was a biography of a man and a magazine generally credited with a notable influence on the course of American humour, fiction and journalistic writing. Nelson Algren's *Chicago: City on the Make* bitterly portrayed in prose poetry the city he loves.

The Harper History of Painting: The Occidental Tradition, by David M. Robb, covered time from the Stone Age to the present, and John I. H. Baur assessed contemporary art in *Revolution and Tradition in Modern American Art.* Two histories of the drama were Alan S. Downer's *Fifty Years of American Drama, 1900–1950* and Glenn Hughes's *A History of the American Theatre, 1700–1950.* Abel Green and Joe Laurie. Jr., covered the past 50 years of the popular stage in *Show Biz: From Vaude to Video. The Magic Curtain* was an autobiography by Lawrence Langner, founder of the Theatre guild. Other biographies included Ethel Waters' vigorous *His Eye Is on the Sparrow,* Gene Fowler's *Schnozzola: The Story of Jimmy Durante,* Lionel Barrymore's *We Barrymores,* which was mostly about Lionel, and two books about Charlie Chaplin, *The Little Fellow* by Peter Cotes and Thelma Niklaus and *Charlie Chaplin* by Theodore Huff.

Historical Works.—Among historical figures, Jefferson received much attention during the year. The second volume, *Jefferson and the Rights of Man,* of Dumas Malone's excellent biography *Jefferson and His Time* appeared. Leonard D. White's *The Jeffersonians* was a study in administrative history. Under the editorship of Julian P. Boyd, Lyman H. Butterfield and Mina R. Bryan, two more volumes of the *Papers* of Thomas Jefferson were published, volume iii, 1779–80, and volume iv, 1780–81. There was also Nathan Schachner's *Thomas Jefferson.*

Other biographies included volume iii of Douglas Southall Freeman's monumental *George Washington: A Biography;* the third and final volume of Calhoun's life by Charles M. Wiltse, *John C. Calhoun;* Bradford Smith's *Bradford of Plymouth;* and Waldo Frank's *Birth of a World,* the life and times of Simon Bolivar. Elting E. Morison published the first four volumes of the *Letters* of Theodore Roosevelt.

Two anthologies presented writings of the wartime president: *Franklin D. Roosevelt's Own Story,* selections from private and public papers edited by Donald Day; and *The Roosevelt Treasury,* edited by James N. Rosenau. Richard H. Rovere and Arthur M. Schlesinger, Jr., wrote *The General and the President and the Future of American Foreign Policy,* a pro-administration analysis of the Truman-MacArthur controversy.

The second volume of *An American History,* by Merle Curti and others, traced the transition of the United States to an industrial nation and its emergence as a world power. John C. Miller's *Crisis in Freedom: The Alien and Sedition Acts* was a thorough study of an era resembling our own. Oscar Handlin, in *The Uprooted,* told the story of the great migrations that made the American people, and Morris U. Schappes edited a valuable collection, *Documentary History of the Jews in the United States, 1654–1875.* C. Vann Woodward wrote *Reunion and Reaction: The Compromise of 1877 and the End of Reconstruction.* There were two historical studies of American progressives. Russel B. Nye, in *Midwestern Progressive Politics,* found a tradition of radicalism from the Grangers, through William Jennings Bryan and Robert M. La Follette to the present. Daniel Aaron, in *Men of Good Hope,* sought to define "progressivism" by a study of representative American progressives.

Fiction.—The year was not a distinguished one in fiction. But there were a few excellent books and many interesting ones, most of them falling into one of two categories. Some were about World War II, perhaps more than in any year since the war ended. Others were studies of the dark disorganized areas of the adolescent mind or the parent-child relationship.

ROBOT from *The Day the Earth Stood Still,* a science fiction motion picture released in 1951. Science fiction had a fast-growing readership during the year

The most successful of the war novels was Herman Wouk's *The Caine Mutiny,* a fine sea story, though a less convincing account of a Princeton boy's maturing in the stress of Pacific naval war. Counterbalancing Wouk's psychopathic captain there was John P. Marquand's portrait in *Melville Goodwin, USA* of a very nice officer and his problems, treated as a comedy of manners. Robert Bowen's *The Weight of the Cross* concerned the spiritual regeneration of a man through years in a Japanese prison camp.

The most controversial novel of the year was James Jones's *From Here to Eternity,* a diffuse naturalistic exposure of the depravity at all levels of life in the regular army just before Pearl Harbor. The precision with which it reproduced the speech and habits of the enlisted man shocked some readers, and its remoteness from the general world alienated others; but there was a residue of scenes and a cumulative power which raised the book well above the commonplace.

Two books by previously successful authors dealt with people involved in the confusion and despair of the postwar world. Willard Motley, in *We Fished All Night,* brought an actor, a union organizer and a poet back to Chicago from the war and traced their attempts at adjustment. Norman Mailer's *Barbary Shore,* forsaking the solid realism of *The Naked and the Dead* and developing its latent strain of symbolism, attempted an ambitious allegorical treatment of political and moral issues, but the form soon dissolved in overt discussion. Neither book came up to the level of its author's earlier work.

Of the writers who turned to the adolescent mind, J. D. Salinger, in *The Catcher in the Rye,* caught most successfully the mood, agony and language of a 16-year-old boy getting tough with the world. Caroline Gordon's *The Strange Children,* an allegory of modern society, stood on its own right as a story of a sensitive ten-year-old girl in a world of sophisticates perched in a southern landscape. James Agee followed the highly emotional "conversion to life" of a 12-year-old boy, in *The Morning Watch.* Shirley Jackson's *Hangsaman* was an atmospheric story of a college girl's struggle against her father's determination to make a writer of her.

William Styron won considerable notice with his first novel, *Lie Down in Darkness.* It was the familiar story of the degeneration of a southern family, concentrating upon an intense father-daughter relationship. Wright Morris, in *Man and Boy,* presented a satirical character study of a mother as she christens a ship named for her dead son.

William Faulkner did not enhance his reputation with *Requiem for a Nun.* Written partly in play form, partly in rambling passages on the history of his usual country, it recapitulated and brought to a conclusion the story of *Sanctuary.* John Dos Passos, in *Chosen Country,* through the story of his characters' American antecedents, brings them to a peaceful contentment with the country of their parents' choice. Sinclair Lewis' posthumous novel, *World So Wide,* was far from his great works. In *The Farmer's Hotel,* one of his most successful novels, John O'Hara assembled some of the people he understands best, in his chosen Pennsylvania countryside, and revealed them dramatically through their talk and actions.

George R. Stewart's attempt in *Sheep Rock* to give personality to a landscape, though less effective than his studies of storm and fire, was nevertheless a vivid book. James Aldridge's *The Hunter* was an almost idyllic story of trappers in the north woods. Laura Z. Hobson, with her usual competence, satirized a man risen suddenly to literary fame in *The Celebrity.* Stephen Becker's first novel, *The Season of the Stranger,* told the story of an American professor in southern China. Jessamyn West achieved something more than a regional novel in *The Witch Diggers,* with its funny and violent poorhouse keepers and inmates. Don M. Mankiewicz showed the seamy side of race tracks in *See How They Run.* Paul Wellman wrote a cinematic historical novel, *Iron Mistress,* based on the life of James Bowie.

There were no unusual collections of short stories. Carson McCullers brought together three previously published novels, a novelette and six short stories in the volume *Ballad of the Sad Cafe.* Hortense Calisher, a new writer, published a collection of good stories, *In the Absence of Angels.* Other collections were Edward Newhouse's *Many Are Called,* Kay Boyle's *The Smoking Mountain* and Frank O'Connor's *Traveller's Samples.*

Scholarship.—The year 1951, the 100th anniversary of the publication of *Moby-Dick,* brought several important contributions to Melville scholarship. Jay Leyda's monumental documentary biography, *The Melville Log,* gave a record of Herman Melville's life with new materials gathered from all contemporary sources and chronologically presented to allow each reader to make his own interpretation. Closely related was Leon Howard's *Herman Melville,* a new and circumstantial interpretation with a detailed account of the composition of his works. William Gilman wrote an excellent study, *Melville's Early Life and Redburn,* and a scholarly centennial edition of *Moby-Dick* as a volume in the new *Complete Works* was in preparation. Another figure being currently rediscovered was studied in Arthur Mizener's *The Far Side of Paradise,* a critical biography of F. Scott Fitzgerald, whose own works were also reprinted and widely read.

There were three additions to the distinguished "American Men of Letters Series": F. W. Dupee's *Henry James,* F. O. Matthiessen's *Theodore Dreiser* and Irving Howe's *Sherwood Anderson.* James Schevill's *Sherwood Anderson: His Life and Work* gave another interpretation. Henry Seidel Canby added *Turn West, Turn East* to the list of his able studies of American writers. Rebecca Patterson's *The Riddle of Emily Dickinson* roused controversy but little credence by the claim that a woman was the object of the love poems. Mildred R. Bennett's *The World of Willa Cather* was a collection of interviews and reminiscences from her Nebraska home country. Harry Modean Campbell and Ruel E. Foster analyzed America's most eminent living novelist in *William Faulkner: A Critical Appraisal.* Two other biographical studies of contemporaries were Donald Sutherland's *Gertrude Stein* and William Manchester's *Disturber of the Peace: The Life of H. L. Mencken.*

Several valuable contributions were made to general literary history. A. H. Quinn edited a one-volume survey, *The Literature of the American People.* Studies of 20th-century literature were Frederick J. Hoffman's *The Modern Novel in America, 1900–1950* and John Aldridge's *After the Lost Generation.*

Among collections of essays the most notable were *The Kenyon Critics,* edited by John Crowe Ransom, and Edmund Wilson's *Classics and Commercials: Literary Chronicle of the Forties.* The essays in Irwin Edman's *Under Whatever Sky* were a philosopher's reflections on varied subjects. George Santayana, in *Dominations and Powers,* discoursed on liberty, society and government. Virgil Thomson collected his musical criticism in *Music, Right and Left.*

Poetry.—There were new names in poetry in 1951 and names which were rapidly becoming established. William Carlos Williams completed his long work with *Paterson,* book iv, and published *Autobiography,* his life as physician and poet. Robert Lowell, former Pulitzer prize winner, wrote *The Mills of the Kavanaughs.* The reflective lyrics of Theodore Roethke's *Praise to the End!* reached back into the experiences of the poet's childhood. *Celebration at Dark,* by William Jay Smith, and *Ceremony and Other Poems,* by Richard Wilbur, were collections of lyrics by young writers. W. H. Auden published *Nones,* 31 new poems dealing with the problems of our civilization. Randall Jarrell wrote *The Seven-League Crutches,* and Kenneth Rexroth's *Beyond the Mountains* was a group of four one-act verse plays on classic themes. Horace Gregory's *Selected Poems* covered the range of his work and consolidated his reputation. The work of Ezra Pound maintained its stature and interest as the controversy over his patriotism waned. Peter Russell edited *An Examination of Ezra Pound,* and Hugh Kenner wrote a critical study, *The Poetry of Ezra Pound.* Upon the whole, the year's poetry was more impressive than its fiction. (*See* also BOOK PUBLISHING; CHILDREN'S BOOKS; ENGLISH LITERATURE; LITERARY PRIZES.)

FILMS OF 1951.—*Mark Twain and Tom Sawyer* (International Film Bureau, Inc.). (H. M. H.)

American Mathematical Society: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Medical Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Optometric Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Prison Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Society of Civil Engineers: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Society of Composers, Authors and Publishers: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Society of Mechanical Engineers: *see* SOCIETIES AND ASSOCIATIONS, U.S.

American Veterans' Committee: *see* VETERANS' ORGANIZATIONS.

American Veterans of World War II (Amvets): *see* Veterans' Organizations.

Anaemia: *see* Blood, Diseases of.

Andorra.

A small autonomous principality between France and Spain, Andorra is bounded on the north by the departments of Ariège and Pyrénées Orientales, and on the south by the Spanish province of Lérida. Area: 191 sq.mi. Population (1951 est.): 5,400. Language: Catalan. Religion: Roman Catholic. Capital: Andorra-la-Vieja (pop., 1951 est., 980). Co-princes: the president of the French republic and the bishop of Urgel, Sp., respectively represented in 1951 by André Bertrand and Jaime Sansa Nequi, their *viguiers* or representatives. An elected general council of 24 members appoints one of its members as the *syndic général des vallées* (from 1946: Francisco Cayrat).

Angling.

The popularity of fresh-water fishing in the United States levelled off during the fiscal year ending in June 1951. The total sale of anglers' licences was 15,337,758, compared with 15,478,570 the year before. The gross revenue derived by the 48 states from licence sales reached a new peak, however, at $34,018,009. Michigan headed the list with 1,050,756 licences.

California again ranked second with 995,830, followed by Wisconsin with 970,792.

The 43rd annual national casting tournament was held at Washington, D.C., Aug. 15–19. Herb C. Neuman took the all-distance championship with a score of 2,903 ft. The five-eighth-ounce distance event was won by Phil L. Varney with an average of 376 ft. The three-eighth-ounce distance event was won by William Lovely with an average of $325\frac{1}{3}$ ft. The distance trout fly event was won by Myron C. Gregory, with an average of $165\frac{1}{3}$ ft.

Gregory also captured the salmon fly distance event with an average of $197\frac{2}{3}$ ft.

A seven-man squad of anglers from the British Commonwealth won its bid for international tuna fishing honours at Wedgeport, N.S., Sept. 12–14, winning the Alton B. Sharp trophy in competition with four other teams from ten countries by the margin of 186 points. Thirty-four anglers participated. The United States team was second, followed by Scandinavia, Chile and Cuba. Knud Kyvsgaard of Copenhagen, Den., fishing for the Scandinavian team, caught the biggest tuna of the tournament, 805 lb. Kyvsgaard was said to be the only man to have taken tuna of more than 800 lb. on both sides of the Atlantic.

The International Game Fish association's outstanding world record catch for the year was a $961\frac{1}{2}$-lb. bluefin tuna, the largest fish of any kind ever taken in U.S. waters. This was captured on Nebraska shoals off the Rhode Island coast by Harry Brain of Dunellen, N.J., on Sept. 20, 1951. Nine other records were broken, making 1951 the most productive year in several decades. A 50 lb. 6 oz. carp was caught on July 29, 1951, by Maurice Vincent of Mishawaka, Ind. A $10\frac{3}{4}$-lb. Sunapee trout was caught on July 1 by Charles A. Cleveland of Lake Sunapee, N.H. An eight-pound black bullhead was caught on Aug. 1 by Kani Evans of Lake Waccabuc, N.Y. A 20-lb. bluefish was caught on Aug. 5 by Philip Chasin of Montauk, N.Y. A 41-lb. permit was caught on April 18 by Ernest J. Arnold of Islamorada, Fla. A 483-lb. giant black sea bass was caught on May 22 by R. E. DeGroff of Coronado Island, Calif. An eight-pound sea bass was caught on May 13 by H. R. Rider of Nantucket sound, Mass.

A 15 lb. 14 oz. blackfish or tautog was caught on June 1 by Caleb Campbell of Seabright, N.J. A 275-lb. sailfish (Pacific) was caught on July 31 by Albert Steinbaum of La Paz, Mex.

(A. J. Me.)

Anglo-Egyptian Sudan.

A territory in northeast Africa, Anglo-Egyptian Sudan is under the joint sovereignty of Great Britain and Egypt. Area: 967,500 sq.mi. Pop. (no census ever taken, 1950 est.): 8,350,000. Languages: English, Arabic and various Nilotic and Negro tribal dialects in the south. Religion: Arabic minority is Moslem; the bulk of the Negro population is heathen; only *c.* 20% of population in the south is Christian. Chief towns (1948 est.): Khartoum (cap., 71,400); Omdurman (125,300); El Obeid (70,100); Wad Medani (57,300); Port Sudan (47,000). Governor general in 1951, Sir Robert George Howe.

History.—The events of 1951 were overshadowed by the mounting Anglo-Egyptian dispute, in which the future of the Sudan was one of the two major issues at stake. This dispute

ANGLERS wading in the Musconetcong river at Hackettstown, N.J., on the opening day of the 1951 trout season

naturally attracted a great part of Sudanese attention, and toward the end of the year it had considerable repercussions in the Sudan itself, but there was also a steady development along the path to self-government and independent statehood.

The Sudanization of government was carried forward. It was announced in January that a Sudanese had been appointed director of the El Obeid district. Echoes of the world-wide conflict were heard early in February when the police raided the homes of a number of adherents of the so-described "peace campaign" and seized a quantity of Communist literature. Subsequently 16 young Sudanese were put on trial for participating in this movement and were convicted. Meanwhile, in April more than 100,000 Sudanese workers began a three-day strike under the auspices of the Sudanese Trade Unions federation in an attempt to obtain substantial wage increases, shorter working hours and other advantages. The rejection of demands for higher wages led in May to a strike of public transport in Khartoum which seriously interrupted the life of the city for five days. More serious perhaps was the strike of policemen that took place in Khartoum in June, leading to the declaration of a state of emergency on June 13 and the eventual imprisonment of 11 strike leaders. Following all this, a four-day strike of government unions occurred in Khartoum.

Meanwhile the issue of the demand for early self-government received close attention. On Dec. 15, 1950, the legislative assembly had voted by 391 to 38 in favour of asking the United Kingdom and Egypt for Sudanese self-government in 1951. At the conclusion of its second session on April 4, 1951, the assembly heard a message from the governor general to the effect that this request was receiving the fullest consideration.

Later in the year the question of the future of the Sudan became magnified once more from one of overmastering domestic interest into the status of a major issue in international relations, when the intensification of the Anglo-Egyptian conflict concentrated attention on the renewed Egyptian demand for the "unity of the Nile valley."

This development produced substantial changes in the situation of Sudanese political parties as it had first emerged in 1948. The Ashigga group, led by Ismail el-Azhari, aspiring to the Nile valley unity, was seriously disrupted by the announcement of the deflection of the followers of Ali el Mirghani to the side of full self-government. Egyptian attempts to restore unity to the "internal struggle front" were unsuccessful.

The pro-Egyptian faction in the Sudan was thus seriously weakened by the events of the year. On the other hand it became clear that the independence front, led by Abdurrahman el-Mahdi, head of the Umma (Nation) party, and Miralai Abdullah Khalil, president of the legislative assembly, was in no sense a mere instrument of British interests as it made clear its desire for immediate self-government. Its principal objective continued to be resistance to Egyptian claims for the absorption of the Sudan, and its aspirations clearly coincided with the intention of the British government, which reiterated its refusal to consent to the renewed Egyptian demand for the acknowledgment of Egyptian sovereignty in the country. (*See* also EGYPT.)

(H. S. D.)

Education.—(1950) *Northern System:* Government schools: elementary 262, pupils 37,000; subgrade and Koran 540, pupils 40,000; intermediate 21, pupils 2,661; secondary 6, pupils 1,457; technical 3, pupils 264; teachers' training colleges 5, teachers trained annually more than 255. Nongovernment schools 172, pupils 15,900. University education at Gordon Memorial college and higher education at Kitchener School of Medicine. *Southern System:* Schools: elementary 3, pupils 327; secondary 1; intermediate 1, pupils 150; pupils at mission schools 23,384. Government training schools 2; primary teachers' training centres 2.

Finance and Banking.—Budget (18 months 1950–51, actual): revenue £E44,800,000, expenditure £E23,200,000; (1951–52 est.) revenue £E24,800,000, expenditure £E17,800,000. Total external debt (Dec. 31, 1949) £E12,300,000, of which £E5,300,000 was to Egypt for development. Monetary unit: Egyptian pound with an exchange rate of £E1=U.S. $2.87.

Foreign Trade.—(1950) Imports £E26,800,000, exports £E33,200,000. Main sources of imports: U.K. 40%, India 14%. Main destinations of exports: U.K. 54%, India 12%. Main imports: sugar, coffee and tea 18%; cotton piece goods 12%; coal, oil fuel and gasoline 5%. Main exports: raw cotton 69%; gum 8%; cottonseed 6%; livestock 5%.

Transport and Communications.—Railways (1950): 2,056 mi. Licensed motor vehicles (Dec. 1950): cars 3,500, commercial 4,500. Telephone subscribers (1949): 3,520. Radio receiving set licences (1949): 3,227.

Agriculture.—Main crops (metric tons, 1949): cotton, ginned, 66,000; cottonseed 110,000; sesame seed 72,300; gum arabic, exports, 33,900; peanuts 9,000; dates 25,000; maize 19,000; millet 100,000; sorghum 642,000. Livestock (Jan. 1949): cattle 3,500,000; sheep 5,500,000; camels 1,500,000; horses 20,000; pigs 4,000; goats 4,300,000; asses 500,000.

FILMS OF 1951.—*Nile River Basin and the People of the Upper River* (Academy Films).

Angola: *see* PORTUGUESE COLONIAL EMPIRE.

Animal Fats: *see* VEGETABLE OILS AND ANIMAL FATS.

Animal Industry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION; VETERINARY MEDICINE.

Annam: *see* FRENCH UNION; INDOCHINA.

Anniversaries and Centennials: *see* CALENDAR, 1952, page xxxii.

Antabuse: *see* INTOXICATION, ALCOHOLIC.

Antarctica.

The antarctic continent lies almost entirely within and is circumscribed by the Antarctic circle. With an area of nearly 6,000,000 sq.mi., equal to the United States and Europe combined, nine-tenths of it is covered by an ice sheet, thousands of feet thick in places. The 2,000,000-sq.mi. area thus far seen by man has an estimated elevation of about 5,000 ft., with the south pole at a height of slightly less than 10,000 ft. The 14,000-mi. coast is largely inaccessible to ship navigation because of sea ice barricading the coastal shores.

History.—Expeditions from Norway, Sweden, France, Chile, Great Britain, Argentina and Australia were active in the antarctic during the 1951 season. The Norwegian-Swedish-British base at Maudheim in the Norwegian-claimed sector south of Africa concluded its second year of activity. Additional supplies were brought into the wintering base by the supply ship "Norsel" so that scientists could commence their third year of study from Feb. 1951 to March 1952. All but two of the original personnel who had spent two years there were exchanged for new personnel. In the 1951 antarctic summer, a field party was sent to newly discovered mountains about 200 mi. S. of the base for geological investigations.

The French expedition was operating for the second season on the pie-shaped sector of the ice-blocked coast south of Australia. This part of the antarctic was first discovered by the French admiral Jules Dumont d'Urville in 1840 and had been claimed by the French republic since; but this was the first time the area had been penetrated. In Feb. 1951 the French vessel "Commandant Charcot" brought 15 new explorers to relieve the original members of the group. These men made trips into the unknown hinterland with tractors and dog teams and did research in geophysics, geology, meteorology and oceanography.

Five bases were being maintained by the British on the Palmer peninsula south of Cape Horn, South America. Their base on Stonington Island in Marguerite bay, in close proximity to the U.S. Finn Ronne Antarctic Research expedition's wintering base of 1946–48, was abandoned in 1950 because of difficult ice conditions on the western side of the peninsula. Their northernmost base on the continent at Hope bay was also abandoned at that time. Preparations were being made to reactivate this base in Feb. 1952 for the continuation of local survey and weather observations.

Two bases each were being occupied by Argentina and Chile on the Palmer peninsula in close proximity to two of the British bases. It was reported in Aug. 1951 that one of the Argentine bases was destroyed by fire with the loss of all installations and stores, but with no casualties. Both the Chileans and the Argentines sent nonmilitary expeditions to the antarctic in March and April 1951 to establish a third permanent base on Stonington Island in Marguerite bay. From reports it would seem they were occupying the base of the U.S. Ronne expedition, which left all the buildings intact. This action by the Argentines and the Chileans caused the British government to make official protests to Chile and Argentina, both of which also claimed approximately the same area, which in the past had already caused considerable international tension.

On Nov. 28, 1951, an Argentine military expedition left Argentina with two ships, three specially equipped multimotored planes and about 200 men, headed for the newly established base on Stonington Island to carry out operations in support of the expedition already based there.

The Australian government maintained permanent weather stations on Heard and Macquarie islands to the south of Australia. (F. Re.)

Anthropology.

The steady growth of anthropology noted for previous years continued in 1951. In the United States the American Anthropological association observed its 50th anniversary and the Viking fund its 10th. A volume summarizing the activities of the latter organization (now the Wenner-Gren Foundation for Anthropological Research, Inc.) was published under the title *The First Ten Years, 1941–1951.* This foundation continued its generous support of anthropology in 1951, subsidizing field research and publication, awarding fellowships at universities and providing numerous grants-in-aid to scholars and institutions in the United States, Canada, Mexico, South America, Europe, Africa and Asia.

Under the guidance of Alfred Metraux, anthropology assumed an increasingly important role in the United Nations Educational, Scientific and Cultural organization's program for technical assistance to underdeveloped areas. A plan for more effective anthropological participation in the U.S. state department's Point Four program was worked out by a committee of the American Anthropological association under the chairmanship of Gordon R. Willey. At the request of the state department the committee arranged for the preparation of a training manual of anthropological orientation for use of government personnel engaged in administering the Point Four program of economic assistance for underdeveloped areas. The manual was prepared by Conrad Arensberg as editor, assisted by David G. Mandelbaum, Lauriston Sharp, Fred Eggan, Lucian Hanks, Stephen Reed and John Useem.

A new centre for anthropological research in Africa was created with the establishment of the West African Institute of Social and Economic Research at the University college of Ibadan in Nigeria. The Samuel Rubin chair in anthropology was established at Brandeis university, Waltham, Mass., and was to begin a program of research to determine the impact of cultural factors on social organization in the United States. The University of British Columbia received a grant for the development of teaching in anthropology and of ethnological research in British Columbia, under which arrangement Diamond Jenness, as visiting professor, and Wayne Suttles joined the faculty. Cora DuBois was appointed director of a new research program established by the Institute of International Education, Washington, D.C., for the purpose of determining educational needs and resources of the world's underdeveloped areas.

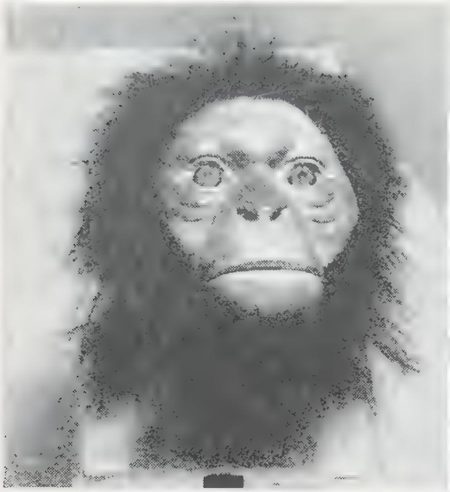
Harvard university, through its Russian Research centre, began a four-year study of the Russian people and the soviet social system. The project was under the direction of Clyde Kluckhohn and began with the interviewing of more than 3,000 persons who had left the U.S.S.R. for various reasons. With a grant from the Rockefeller foundation, Cornell university, Ithaca, N.Y., broadened its program of southeast Asia studies, directed by Lauriston Sharp. Northwestern university, Evanston, Ill., established an Institute on Contemporary Africa, under the direction of M. J. Herskovits, presenting a six weeks' integrated area program dealing with the political, economic, cultural and ethnic problems of Africa south of the Sahara. An over-all picture of area training facilities in the United States was given in a report on *Area Studies in American Universities,* by Wendell C. Bennett, published by the Social Science Research council.

The South Pacific was the scene of considerable anthropological activity during the year. The South Pacific commission made a survey of the status and needs of anthropology in the Pacific islands and authorized investigation of depopulation and overpopulation problems and of means for assisting island peoples to play a more important part in commerce and industry in the area. The Pacific Science board of the National Research council continued its coral atoll research program, sending a six-man team, including Ward Goodenough, anthropologist, to make a general ecological study of the interrelationships of all forms of life, including that of the native population, on Onotoa, a heavily populated dry atoll in the southern Gilberts. Anthropological and ecological studies were carried out under the same auspices at Arna, in the Marshall Islands, by Harry Uyehara of the University of Hawaii, and by Mary Murai, who made a nutritional survey of the island of Udot in the Truk archipelago. The Peabody museum of Salem, Mass., sent a two-year expedition to Polynesia, under the direction of Donald S. Marshall, to conduct ethnological work in the Cook and Society Islands, the Marquesas and Niue. Homer G. Barnett, of the University of Oregon, Eugene, made ethnological studies in Micronesia as staff anthropologist for the U.S. department of the interior in the Trust Territory of the Pacific Islands.

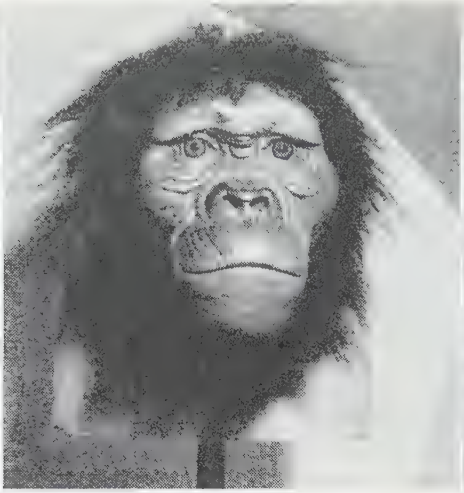
Under the sponsorship of the University of Michigan Center for Japanese Studies, Micha Titiev conducted research at Okayama on the general problem of the effect of western civilization on Japan's folk culture. Douglas Haring, Clarence Glacken and William W. Burd began anthropological work on Okinawa, Amami and Miyako, as part of the Pacific Science board's comprehensive program of scientific research in the Ryukyu Islands. Other anthropologists working in Japan were Earl Reynolds, who studied growth problems at Hiroshima, and Allan H. Smith and Ann G. Smith, who made ethnographic studies on Yaeyama in the Ryukyu Islands.

Adolf Jensen, director of the Froebenius institute, Frankfurt-on-Main, conducted ethnological and archaeological work in southwestern Ethiopia. Other anthropologists pursuing field work in Africa were William R. Bascom, who conducted research among the Yoruba of Nigeria; Martin Gusinde, who worked among the Bushman-Hottentot in South Africa; and G. L. R. von Koenigswald, who studied the ape-man fossils in Transvaal. Catherine McClellan spent a year in northwestern British Columbia working among the interior Athabaskan tribes, and Fred Hulse directed a program of blood typing of northwestern Indians.

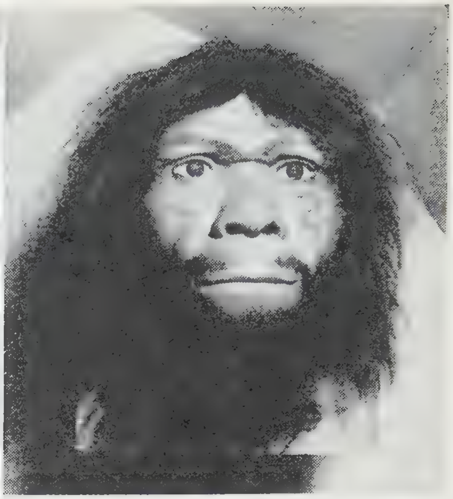
A series of articles by anthropologists, geneticists and palaeontologists summarizing the present status of knowledge of human genetics, primate evolution, classification of fossil men and the concept of race was published in *Origin and Evolution of Man,* a volume resulting from the 1950 Cold Springs Harbor (N.Y.) symposia on quantitative biology. Another important contribution in this field was a volume of papers on the *Physical Anthropology of the American Indian,* presented at the fourth Viking fund seminar and edited by William S. Laughlin. Included was a paper by Laughlin ("The Alaska Gateway Viewed from the Aleutian Islands") which showed that from the evidence of blood groups and somatology the Aleuts were morphological variants of



THE MIOCENE APE, Proconsul, with some human characters

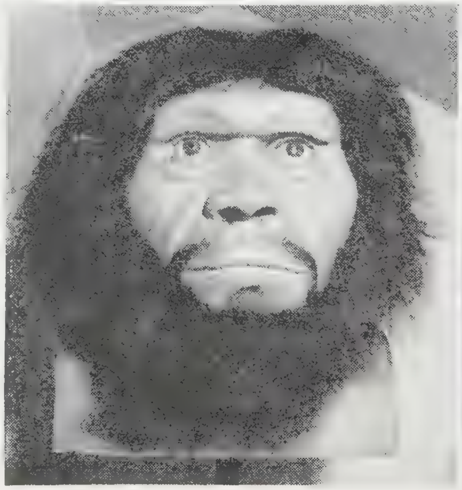


THE RHODESIAN PRIMATE, *Australopithecus*, with some human characters

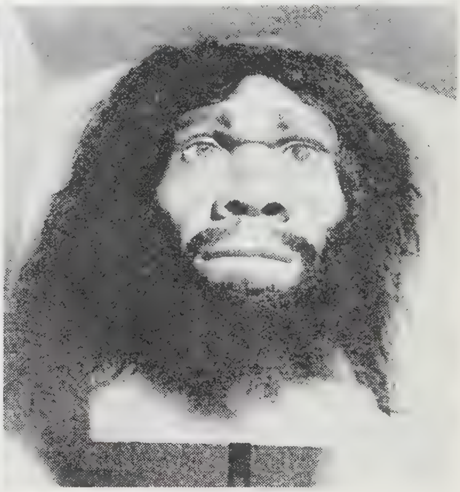


PEKING MAN, *Sinanthropus*, an ape man with a slightly larger brain than the Java man

Human evolution illustrated by models reconstructed from fossil remains for the Dome of Discovery at the 1951 Festival of Britain. The seven types shown here attempt to trace the incomplete record of the ascent of man and have acted as signposts in applying the theory of evolution to man. The reconstruction models were by Maurice Wilson

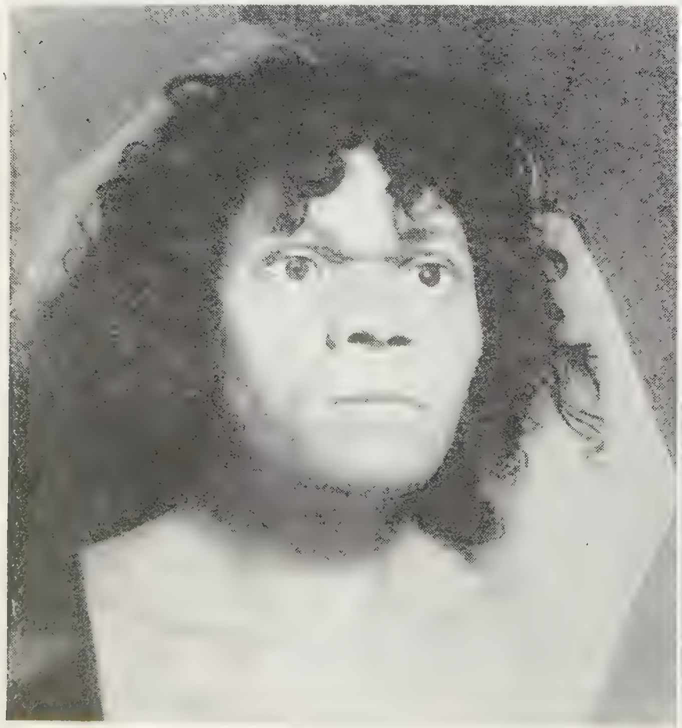


JAVA MAN, *Pithecanthropus*, once believed to be the "missing link" between apes and man

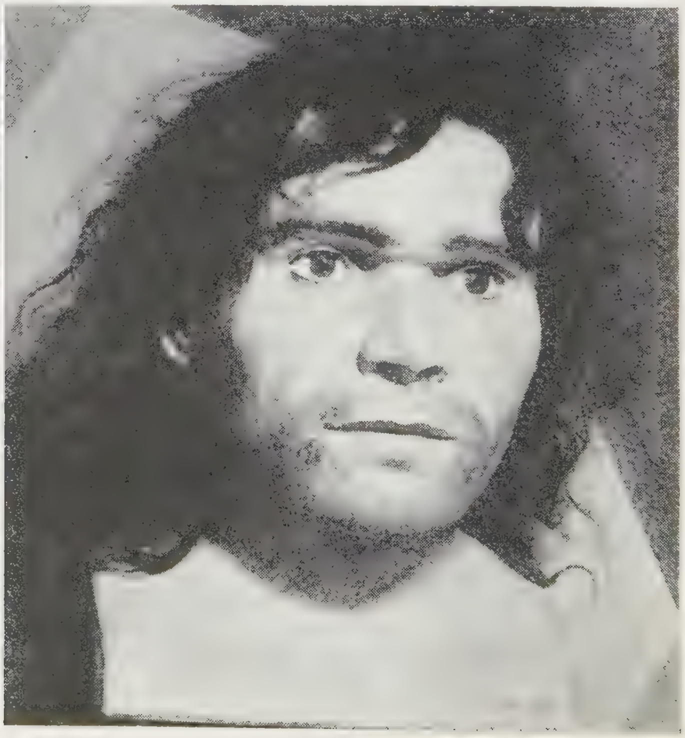


PILTDOWN MAN, *Eoanthropus*, a primitive type of man

NEANDERTHAL MAN, the most familiar antecedent of modern man



AURIGNACIAN MAN, the Cromagnon type and the first of the *Homo sapiens* group



the Eskimo stock, rather than Asiatic or Indian. Joseph B. Birdsell's article "The Problem of the Early Peopling of the Americas as Viewed from Asia," published in the same volume, marked a fresh and original approach to this much-discussed question. Accepting Carleton S. Coon's hypothesis that the Mongoloid race had developed under stress of an arctic environment in northeastern Siberia late in the fourth glacial period, he suggested that the American aborigines were a mixture of Mongoloid and an earlier Caucasoid stock which he named "Amurian," represented today by the Ainus and south Australians. Birdsell contended that the conventional method of racial comparison by means of cranial measurements and indexes leads to impossible results and is biologically invalid. H. B. Collins, in an article "The Origin and Antiquity of the Eskimo" published in the 1950 Smithsonian *Annual Report* (1951), reached the same conclusion; namely, that previous attempts to derive the Eskimo from some American Indian stock, solely on the basis of cranial measurements and indexes, had led to results that were demonstrably invalid in the light of the total evidence of physical anthropology, archaeology and linguistics.

In London, a special meeting of the Royal Anthropological institute was held on the subject of blood groups and anthropology, under chairmanship of H. J. Fleure, to promote closer collaboration between anthropologists, serologists and geneticists, and to make plans for a future blood group research centre. A committee of European and American anthropologists and geneticists met in Paris under the auspices of U.N.E.S.C.O. to formulate a statement on race that would be less subject to misunderstanding and criticism than U.N.E.S.C.O.'s original statement issued in 1950.

Adolph H. Schultz resigned from the Johns Hopkins university, Baltimore, Md., to become professor of anthropology and director of the Anthropological institute, University of Zürich, Switz. Gordon T. Bowles went to Tokyo as visiting professor of anthropology.

Viking fund medallists for 1951 were Clyde Kluckhohn for ethnology; W. M. Krogman, physical anthropology; and Emil W. Haury, archaeology.

The *Ethnographic Survey of Africa*, edited by Daryll Forde, continued its series of concise ethnographic accounts of African peoples with *The Southern Lunda and Related Peoples*, by Merran McCulloch; *Bamba and Related Peoples of Northern Rhodesia*, by Wilfred Whiteley; *Akan and Ga-Adangbe Peoples of the Gold Coast*, by Madeline Manoukian; and *Peoples of the Lower Luapula Valley*, by J. Slaski. Other important publications of the year were *Fossil Mammals of Africa: The Miocene Hominoidea of East Africa*, by W. E. Le Gros Clark and L. S. B. Leakey; *Social Anthropology*, by E. Evans Pritchard; *Social Evolution*, by V. Gordon Childe; *The Foundations of Social Anthropology*, by S. F. Nadle; *The Koreans and Their Culture*, by Cornelius Osgood; *The Pacific Islands*, by Douglas Oliver; *The Northern and Central Nootkan Tribes*, by Philip Drucker; *Sexual Behavior in Western Arnhem Land*, by Ronald M. and Catherine H. Berndt; *Languages of the U.S.S.R.*, by W. K. Matthews; *Patterns of Sexual Behavior*, by C. S. Ford and Frank A. Beach; *An Introduction to Social Anthropology*, by Ralph Piddington; *African Systems of Kinship and Marriage*, by A. R. Radcliffe-Brown and Daryll Forde. (*See* also ARCHAEOLOGY.)

FILMS OF 1951.—*Our Inheritance from the Past* (Coronet Films).
(H. B. Cs.)

Anti-aircraft Guns: *see* MUNITIONS OF WAR.

Antibiotics: *see* BACTERIOLOGY; CHEMOTHERAPY; RESPIRATORY DISEASES.

Antigua: *see* LEEWARD ISLANDS.

Antihistamines: *see* ALLERGY; EAR, NOSE AND THROAT, DISEASES OF.

Antimony: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Antitrust Law: *see* LAW.

Apples: *see* FRUIT.

Apricots: *see* FRUIT.

Aqueducts. The integrated operation of multiple water-use features in the world's largest system of aqueducts and canals, dams and storage reservoirs was increased by the United States bureau of reclamation in 1951 on the eve of its golden jubilee year of water resource conservation in the 17 western states. The bureau and its predecessor, the federal reclamation service, established in the department of the interior under the Reclamation act of 1902, have been primarily responsible for the reclamation of western arid and semiarid lands during the past half century.

The man-made waterways included in 1951 more than 16,000 mi. of canals and laterals, 107 storage and 68 diversion dams, 440 pumping plants and the largest and highest concrete dams on earth. Hoover dam, 726 ft. high, on the Colorado river at the Arizona-Nevada border, was the loftiest; Shasta dam, 602 ft., on the Sacramento river in California, ranked second; and Hungry Horse dam, 564 ft., nearing completion on the South fork of the Flathead river in Montana, third. Grand Coulee dam on the Columbia river in Washington was the world's largest concrete dam in volume, containing 10,585,000 cu.yd. of concrete; Shasta was second, with 6,541,000 cu.yd.; and Hoover third, with 4,400,000 cu.yd.

These facilities made water available to a total of 6,025,000 irrigable acres in the 1950 crop year. The volume of crops produced was more than 16,000,000 tons, valued at $578,238,000.

Hydroelectric power generating plants on bureau projects in 1951 had a total installed capacity of 3,939,000 kw. and furnished more than 21,000,000,000 kw.hr. of energy for western farms, homes and industry. The federal government received more than $35,000,000 from the sale of the hydroelectric power.

Spectacular achievements under the program in 1951 were:

The greatest water lift in history was begun at Grand Coulee dam, where 2 of an eventual series of 12 of the world's largest pumps help raise Columbia river water a total of 630 ft. above the natural stream bed to flow into a 27-mi. reservoir. The water would irrigate an ultimate total of 1,029,000 ac. of dry land. Aqueducts under construction on the project were the 88-mi. West canal and the 130-mi. East Low canal.

Integrated operation of man's longest and largest mass transfer of water was initiated in the Central valley of California. Under this program, Sacramento river water stored behind Shasta dam was delivered 500 mi. to dry lands in the San Joaquin river valley. At Tracy, Calif., giant pumps lifted the water 200 ft. The project included the 153-mi. Friant-Kern canal and the 120-mi. Delta-Mendota canal. The former delivered San Joaquin river water from Millerton lake behind Friant dam to areas as far south as Bakersfield, Calif. The latter transferred Sacramento river water from the San Francisco bay area southward 120 mi., discharging it into the Mendota pool in the San Joaquin basin, thereby providing irrigation water to replace that diverted by the Friant-Kern canal.

Three pumps with a combined capacity of nearly 500,000 gal. of water per minute were set in motion at the Granby, Colo., pumping plant, high on the west slope of the Rockies, to supply irrigation water through the Colorado-Big Thompson project for 700,000 ac. of land on the east slope. This project was famous for its 13-mi. Alva B. Adams tunnel, the longest irrigation tunnel in the world, carrying the water through the continental divide.

Also included among the major aqueduct systems was the All-American canal in California, the largest irrigation canal in operation in the United States. This waterway was 232 ft. wide at the water surface, 160 ft. wide at the bottom and 20.6 ft. in depth, with an initial capacity of 15,155 cu.ft. of water per second. The project included the 125-mi. Coachella canal which branched from the 80-mi. All-American main canal near the Mexican border about 20 mi. W. of Yuma, Ariz., and terminated near Indio, Calif. (*See* also Canals and Inland Waterways; Dams; Irrigation; Tunnels.)

Films of 1951.—*The Importance of Water* (Bailey Films).

(M. W. Ss.)

Arabia.

A peninsula of southwestern Asia (area *c.* 1,021,300 sq.mi., total pop. est. 11,467,000), Arabia consists politically of two independent Arab states, Saudi Arabia and Yemen (*q.v.*); the independent sultanates of Oman and Masqat or Muscat; the autonomous sheikhdoms of Bahrein, Kuwait, Qatar and the Trucial sheikhdoms; and Aden colony and protectorates (*q.v.*). Language: Arabic. Religion: Moslem (Sunni).

Saudi Arabia.—Area: *c.* 597,000 sq.mi. (excluding the Rub' al-Khali desert covering approximately 193,000 sq.mi.). Pop. (1950 est.): 6,000,000. Chief towns: Riyadh (cap., 60,000); Mecca (150,000); Medina (45,000); Jedda (40,000); Hufuf (31,500). Ruler, King 'Abd-al-'Aziz ibn 'Abd-al-Rahman ibn Faisal ibn Sa'ud; viceroy of Nejd and commander in chief, Amir Sa'ud, crown prince; viceroy of Hejaz and minister of foreign affairs, Amir Faisal, the king's second son.

History.—Throughout 1951, the Saudi Arabian government participated in the deliberations of the Arab league and in January signed the Arab league security pact. In October its delegate attended a meeting in Cairo called by the Egyptian minister of foreign affairs to discuss the Arab implications of Egypt's denunciation of the Anglo-Egyptian treaty of 1936 and of the Sudan condominium convention of 1899. In April the Saudi Arabian government publicly expressed its sympathy with Syria during the Israeli-Syrian outbreak on the Jordan.

In June the appointment was announced of Arthur N. Young, a U.S. financial expert, to the post of financial adviser to the Saudi Arabian government, and on June 18 an agreement was signed between the government and the United States dealing with the use and development of the Dhahran airfield serving the oil fields of the Arab-American Oil company (Aramco) in the gulf province of El Hasa. By it the Saudi Arabian government assured to the U.S. government the continued use of the Dhahran airfield in return for which the United States would assist Saudi Arabia with the supply of military equipment and in the training of Saudi Arabians in its use. The agreement stipulated that the Dhahran airfield would not be converted into a U.S. base. It was accepted, however, that facilities could be prepared for its use in wartime.

In August Amir Faisal visited London where he had discussions with the British government regarding the fixing of the boundary between Saudi Arabia and the British-protected sheikhdoms along the Trucial coast at the southwestern end of the Persian gulf. The ownership of certain islands and sea-bed shores along the Persian gulf was also discussed.

On Oct. 24 the four powers—Great Britain, France, Turkey and the United States—communicated to the Saudi Arabian government their plans for the organization of an international command for the defense of the middle east. On the rejection of these proposals by Egypt, the four powers informed the Saudi Arabian government that their defense plans in the middle east would nevertheless proceed.

On Nov. 10 King Talal of the Hashemite Kingdom of Jordan arrived in Jedda on an official visit to King Ibn Sa'ud.

(O. M. T.)

Education.—Schools (1950): primary 30, secondary 5, pre-university 1.

Finance.—Pilgrimage dues (1948 est. £10,000,000) and oil royalties (1948 est. more than £20,000,000) are the main sources of revenue. Monetary unit: rial; there is no fixed exchange rate but in Nov. 1950 it was 8.14 rials to the pound, or 2.90 rials to the U.S. $1.

Transport and Communications.—Roads (1948) metalled, 45 mi. Licensed motor vehicles (Dec. 1950): cars 6,000; commercial 7,700. Telephones (1946), 2,500. Radio receiving sets (1949), 9,000.

Industry.—Crude oil production (1950) 26,904,000 metric tons. Raw materials: copper (1948) 67 metric tons; gold (1950) 66,202 troy ounces; silver (1950) 124,287 troy ounces.

Oman and Masqat.—Area: *c.* 65,000 sq.mi. Pop. (1950 est.): 550,000. Cap., Masqat. Ruler (from 1932), Sultan Said bin Taimur.

Bahrein.—Area: 213 sq.mi. Pop. (1950 est.): 110,000. Ruler (from 1942): Sheikh Sir Sulman ibn Hamad al Khalifah.

Kuwait.—Area: *c.* 9,000 sq.mi. Pop. (1950 est.): 170,000. Ruler (from 1950): Sheikh Abdullah bin Salim al-Subah. Crude oil production (1950) 17,018,600 metric tons.

Qatar.—Area: *c.* 4,000 sq.mi. Pop. (1950 est.): 20,000. Ruler (from 1949): Sheikh Abdullah ibn Jasim al Thani.

Trucial Sheikhdoms.—Area: *c.* 16,000 sq.mi. (including the sheikhdoms of Shargah, Ras al Khaimah, Umm al Qawain, Ajman, Dubai, Abu Dhabi and Kalba). Pop. (1950 est.): 80,000.

Arab League: *see* Arabia; Egypt; Iraq; Jordan; Lebanon; Middle East; Syria.

Archaeology.

Eastern Hemisphere.—Available information on the archaeological discoveries of 1951 in the old world centred on western Europe, the circum-Mediterranean basin and the middle east. Archaeological news from countries behind the "iron curtain" was extremely tardy and brief; a new Czechoslovakian journal *Archeologické Rozhledy* became available which gave, in brief French summaries, news of Czechoslovakian excavations covering the range of materials from Aurignacian to mediaeval times. Archaeologists were still cleaning up after World War II. From Germany came descriptions of a fine group of Roman mosaics which appeared when the badly bombed basilica of Trier was being cleared for restoration, and of ancient and once-restored vessels again being reconstructed from the debris in bombed-out museum basements. The year saw a marked upswing in archaeological activity in Afghanistan, where both French and U.S. field parties were at work. One of the most important events of the archaeological year was the bracketing of sites through the "gap in knowledge" of the transition from the cave-dwelling stage to that of the established peasant-village economy, done by an Oriental institute-American Schools of Oriental Research expedition in Iraqi Kurdistan.

Pleistocene Prehistory.—The outstanding event of the year in the Pleistocene range was the development, by Dorothy Garrod of Cambridge university and her collaborator Suzanne de Saint-Mathurin, of the Magdalenian rock-shelter site "le roc-aux-sorciers" at Angles-sur-l'Anglin, Fr., to the point where a complete frieze of relief sculpture was appearing. There were indications that the frieze—much of which was still covered with fallen stone—would have an all-over length of 40 m.; clearance was being made from both ends toward the centre, where the greatest overburden of fallen rock lay, and the relief carvings of horses and ibexes were the finest examples of this type of art yet known. A remarkable life-sized head of a Magdalenian hunter, found several years earlier in the site, presaged additional human beings as part of the frieze when it was fully cleared.

In North Africa the American School of Prehistoric Research worked at the site of Oued Akarit. There Bruce Howe investigated a fossil spring deposit underlying several metres of sand, in which Levalloiso-Mousterian implements and the bones of fossil animals were found. A geological-archaeological survey of the classic Capsian area of Tunis was also carried on.

The excavations of Carleton Coon at Hotu cave in Iran, and of the Oriental institute-American Schools of Oriental Research expedition in Iraq, extended back into full Pleistocene times.

The Near-Middle East.—The University museum-University of Pennsylvania excavations at Hotu cave above the Caspian shore in Iran encountered three human skeletons at a depth of about 40 ft. and underlying a sand and gravel bed. This bed was first claimed to have been the result of deposition which took place during the last phase of glaciation (Würm), but latest reports were that a restudy of the evidence suggested a later Mesolithic date for the skeletons (unfortunately, the word "Mesolithic" had little chronological significance in this region). The upper levels of Hotu cave yielded an important sequence of materials from a date of approximately 6000 B.C. upward to recent times. Taken with the evidence from near-by Belt cave, excavated several years before by the same expedition, it now seemed clear that there was an early phase of incipient agricultural experimentation by cave dwellers living in the Caspian coastal strip.

Closer to the centre of the ancient near east, the Oriental institute-American Schools of Oriental Research expedition under Robert J. Braidwood (in collaboration with Bruce Howe of the Peabody museum, Harvard university, and H. E. Wright, Jr., of the department of geology of the University of Minnesota, Minneapolis) excavated four sites east of Kirkuk, Iraq. On behalf of the Iraq Directorate of Antiquities, the expedition tested the site of Barda Balka, where Acheulean-type hand axes, flake tools and pebble tools were found in gravels assigned to the beginning of the Würm glaciation. In the Palegawra cave, flint blades and microliths of the terminal cave-dwelling stage were reclaimed. At Karim Shahir, the expedition cleared traces of a temporary open-air settlement, with ground stone tools as well as chipped flint, which seemed to show the very beginnings of village life. At Jarmo, a site covering about three acres and with a depth of approximately 25 ft. made up of a dozen architectural levels, the expedition gathered evidence of the earliest-known fully established village stage. Jarmo dates to approximately 5000 B.C.; only the upper third of its deposit includes portable pottery. While not all phases of the "gap in knowledge" between the end of the cave stage and the established village stage were closed, the expedition's evidence bracketed this range of time, and, of more importance, did so in a "nuclear area" wherein the germs of development of the subsequent Mesopotamian civilization were appearing.

Diggers were also active in the later ranges of Iraq's history. The joint Oriental institute-University museum (University of Pennsylvania) expedition to Nippur resumed work in the late fall of 1951, concentrating on the "scribal quarter" of the town, where a fragmentary statue of the Gudea type, a Kassite plaque and a number of cuneiform tablets had been found. The British School of Archaeology in Iraq resumed its work at the ancient Assyrian capital of Nimrud, with spectacular results in reliefs, ivory carvings and architectural clearances. The Iraq Directorate of Antiquities began large-scale operations at the Parthian desert fortress of Hatra, under the direction of Sayid Fuad Safar; a private temple of considerable size yielded an important series of sculpture and reliefs, Graeco-oriental in style and with Aramaic inscriptions.

A new journal, *Les Annales archéologiques de Syrie,* appeared in Syria, published by the Direction Générale des Antiquités de Syrie, which gave summary accounts of the Direction's recent work in the Roman city of Bosra, in the Islamic city of Rakka and in the late (Roman, etc.) cemetery at Tell Nebi Mendi (Kadesh), and of the Dutch trial excavations under C. Hillen and P. V. D. Meer at Atcherine near Aleppo. In Lebanon, Dunand continued his important clearance of the earliest levels of Byblos. In Israel, work continued at Khirbet Kerak and on smaller sites. In Jordan the American Schools of Oriental Research completed its clearances at Roman Jericho and began work at Dhiban (the biblical Dibon). The important work of the Dominicans at Tell el Farrah was being continued, with concentration on the late (1st millenium B.C.) levels of the town. There did not seem to be evidence to substantiate newspaper claims that the city of the queen of Sheba herself had been recovered in southern Arabia.

The political situation in Egypt did not encourage foreign excavations, but the Oriental institute and the French school were carrying on their programs at Luxor and near Cairo.

In Iran, the French expedition under Roman Ghirshman at Susa was again at work, mainly in the Islamic levels. A University of Michigan (Ann Arbor, Mich.) survey party, which worked in Iran and Iraq, located rock-cut inscriptions in the Kurdish frontier region of these countries. In Afghanistan, Daniel Schlumberger carried on his important clearances at Balkh and Laskari Bazar, of Hellenistic and Ghaznavid dates respectively. The Délégation Française also began work at Mundigak, near Kandahar, where J.-M. Casel found a sequence of painted pottery and remarkably well-preserved architecture. Also in the Kandahar district, two parties from the American Museum of Natural History, New York city, were active, one under Louis Dupree, the other under W. A. Fairservis. Dupree tested two caves and a mound; the mound and one of the caves contained pre-Islamic painted pottery. Fairservis carried on surface survey, which extended south of the Helmund river into Seistan; he also surveyed and test excavated in Baluchi Pakistan, and established the relative stratigraphical position of the painted "Quetta" ware. When all of this new Afghan-Baluchi evidence was processed and interpreted, it was expected to throw considerable new light on the protohistory of this remote area.

In Turkey, an exploratory excavation of great promise was made in Sultan Tepe (Harran) by the Turkish Antiquities department and the British Institute of Archaeology. Harran is known to have been occupied through a very long range of historic time, and to have been the site of a temple to the moon god Sin. Seton Lloyd described the appearance, in a test sounding on the site, of a great cache of cuneiform tablets of an Assyrian library. One hundred and fifty intact tablets were extracted from this hoard for study; the rest were sealed back in place to await a full-scale clearance in 1952.

Classical Lands.—The University museum of Philadelphia resumed its work on the classical and preclassical site of Yassihuyuk-Gordion. Six main habitation levels were noted in a depth of 16 m.; the two uppermost were of Hellenic and Hellenistic date. In Greece itself, the French school worked at Delphi and Delos (mainly restoration and checking for publication), as well as in the agora of Thasos and in the Cyclades and on Crete. The French also undertook the direction of specialists in deep-water exploration, with equipment permitting examination to an average depth of 130 ft. Several ancient sunken ships were located. The British school resumed work at Mycenae, with Greek co-operation; portions of the "Tsountas" house were recleared and mapped, as were adjacent areas, and an undisturbed burned house was encountered. The American School of Classical Studies, having completed its concentration on the portions of the Athenian agora surrounding the stoa of Attalus (which was to be restored as a museum), was able to dig on a larger scale away from the stoa. A number of interesting objects were found and new topographical information was collected. There was considerable activity in Italy; Italian archaeologists were active and Einar Gjerstad of the Swedish school carried on his series of investigations on the early history of Rome. Reports became available on F. E. Brown's work for the American academy at Cosa, where the *arx* or sacred citadel and its buildings had been excavated, and evidence for the religious history of a Roman colony on Etruscan ground was reclaimed.

Western Europe.—Several important classical finds were made

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in cisalpine Europe. Gerhard Bersu reported on a very remarkable find of Roman parade armour in Straubing, Bavaria, which included seven fine visor masks and five chamfrons (face armour for horses). The find dated to the 2nd or 3rd century A.D., and seemed to have been cached at the time when the Germanic tribes overran this part of the Roman frontier in the middle 3rd century. In England, at Carrawborough on Hadrian's Wall, a Roman shrine to the Persian god Mithras was cleared. This mystery religion, which became popular with the Roman army in the east in the 1st century B.C., had spread to the western boundaries of the empire by the 3rd century A.D. The mosaics recovered at Trier in western Germany (mentioned above) were of mixed pagan and Christian origin of the 4th century A.D. Work on the repairing and clearing of the mosaics of Santa Sophia in Istanbul was advanced by the Byzantine Institute of America, and Robert Van Nice carried on his structural survey of the great building.

A remarkably well-preserved body of a man, perhaps dating to about A.D. 100, was accidentally recovered from a Danish peat bog at Tollund; the body was practically naked and the individual had met death by hanging. There is a general belief that such naked hangings were ritual sacrifices in connection with the great spring fertility festivals. The man had been well fed before death; Hans Helbaek of the Danish National museum was able to analyze the stomach contents and found the remains of a barley and linseed porridge. Further excavations were carried on at Jarlshof, on the south end of Shetland Island, on a Viking settlement which flourished for several centuries after A.D. 850. There J. R. C. Hamilton recovered adequate material for reconstruction of the fishing, farming and pastoral type of existence of the Vikings at home.

Africa.—Of the few reports available from Africa, the most remarkable was of a fine group of cast bronzes from the Soa cemetery at Midigué on Lake Chad. Hundreds of bracelets and figurines and many objects of enigmatic type were found in urn burials dating from the 10th to 16th century A.D. A series of caves was excavated by the South African Archaeological society near Johannesburg; these yielded materials covering the range from late premetal to iron-using times.

At the close of the year, no information was available for the year's work in archaeology in further Asia. (*See* also ANTHROPOLOGY.)

Sources used in the preparation of this article, other than those specifically mentioned: *Antiquaries Journal, L'Anthropologie, Antiquity, Archaeology, American Journal of Archaeology, Archaeological News Letter, Bulletin of the American Schools of Oriental Research, Bulletin de la Soc. Préhist. Française, Illustrated London News, Man, Nature, Revue Biblique, South African Archaeological Bulletin.* (R. J. B.)

Western Hemisphere.—W. F. Libby and J. R. Arnold of The University of Chicago Institute for Nuclear Studies announced the results of their work on the age determination of archaeological and geological specimens by the carbon-14 technique in *Science* (vol. 113 [no. 2927], pp. 111–120 [Feb. 2, 1951]). The significance of this series of dates and the degree of correlation with archaeological chronologies were discussed in a symposium published as memoir number 8 of the Society for American Archaeology. In general the correlation was very good, although some of the dates were quite surprising. A few dates appeared to be inconsistent with other carbon-14 dates or with the archaeological data, and probably were subject to some undetermined error. In addition to the dating laboratory at Chicago, other laboratories had been set up at Columbia university, the University of Michigan, Yale university and the University of California at Berkeley, but by the close of 1951 these had not yet announced results from their work.

Early Man.—With the new tool of radiocarbon dating, the archaeological studies of early man in North America were beginning to form a consistent pattern and also to assist in dating the last glacial maximum. Robert F. Heizer secured bat guano from the lower levels of Leonard rock shelter near Lovelock, Nev. This was mixed with gravels of a beach of Lake Lahontan and gave a date of 11,199 ± 570 years ago. Guano and artifacts obtained by Jesse D. Jennings from Danger cave, associated with an elevated beach of extinct Lake Stansbury in western Utah, dated almost exactly the same. Other dating for the Manketo maximum fell between 11,000 and 12,000 years ago and demonstrated that man was already in North America as the continental glaciers began to wane.

Glen L. Evans and Grayson E. Meade conducted excavations near Lubbock, Tex., in old pond deposits which revealed remains

SKULL RECONSTRUCTED from remains found in 1951 in the Hotu cave, northern Iran, by Carleton S. Coon of the University of Pennsylvania museum. Coon believed it to be about 75,000 years old

of extinct bison. Some of the bison bones had been charred and four classic Folsom points were found in place. Carbon-14 measurement of the burned bone gave an age of 9,883 ± 350 years, a date which was probably correct for Folsom culture.

Cultural remains were discovered by Junius Bird in 1936–37 associated with bones of extinct horses, ground sloth and guanaco bones in Palli Aike cave near the eastern end of the straits of Magellan. The charred bone from these deposits gave an elapsed time of 8,639 ± 450 years.

Sandals from Fort Rock cave in south central Oregon gave a measurement of 9,053 ± 350 years. This date was not only of importance to archaeology but also assisted in fixing the time of the Newberry volcanic eruption. This in turn would assist in estimating the age of cultural materials in near-by deposits lying beneath the same pumice.

Arctic.—A party of archaeologists from Harvard university, working under the leadership of Bertram Carter, excavated a series of sites near Point Barrow, Alaska, with excellent results. This party made use of the facilities of the Arctic Research laboratory of the office of naval research. At Kotzebue, James W. Van Stone of the University of Pennsylvania worked in a portion of the prehistoric site which was to be destroyed by an extension of the airstrip.

William E. Taylor of the University of Toronto, who worked with Henry Collins the year before, returned to Resolute bay, Cornwallis Island, to continue investigation of Thule and Dorset sites. In Hudson bay, Deric O'Bryan excavated Dorset sites on Mill Island with a grant from the Arctic Institute of North America.

Several radiocarbon dates were obtained for the Eskimo archaeological sequence. Wood from a house at Gamble, St. Lawrence Island, Alaska, assigned to the Old Bering Sea I or Okvik period, gave a date of 2,258 ± 230 years. Two dates were obtained for the Ipiutak period: one from the type site at Point Hope, Alaska, was 912 ± 170 years; the other, from a site near Deering on Seward peninsula, was 973 ± 170 years.

Pacific Coast.—Test excavations were made at Musqueam near the mouth of the Fraser river by Charles E. Borden of the University of British Columbia. The deposit was more than 11 ft. deep and extended well below the water table; unusually well-preserved perishable material was discovered. Excavations on a larger scale were planned for this site.

Douglas Osborne continued the excavations in the basin of the McNary reservoir near Pasco, Wash. Additional pit houses and burial sites were examined. This work, under the auspices of the University of Washington, Seattle, was a phase of the salvage operations of the River Basin surveys of the Bureau of American Ethnology, Smithsonian institution.

At the mouth of Willow creek, Monterey county, Calif., a site consisting of two shell midden layers separated by ten feet of water-laid gravel was excavated by Robert F. Heizer and ten students from the University of California. There was cultural difference between the layers and evidence of subsidence of the coast since the lower midden was deposited. A radiocarbon date from this level was 1,879 ± 250 years.

A. E. Treganza excavated in the Farmington reservoir area in Stanislaus county, under a contract agreement between the University of California and the national park service. All the sites examined produced heavy core and flake tools, and the nature of the sites suggested that they were fairly ancient.

Southwest.—The University of Colorado field session, under the direction of Robert H. Lister, excavated two caves and several open sites south of Grand Junction, Colo. The refuse in one of the caves contained pottery, but the other was entirely preceramic. Several of the open sites were deeply buried and apparently rather old. H. Marie Wormington of the Denver Museum of Natural History directed a party in the excavation of a rock shelter in the same vicinity as the University of Colorado excavations. Occupation debris extended to a depth of 13 ft. and contained a wide variety of projectile point types. The preceramic, preagricultural culture was similar to that found in two shelters in Montrose county, Colo., in 1938 and 1939.

In the Chaco Canyon National Monument, R. Gordon Vivian of the Southwestern Monuments organization directed the repair and stabilization of the ruin called "Yellow house." This work involved considerable excavation and a remarkable painted kiva was discovered which was to be sheltered to form an exhibit.

J. O. Brew and Watson Smith of the Peabody museum of Harvard university worked in the region south of Quemado, N. M. Paul Martin and John Rinaldo of the Chicago Natural History museum continued their program of research in Pine Lawn valley in southwestern New Mexico.

Charles DiPeso of the Amerind foundation excavated at the historic site of Quiburi and discovered a number of Spanish metal objects associated with Indian artifacts.

The University of Arizona field school, under the direction of Emil Haury, continued work at Point of Pines on the San Carlos Apache reservation. A series of sites was examined ranging from early Mogollon to late Pueblo remains, dating in the 14th or 15th century.

The 1951 Pecos conference was held at Point of Pines, Aug. 15–17. In addition to the usual summaries of archaeological field work, there were discussions of field work in ethnology and applied anthropology. There was also a discussion as to the significance of radiocarbon dates.

Plains.—The River Basin surveys of the Smithsonian institution had eight major field parties working in the Missouri basin in the summer of 1951: seven were engaged in the excavation of selected sites in areas to be flooded, and one party continued survey. Work in the Keyholes reservoir of eastern Wyoming was conducted by a Smithsonian party, and also by a second group headed by William T. Mulloy of the University of Wyoming, Laramie. One of the three sites excavated by Mulloy yielded artifacts similar to Signal Butte II. Two Smithsonian excavation parties worked in the Garrison reservoir area in North Dakota. One of these excavated Fort Stevenson, a frontier military post of the 19th century, and the other worked on prehistoric Indian sites. Indian contact-period sites were excavated in several other reservoir areas further down the Missouri valley.

The Nebraska State Historical society field party, under the direction of Martin Kivett, worked in South Dakota in the Fort Randall reservoir at an earth lodge village site. The contents of the houses suggested a culture related to the Lower Loup and the Talking Crow site. Carlyle Smith headed a party from the University of Kansas, Lawrence, which continued excavations begun in 1950 at the Talking Crow site.

Eastern United States.—The first group of carbon-14 dates released for sites in the eastern half of the continent contained several surprises. Hopewell culture specimens from Ohio and Illinois dated between 386 and 1 B.C., while dates for related Marksville period sites in Mississippi and Louisiana were A.D. 674 and 792. Adena sites of Ohio and Tchefuncte sites of Louisiana, thought to precede the Hopewell-Marksville culture in time, produced later dates.

Early Archaic sites in Kentucky and New York gave approximately equal dating measurements of about 5,000 years elapsed time. An old buried fishweir excavated from beneath Boylston street in Boston, Mass., several years earlier gave about the same measurement.

The Museum of Southern Illinois University, Carbondale, un-

ANIMAL FIGURINE of unbaked clay dating from the early village stage found at Jarmo, east central Iraq, in 1951, by an archaeological expedition headed by Robert Braidwood of the Oriental institute, The University of Chicago

der the direction of J. Charles Kelley excavated part of the deposit in a large rock shelter west of Murphysboro, Ill. The midden was more than one metre in depth and contained both Mississippi and Woodland remains. The Wisconsin Archaeological survey continued work at the Aztalan site and began the restoration of the large rectangular mound within the stockade.

The Royal Ontario Museum of Archaeology excavated an early Point Peninsular site at Lake Scugog under the direction of Kenneth Kidd. Pottery, bone and shell artifacts were found. E. F. Greenman of the University of Michigan continued excavations in the vicinity of Killarney, Ont.

The New York Science service and the State museum excavated sites in central and northern New York state. On the Seneca river a productive site yielded Owasco cultural material over late Point Peninsular. An early Laurentian site was dug on the upper Hudson river near Schuylerville, and near Catskill in the same valley a late Laurentian site was examined.

The Carnegie museum of Pittsburgh, Pa., was conducting an extensive survey of Pennsylvania under the direction of William J. Mayer-Oakes. Several mound sites had been discovered, and examination of local collections suggested Hopewellian and Adena-Middlesex influences.

The University of Georgia field session, under the direction of A. R. Kelly, worked on a late Kellog and early Cartersville period site on Pine Log creek in northern Georgia. Several caves were located which contained cultural material with Copena relationships. William Sears continued excavation in Kolomoki State park in southern Georgia and uncovered a number of burials accompanied by Weeden Island-type artifacts.

A joint field party from the American Museum of Natural History and Peabody museum dug at the Jaketown site near Belzoni, Miss. Beneath natural levee deposits of an old course of the Ohio river, a preceramic cultural complex was found which corresponded to that described from Poverty point, La.

Middle America.—Under the direction of the Instituto Nacional de Antropología y Historia, the Mexican government had begun an extensive program of restoration at the major sites of Chichen-Itza, Palenque, Tajín, Uxmal and Kabah. The annual round-table conference on Mesoamerican anthropology was held the last ten days in July at Jalapa, Veracruz, and the subject of discussion was "The Totonac, Huastec and Their Neighbors." The conference was well attended and the stimulating discussion dealt with both ethnological and archaeological aspects of the problem.

Radiocarbon tests from Archaic period sites in central Mexico ranged from 3,400 to 2,400 years ago. Apparently the earliest pyramidal mounds dated about 500 B.C.

The Museo de Arqueología y Etnología of Guatemala announced the formal inauguration of its sherd laboratories. Comprehensive files had been arranged representing the results of the work of the Carnegie institution, the Philadelphia museum and a number of private individuals.

In Colombia the Instituto Etnológico Nacional under the direction of Luis Duque Gomez excavated a late Chibcha site on the Hacienda Mondonedo, Municipio de Mosquera, in Cundinamarca. In the site there was a mound on top of which were found the outlines of a ceremonial building made of wood.

Ross T. Christianson completed excavations in the Piura valley in northern Peru. A habitation site at Chusís, about 400 m. square, was examined by means of stratigraphic tests in the refuse and a fairly simple culture was discovered showing no relationships to Inca or Mochica.

Radiocarbon dates for the north coast Peruvian sequence were summarized by Junius Bird in the memoir of the Society for American Archaeology referred to above. These data suggested that the preceramic Huaca Prieta site in Chicam valley was settled about 2550 B.C. and that the earliest ceramics, the beginning of the Guañape period, dated about 1225 B.C.

FILMS OF 1951.—*A Glimpse of the Past* (Educational Film Library Assoc.); *Peruvian Archaeology* (Pan American Union, Motion Picture Service). (J. A. FD.)

Archery.

The 67th annual tournament of the National Archery association of the United States was held at Los Angeles, Calif., on the campus of the University of California, Aug. 13–17, 1951. One hundred sixty-three archers from 14 states, Belgium and Canada participated. Twenty-six new national records were established. The champions and their scores are shown in the table.

The Phoenician Archers (Phoenix, Ariz.) with a team of four men won the men's team round (96 arrows at 60 yd.) event.

Target Archery

Men's championship		Russ Reynolds, Cleveland, O.	
Scores:	Double York round	287–1,751	
	Double American round	180–1,426	3,177
Ladies' championship		Jean Lee, Greenfield, Mass.	
Scores:	Double National round	144–1,070	
	Double Columbia round	144–1,176	
	Double American round	180–1,454	3,700
Junior boys' championship		Jerry Hash, Long Beach, Calif.	
Scores:	Double Hereford round	284–1,878*	
	Double American round	180–1,328	3,206
Junior girls' championship		Laurette A. Young, Detroit, Mich.	
Scores:	Double National round	142–960*	
	Double Columbia round	144–1,130	
	Double American round	178–1,286	3,376

Crossbow

Men's championship		Walter Palkowski, Los Angeles, Calif.	
Scores:	Double American round	180–1,368	
	Double American round	180–1,372	2,740
Ladies' championship		Mrs. Dixie Tyler, Fullerton, Calif.	
Scores:	Double American round	175–1,019	
	Double American round	177–1,047	2,066

Flight Archery

Men	Regular style	Harry Drake, Lakeside, Calif.	623 yd.
Ladies	Regular style	Mrs. Henry Bitzenberger, Rivera, Calif.	395 yd. 2 ft.
Boys	Regular style	James Easton, Los Angeles, Calif.	432 yd.

Clout Shoot

Men	(36 arrows at 180 yd.)	Max Hamilton, Phoenix, Ariz.	36–288*
Ladies	(36 arrows at 140 yd.)	Mrs. Jean Richards, Laguna Beach, Calif.	36–280*
Ladies	(36 arrows at 120 yd.)	Jean Lee, Greenfield, Mass.	36–310*
Boys	(36 arrows at 120 yd.)	Bert Corley, Long Beach, Calif.	36–300*
Girls	(36 arrows at 120 yd.)	Lorna Price, Phoenix, Ariz.	36–278*

Field Archery

Men's championship	Reuben Powell, San Diego, Calif.	2,547
Ladies' championship	Mrs. Eleanore Hamilton, Garfield Heights, O.	1,796
Boys' championship	William Hicks, Glendale, Calif.	2,379
Girls' championship	Janet Laitis, Allen Park, Mich.	1,218

*Indicates new record.

their combined scores totalling 383–2,623. The United Archers of Whittier, Calif., won the ladies' team round (96 arrows at 50 yd.) event with a score of 380–2,640, exceeding the previous record by 25 points.

Mrs. Ann Weber Corby of Denville, N.J., established a new world record for the Hereford round with 143 hits for a score of 1,017—96 points higher than the previous record.

The National Field Archery tournament was held Aug. 21–24, 1951, in Watkins Glen, N.Y.

The 68th annual tournament of the National Archery association was to be held at Jackson, Mich., Aug. 4–8, 1952.

The 15th world championship tournament, held biennially, was to take place in Brussels, Belg., July 23–28, 1952. (O. U. C.)

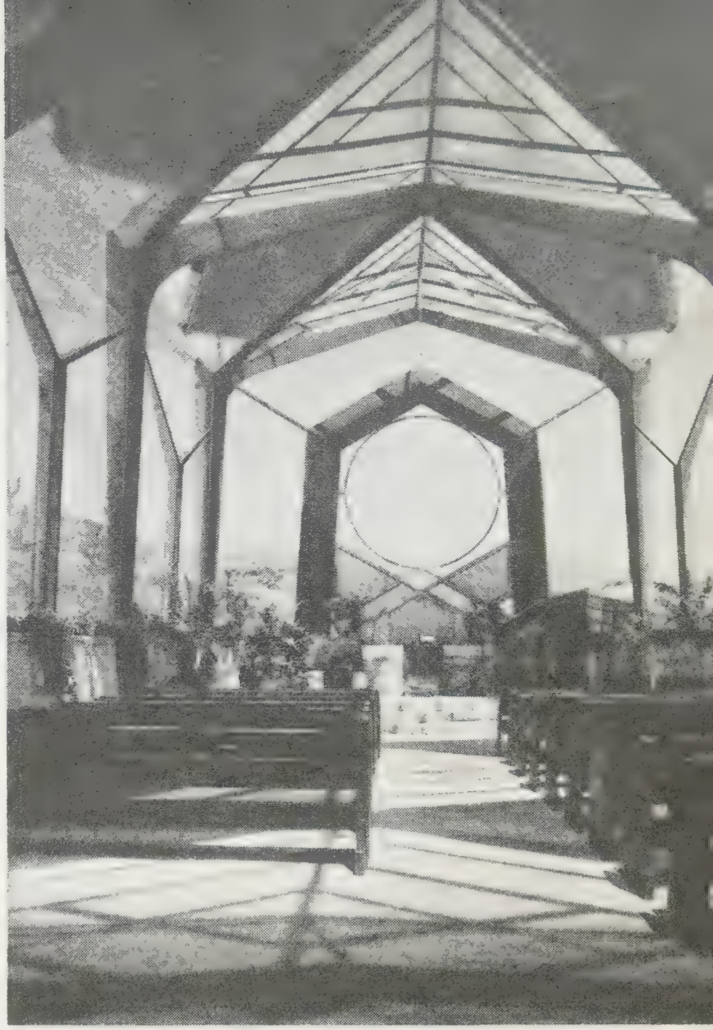
Architecture.

At the beginning of 1951, the impact of the international situation on the architectural profession was forecast, by the third quarter of the year the pattern became clarified and toward the end of the year was developed sufficiently to enable the profession to begin to foresee a possibility of resumption of normal activity after the first six months of 1952.

The situation in the profession at the beginning of 1951 can be described only as confusing in the extreme, as evidenced by the drastic curtailment of work in some of the offices and by greatly increased work in others. Certain elements of the clientele of the profession found themselves, if not immediately restricted by the controls on building, at least so intimidated by the possibility as to lessen their demands for design service. At the same time, professional services for the national defense construction program were in great demand. The hesitancy to engage architects for commercial and recreational building can be readily understood. And the hesitancy on the part of the architects to encourage clients to proceed with planning when they, the architects, could not assure a client that the plans could be realized in actual structure can be likewise understood. However, the large architectural firms, geared to design huge projects, especially for the defense construction program, found themselves deluged with work, resulting in some cases in doubling the size of their offices.

On the whole the income of the profession in 1951 held up fairly well and showed little decrease below 1950. This could be attributed, presumably, to the continuance of some work already on the boards and to the receipt of payments in 1951 for services rendered previously. As the year progressed, it became increasingly difficult for the architectural profession to indicate to the client even the approximate cost of contemplated structures. The profession, realizing the condition of the economy, which included a definite lack of promise for any but industrial and defense work, turned as best they could to those two avenues of engagement.

Thereupon, the profession's concern for improving the procedures and methods of negotiating for governmental contracts became paramount. At the same time, those governmental agencies concerned with the defense construction program (totalling billions of dollars) found themselves confronted suddenly with a great volume of large design contracts and an influx of eager and able professionals. Both architect and client found it necessary to give serious attention to perfecting methods of negotiation service and to establishing appropriate fees which would recognize the value of skill, as well as size of drafting forces and physical equipment.



WAYFARER'S CHAPEL designed by Lloyd Wright and completed at Palos Verdes, Calif., in 1951. The glass-enclosed structure was built on a bluff overlooking the Pacific ocean, a setting meant to approximate the spirit of the first Christian sermons at the Sea of Galilee

Despite a situation ill-suited to advancing architecture as an art, some significant advances were made in 1951, especially in the design of schools and hospitals. Progress in the design of school buildings was both extraordinary and revolutionary, and examples of unusual architectural interest were legion. To cite a few: the work of Lawrence B. Perkins and Philip Will, Jr., in the Chicago, Ill., area; of Ernest Kump in and about San Francisco, Calif.; of Henry Wright in southern California; of Walter Bogner and Carlton Richmond in Massachusetts; of Maloney and Whitney in the northwest; and of Bomberger and Reid in California.

The hospital field was marked by constant improvement in planning and in mechanical development, and here again the contributions of the profession to this special branch of architecture were outstanding. To cite a few examples: the Maimonides Health centre, San Francisco, by Eric Mendelsohn; the work of Loebl, Schlossman and Bennett in Chicago; Magney, Tusler and Setter in Minneapolis, Minn.; James R. Edmunds, Jr., in Baltimore, Md.; and Erhart, Eichenbaum and Rauch in Little Rock, Ark. The contribution of the U.S. public health service, through its division of hospital facilities, technical services branch, to the advancement of hospital construction and hospital planning was of great significance.

In the residential field, little was accomplished in what might be called luxury housing. Excellent modern houses were designed and built in 1951 in various parts of the United States, however, giving definite indication of a new outlook on the part of the public for a way of living. Unfortunately, this advance was not reflected to any great extent in the mass of new dwellings in the low- or the middle-income groups where, except in rare instances, no improvement in the design for living was to be found. It had been long assumed that the reason for this lack of advance lay in the inherent conservatism of the people. This might be a contributing factor, but there were many who held that the public had not been given the opportunity to become acquainted with a more enlightened form of living, not because of any inherent conservatism on the part of the public but because of the timid and unimaginative attitude of the financiers.

The rapid growth of metropolitan areas since World War II became especially pronounced in 1951, and people were beginning to question the desirability of greater extensions of cities. At the same time, it was realized that because of the rapid growth in population the problem of urban planning was no longer one which could be met by the production of dreams for the "city beautiful." In fact, it was doubtful if any comprehensive planning could be engaged in that did not take into account as its initial problem a very great population growth. This, in a curious way, brought about a lessening of interest in public housing as a possible dominant factor in city planning, a feature which not long before had played an all-important part in urban development, including the reclamation of blighted areas.

Architecturally, designs for public housing did not come up to the expectation of the local authorities and the federal agencies. The responsibility for disappointing design was attributed by the architects to the restrictions of criteria established by the federal agencies, the high cost of construction and the discouragement of the designer in attempting to carry projects of advanced architectural thinking through the maze of governmental red-tape. Architects fell back upon established designs well within the federal criteria in order to free themselves for engagement upon other work of greater architectural promise. The governmental authorities on their part expressed disappointment that unusual and brilliant design had not been forthcoming.

It could be argued that the blighting hand of bureaucratic domination had not and never would stimulate architectural progress. Unquestionably, the physical lot of the income classes for whom public housing projects were planned would be improved by the projects which were on the boards, but there was grave question that the solution of the problem, as evidenced in some of the public housing projects in the great metropolitan centres, would afford the inhabitants of the projects anything but a physically improved standard of living. The American Institute of Architects, working in conjunction with the National Association of Housing Officials and the Public Housing administration of the U.S. government, undertook the task, among other things, of reviving an approach to the problem calculated to produce something besides a stereotyped collection of housing units.

In 1951, because of the drastic curtailment of the public buildings program, there were few outstanding examples of governmental work. The general accounting office in Washington, D.C., designed by the public buildings service, was perhaps the only significant building in this category completed during the year. This building was one of the first of the so-called block type of building. It occupied an entire city block, which was completely covered with the building. Although still in the experimental stage, this type of building was being carefully studied as the solution to housing a great many workers in one spot without recourse to the skyscraper type of structure.

To sum up, it can be said that, by force of circumstances, 1951 cannot be regarded as a year which saw completion of much of architectural note. It was a year of industrial expansion to increase the capacity for further construction and a year in which the talents of the profession had to be largely devoted to the production of design geared to the defense effort. (Ed. R. P.)

Great Britain.—The Festival of Britain South Bank exhibition (May 3–September 30) alone made 1951 a historic year for contemporary English architecture. Though none of the buildings in themselves were of revolutionary significance, most of them showed imagination, daring, wit and ingenuity. All informed critics agreed that the important aspect of the exhibition was the ensemble, which gave to what was in fact a very small site (27 ac.) an appearance of great spaciousness. The only permanent building on the south bank of the Thames, the Royal Festival hall, was opened by the king and queen on May 3. Since it had to be designed and erected to a close timetable (the actual construction took just under two years) the architects (R. H. Matthew and J. L. Martin with Edwin Williams and Peter Moro as senior and associate architects, respectively) avoided structural experiment. The framework was of reinforced concrete with panel infilling, except for the auditorium which had double reinforced concrete walls, each 10 in. thick, with a 12-in. cavity between. The floor and roof of the auditorium were also double, the latter being constructed in the shape of a tied concrete barrel vault supported on the inner wall.

At Lansbury, Poplar, in the East End of London was held the Festival of Britain "live architecture" exhibition. The development of this 30-ac. site represented the first instalment of the County of London plan. It would form a quarter of the final Lansbury neighbourhood, which would itself be one of 11 neighbourhoods in the reconstructed Stepney-Poplar district. The two chief buildings in it, completed in 1951, were a primary school designed by F. R. S. Yorke, E. Rosenberg and C. S. Mardall, and a Congregational church by Cecil Handisyde and D. Rogers Stark.

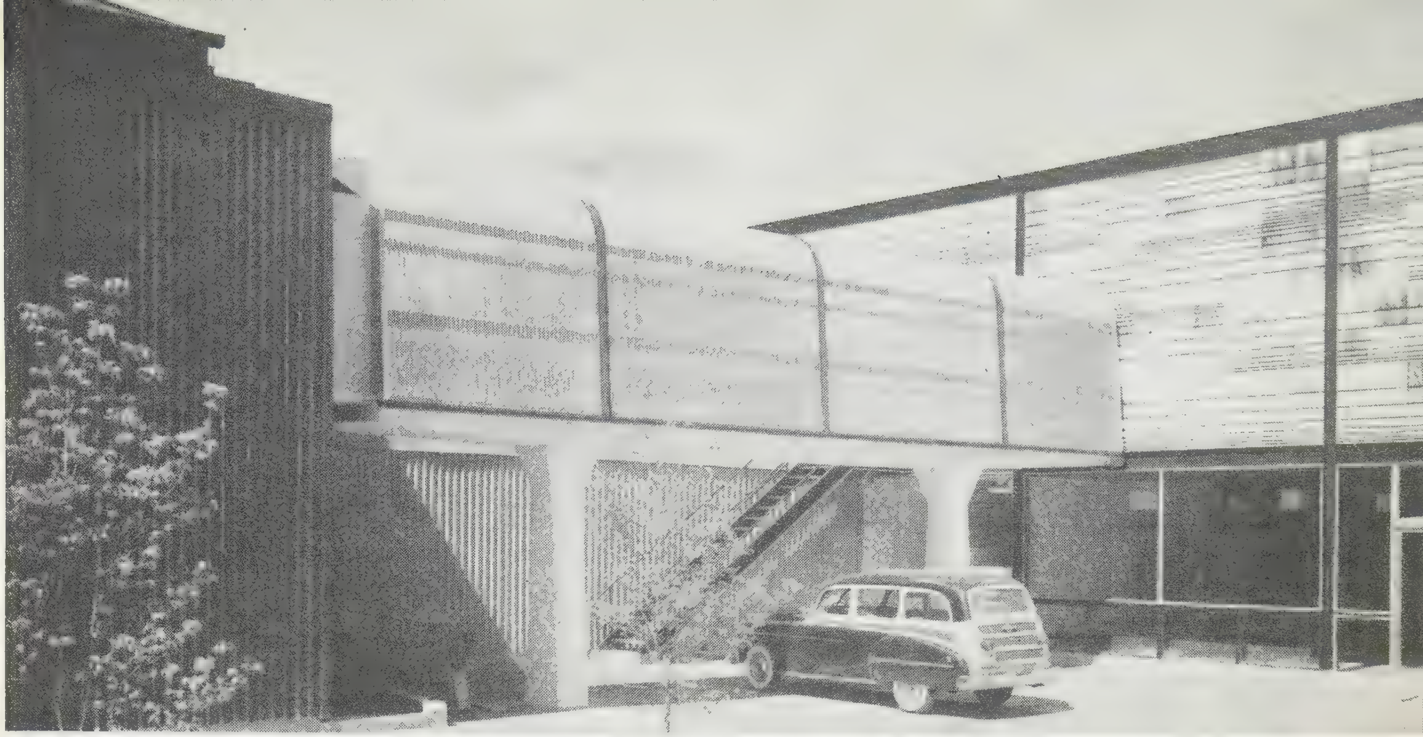
A housing scheme in Busaco street, London, for the Finsbury borough council was completed to the designs of Lubetkin, Skinner and Drake ("Tecton"). This scheme which comprised 270 flats (95 would be built later) showed in its design a further development of the principles which this firm of architects had been developing over a number of years starting at Highpoint, Highgate, in 1935. By employing at Busaco street a method of construction introduced into England from Denmark after World War II and sometimes called the box-frame system, the architects eliminated all projecting stanchions and beams.

Results of the competition for the new Coventry cathedral were announced. The architect of the winning design was Basil Spence. In addition to the new cathedral itself with its chapter house and chapels, there would be a Christian service centre.

In July the eighth of the annual Congrès Internationaux d'Architecture Moderne was held at Hoddesdon, Herts., Eng. The theme was "the core" (or town centre), and among those who attended were Le Corbusier, Walter Gropius, Siegfried Giedion, J. L. Sert and Alfred Roth.

Canada.—At the end of 1950 the first awards of Massey medals for architecture were announced. Eight silver medals were awarded and the gold medal for the best of all the buildings entered went to the firm of John B. Parkin Associates for the Oshawa High school, Oshawa, Ont.

Australia.—The most notable work in Australia was in the field of small house design. Among larger buildings worth mentioning were the Hayman Island hotel, designed by Guildford Bell, and a pavilion-type hotel on a semitropical island in the Whitsunday passage off the north Queensland coast.



CONNECTING BRIDGE of the Glass centre completed in 1951 at the Corning Glass works, Corning, N.Y. The passageway was enclosed entirely with bent Pyrex tubing separated by gaskets and connected the blowing room with the Auditorium building at right. Architects: Harrison, Abramovitz and Abbe

Europe.—One of the first flat blocks of its kind was completed in Gladsaxe, 6 mi. N.W. of Copenhagen, Den. It was financed by a building society to house families where both parents worked away from home. It therefore included, in addition to the flats themselves, a common kitchen and restaurant, a nursery and a laundry. There were five stories built to a Z-shaped plan, with a large garden on one side. Walls were of solid brick, dark red in colour, and balconies were of precast concrete, rendered white. The architects were Paul Ernst Hoff and Bennet Windinge.

In Italy the three buildings completed in 1951 most worth recording were the Textile exchange at Pistoia, constructed of reinforced concrete and faced with stone (architect, Giovanni Michelucci); an orthopaedic hospital at Bari by Guiseppe Samona; and a youth hostel at Cervinia in the Val d'Aosta constructed of wood and stone (architect, Franco Albini). The architectural event of the year in Italy was the ninth *Triennale* held in Milan from June to October. In addition to the central exhibition there was also "QT8," an international experimental quarter on the outskirts of the city, started at the time of the 1947 *Triennale* and forming part of the general plan for Milan; it included housing of many types as well as community buildings.

In Zürich, Switz., the Felix and Regula church by Fritz Metzger was completed. The main roof was an oval shell-concrete dome 72 ft. across at its widest span and 5 ft. 4 in. high. It was supported on sloping concentric columns and the enormous horizontal thrust was countered by a circular cable. The inauguration of the largest structure in Switzerland, the Zürich Cantonal hospital designed by a team of architects headed by Rudolf Steiger, took place in July.

In Paris, Fr., a new building was erected as the headquarters of the French Master Builders' federation. It was a five-story building consisting of continuous reinforced-concrete floor slabs, supported on reinforced-concrete columns, and cantilevered out ten feet on the two long sides. The walls on these sides were of prefabricated aluminum wall panels, brought to the site ready glazed and painted and inserted at the rate of one story each day. The end walls were faced with Oise stone laid in courses of varying depth. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING; TOWN AND REGIONAL PLANNING.)

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(I. R. M. M.)

Areas and Populations of the Countries of the World.

The political entities of the world are listed here with their areas, populations and number of persons per square mile. The latest census or official estimates are given for each country. Areas in square miles are in accordance with the boundaries for the year of the population figure unless otherwise noted. Some of the later boundary adjustments had not been recognized at the end of 1951 by the U.S. government. The subtotals for colonial groupings within continents do not carry density figures.

Where two figures are given for a country, the most recent is used in the continental and world totals.

The table, on this and the following page, provides a fundamental basis for country comparisons.

Areas and Populations of the Countries of the World

(For statistical details and dates see separate country and empire articles)

Name of continent and state	Area (in sq.mi.)	Population (in thousands)	Persons per sq.mi.
World total	58,209,392	2,409,108	46.1*
AFRICA	11,596,222	182,287	15.7
Belgian colony and trusteeship	925,094	14,929	
†British colonies, dependencies, protectorates, trusteeships and condominium	3,045,539	67,724	
Egypt	383,000	20,439	53.4
Ethiopia	350,000	10,000	28.6
French colonies, trusteeships, protectorates, departments and overseas territories	4,252,124	50,324	
Italian trusteeship	198,000	972	4.9
Liberia	43,000	1,350	31.4
Libya	679,340	1,191	1.8
Portuguese colonies	794,959	10,561	
South-West Africa (mandate of Union of South Africa)	317,725	430	1.4
Spanish colonies and protectorate	134,715	1,610	
Tangier, International Zone of	232	111	478.4
Union of South Africa	472,494	12,646	26.8
ANTARCTICA	6,000,000	Uninhabited	
ASIA (exclusive of U.S.S.R.)	10,575,223	1,288,764	121.9
Afghanistan	270,000	12,000	44.4
Arabian desert	193,000	Largely uninhabited	
Bhutan	18,000	300	16.7
British colonies, dependencies, protectorates, protected state and independent state under British protection	245,932	10,453	
Burma	261,749	18,489	70.6

Areas and Populations of the Countries of the World—Continued

Name of continent and state	Area (in sq.mi.)	Population (in thousands)	Persons per sq.mi.
Ceylon, Dominion of	25,332	7,639	301.6
China (35 provinces, including Formosa, Kwantung and South Manchurian railway, Manchuria and Tibet)	3,876,956	475,000	122.5
French overseas territory and associated states	285,987	27,920	
India, Republic of	1,220,099	356,890	292.3
Indonesia	583,479	80,000	137.1
Iran	634,413	18,772	29.6
Iraq	116,600	4,990	42.8
Israel	7,800	1,555	199.4
Japan (1951)	146,690	84,400	575.4
Jordan, Hashemite Kingdom of	37,110	500	13.5
Korea	85,225	29,000	340.3
Kuwait	9,000	170	18.9
Lebanon	3,470	1,257	362.2
Mongolian People's Republic	606,000	900	1.5
Nepal	54,000	7,000	129.6
Netherlands New Guinea	151,789	1,018	6.7
Oman and Masqat	65,000	550	8.5
Pakistan, Dominion of	337,524	75,687	224.2
Philippines, Republic of the	115,600	21,120	182.7
Portuguese colonies	8,876	1,606	
Qatar	4,000	20	5.0
Ryukyu Is. (U. S. occupied territory)	935	917	980.7
Saudi Arabia	597,000	6,000	10.1
Syria	72,200	3,516	48.7
Thailand (Siam)	198,272	18,480	93.2
Trucial Sheiks	16,000	80	5.0
Turkey	296,185	20,935	70.7
Yemen	31,000	1,600	51.6
AUSTRALIA and OCEANIA	3,303,607	13,057	4.0
Australia	2,974,581	8,316	2.8
Australian dependency, territory and trusteeship	183,553	1,444	
British colonies, dependencies, condominium, protectorate and protected state	23,800	515	
French colonies	9,199	110	
New Zealand	103,416	1,940	18.8
New Zealand dependencies and trusteeship	1,656	99	
United States possessions, territory and trusteeship	7,402	633	
‡EUROPE (exclusive of U.S.S.R.)	1,903,652	395,821	207.9
Albania	10,629	1,200	112.9
Andorra	191	5	26.2
Austria	32,375	6,881	212.5
Belgium	11,783	8,654	734.4
British colonies and dependencies	124	340	
Bulgaria	42,796	7,235	169.1
Czechoslovakia (1951)	49,330	12,596	255.3
Denmark (excl. Greenland, incl. Faeroe Islands)	17,109	4,279	250.1
Estonia	18,357	1,200	65.4
Finland (including Aland Islands)	130,159	4,029	31.0
France	213,010	42,400	199.1
Germany (1937 area, 1939 population)	181,742	69,317	381.4
Germany (1951, including Saar)	138,017	69,639	504.5
Greece (including Aegean Islands)	51,182	7,604	148.6
Hungary	35,893	9,313	259.5
Iceland	39,768	143	3.6
Ireland, Republic of	26,602	2,959	111.2
Italy (1951)	116,224	47,021	404.6
Latvia	25,395	2,100	82.6
Liechtenstein	61	14	229.5
Lithuania	25,173	3,000	119.2
Luxembourg	1,010	299	296.0
Monaco	0.6	20	33,333.3
Netherlands	12,868	10,286	799.3
Norway (including Spitzbergen)	149,161	3,282	22.0
Poland (pre-World War II)	150,052	35,339	235.5
Poland (1951)	120,359	24,977	207.5
Portugal (incl. Azores and Madeira Islands)	35,413	8,490	239.7
Rumania	91,654	16,094	175.6
San Marino	38	13	342.1
Spain (including Canary Islands)	194,945	28,287	145.1
Sweden	173,390	7,047	40.6
Switzerland	15,940	4,715	295.8
Trieste, Free Territory of	293	378	1,290.1
United Kingdom	94,501	50,370	533.0
Vatican City	0.5	1	2,000.0
Yugoslavia (after Sept. 15, 1947)	98,826	16,250	164.4
U.S.S.R. (1939)	8,173,557	170,467	20.9
U.S.S.R. (1950 area, 1950 pop. est.)	8,598,700	201,300	23.4
NORTH AMERICA	9,375,934	215,779	23.0
British colonies and dependencies	21,060	2,840	
Canada	3,843,144	13,893	3.6
Costa Rica	19,238	794	41.3
Cuba	44,217	5,400	122.1
Danish colony (Greenland, including ice cap)	840,000	23	0.03
Dominican Republic	19,129	2,121	110.9
El Salvador	13,176	1,859	141.1
French territory and departments	1,206	567	
Guatemala	45,452	2,787	61.3
Haiti	10,748	3,112	289.5
Honduras	59,160	1,534	25.9
Mexico	760,373	25,715	33.8
Netherlands overseas territory (The Netherlands Antilles)	403	163	404.5
Nicaragua	57,145	1,053	18.4
Panama (excluding Canal Zone)	28,575	802	28.1
United States	3,022,387	150,697	50.6
United States possessions	590,521	2,419	
SOUTH AMERICA	6,856,054	112,100	16.4
Argentina	1,079,965	17,425	16.1
Bolivia	416,040	3,990	9.6
Brazil	3,286,170	52,645	16.0
British colonies and dependencies	90,681	427	
Chile	286,323	5,877	20.5
Colombia	439,714	11,260	25.6
Ecuador	104,510	3,077	29.4
French department (French Guiana)	34,740	26	0.7
Netherlands overseas territory (Surinam)	54,291	211	3.9
Paraguay	157,047	1,406	8.9
Peru	482,258	8,405	17.4
Uruguay	72,172	2,365	32.8
Venezuela	352,143	4,986	14.2

*In computing the world density the area of Antarctica is omitted.

†Includes Eritrea as military trustee area.

‡Areas and populations of Baltic republics included in 1950 U.S.S.R. totals.

Argentina. A republic occupying the southeasternmost section of South America, Argentina is bounded on the north by Paraguay, Bolivia and Brazil; on the south and west by Chile; and on the east by Uruguay, the River Plate and the Atlantic ocean. It is the second largest Latin-American nation—only Brazil is larger—with an area of 1,079,965 sq.mi. and a population of 17,424,926 (est. 1950), mostly of European ancestry. The capital and leading port, Buenos Aires, has 3,371,000 inhabitants (est. 1950). Other leading cities are: Rosario, 467,937; Córdoba, 369,886; Avellaneda, 279,572; La Plata, 271,738; Lanús, 242,760; Tucumán, 194,166; Santa Fé, 168,791; Lomar de Zamora, 125,943; Mar del Plata, 114,729; Mendoza, 105,328; and Bahía Blanca, 112,597. Religion: Christian, mostly Roman Catholic. President: Gen. Juan D. Perón (*q.v.*).

History.—During 1951 Argentine history was marked by labour unrest, political agitation and economic instability, but the Perón regime managed to maintain itself in power and to crush all opposition. In the economic field Argentina's vital exports, mostly meat and cattle products, were reduced; its over-all trade balance was unfavourable; its gold and foreign exchange assets were less than $500,000,000; the currency, although legally fixed at 14 pesos to the dollar, actually sold at 28 pesos to the dollar in the free market; and there were signs of inflation and shortages in meat, fuel, machinery and newsprint. These difficulties were attributed in part to the government policy of buying agricultural products at a low price from the farmer and selling them at high prices in the international market, and also to drought and erosion. The government tried to cut down on agricultural production and increase industrial output, but the outcome was not favourable.

In January the Buenos Aires railwaymen went on strike, requesting higher wages and better working conditions. Perón called on the military, declared strikers subject to martial law and broke the strike. In August La Fraternidad, the union of railway engineers and firemen, which had been in existence more than 64 years and had 10,000 members, went on strike. Earlier Perón had forced the resignation of the union's elected officials. Bridges were blown up and signal systems destroyed. Again martial law was invoked and the strike broken. This apparently silenced the last anti-Perón labour organization in Argentina. Perón made political capital by charging that the strikes were foreign-inspired.

La Prensa, one of Argentina's two leading independent newspapers, editorialized on the January strike and as a result the government decided to shut it down. An alleged boycott by the news vendors in late January brought about a series of riots in which 1 employee was killed and 14 were injured. As a result of the disorders the government intervened and confiscated the property. Alberto Gainza Paz, editor-publisher of *La Prensa,* fled to Uruguay and later toured the western hemisphere expounding his case, after having been indicted by the government. On May day Perón gave *La Prensa* to the General Confederation of Labour and in November the first issue appeared under the new editor, Martiniano Pasos, former editor of *La Democracia,* Eva Perón's daily.

TURBULENCE AND ITS AFTERMATH around the Buenos Aires offices of *La Prensa,* independent newspaper forced to close down in 1951. Left: wounded employee being rushed from the street battle after an attempt by *La Prensa* workers to resume publication in February; right: *La Prensa* office bedecked with portraits of Juan and Eva Perón after government seizure of the plant in March

In April Argentina signed a new trade agreement with Great Britain. This agreement supplemented the 1949 trade pact and was to be in effect 12 months. The price of meat was greatly increased but in exchange British investors were permitted to transfer funds to their home country. Argentine relations with the United States remained cold and distant, although a new U.S. ambassador, Ellsworth Bunker, tried to improve them.

In March Perón announced that an Austrian-born physicist, Ronald Richter, working for the Argentine government, had discovered an inexpensive and simple method of producing the controlled release of atomic energy. Scientists throughout the world were sceptical. Richter later admitted that the thermonuclear process for the release of atomic energy, although successful in the laboratory, might not produce proportionate results on a larger scale.

The presidential elections to be held in Feb. 1952 were moved up to Nov. 11, 1951. It was also decreed that the president would be elected by popular vote rather than by an electoral college. The Peronistas demanded that Eva Perón run for vice-president on a ticket headed by her husband, but this would have made her commander in chief of the armed forces in the absence of her husband, and high military leaders were reported to have vetoed her candidacy. Señora Perón refused to run and was awarded the Peronista medal. The Peronista party renominated General Perón and Vice-Pres. Hortensio Quijano. The Radicals, leading opposition party, nominated Deputies Ricardo Balbín and Arturo Frondizi, outstanding opposition leaders from Buenos Aires, who had been jailed by the government. The Democrats nominated Reynaldo A. Pastor, their only deputy in congress, for president and Vicente Solano Lima for vice-president. The Socialists nominated Alfredo Palacios and Américo Chioldi and the Communists, Rodolfo Ghioldi and Señora de la Pena.

During the campaign Perón took leave of absence and won by a two-to-one margin over the opposition, which was not allowed radio time or freedom of speech, press or assembly. During the year, Perón conducted an extensive purge of the armed forces, removing nine top generals, among them Chief of Staff Angel Solari, and more than 100 lesser officers. (J. McAd.)

Education.—In 1949 there were 14,649 primary schools, with 2,074,233 pupils and 91,024 teachers. The 744 secondary, normal and special schools had 185,283 students; they included 136 national colleges with 44,901 students, 219 national normal schools with 67,968 students and 91 national commercial schools with 25,973 students. The 670 incorporated (*i.e.,* private) secondary, normal and special schools had 55,693 students. There were national universities at Buenos Aires (34,988 students), La Plata (18,181), Córdoba (8,881), Cuyo (6,749), Tucumán (2,308), the national university of the Litoral at Santa Fé (17,716) and the technical institute at Bahía Blanca (254). In 1951 there were 2,190 motion-picture theatres with seating capacity of 957,209.

Finance.—The monetary unit is the peso, valued on Nov. 22, 1951, at $0.1333 U.S. currency, basic rate, $0.2000, preferential rate and $0.0688, free market rate. The 1952 budget was approved by congress at the same time as the 1951 budget in Aug. 1950 and was substantially the same as that budget. It totalled 13,073,900,000 pesos, distributed as follows: national administration 4,844,000,000 pesos; public works 1,059,600,000 pesos; autonomous agencies 5,987,900,000 pesos; special accounts 1,182,400,000 pesos. In addition, about 1,300,000,000 pesos were allocated for the five-year plan. Expenditure of the national administration amounted to 5,102,300,000 pesos in 1950; general revenue was 5,202,300,000 pesos. The national debt was 18,158,400,000 pesos on Dec. 31, 1950 (Dec. 31, 1949: 15,194,500,000 pesos), of which 15,996,900,000 pesos represented the funded debt and 2,161,500,000 pesos the short-term floating debt. The debt figures did not include the floating debt at call or the debt of the official agencies and of provincial and municipal governments. Currency and subsidiary money in circulation on Aug. 31, 1951, totalled 13,068,000,000 pesos and on that date the Central bank had gold holdings of $288,000,000.

Trade and Communications.—Exports in 1950 were officially valued at 5,427,300,000 pesos and imports at 4,821,100,000 pesos (provisional figures). Leading exports were cereals and linseed (21.4%), wool (16.1%), hides (12.7%), meat (10.9%) and livestock by-products (5.4%); leading imports, machinery and vehicles (20.0%), iron and steel and manufactures (15.5%), fuel and lubricants (12.3%), textiles and manufactures (11.7%) and lumber (7.7%). Leading customers were the U.S. (20.4%), the United Kingdom (17.9%), Brazil (7.9%), Italy (6.6%) and France (6.5%); leading suppliers, the U.S. (16.3%), France (14.5%), the United Kingdom (11.8%), Brazil (9.5%) and Italy (7.2%).

Railway mileage (1949) totalled 26,923, and that of the national highways about 43,500. Registered motor vehicles on Jan. 1, 1951, included 275,000 cars, 140,000 trucks and 16,000 buses. According to *Lloyd's Register of Shipping,* the merchant marine (June 30, 1950) consisted of 369 steamers and motorships (100 tons and over) aggregating 913,517 gross tons.

Agriculture.—Production figures for the crop year 1950–51 were unofficially reported as follows (in short tons): wheat 6,050,000; rye 456,500; barley 770,000; oats 760,000. Exports during the period Jan. 1-Sept. 30, 1951, were estimated in short tons as follows (total for entire year 1950 in parentheses): wheat 2,415,091 (3,048,770); maize 152,758 (877,913); linseed 184,389 (144,079); oats 76,241 (428,910); barley 76,364 (102,750).

The livestock census of July 1, 1947, showed 41,268,470 cattle, 7,237,663 horses, 50,856,556 sheep, 2,981,406 pigs and 4,933,679 goats. Wool exports in the wool year ending Sept. 30, 1951, were 191,091 bales, of which 93,458 went to the U.S. In 1950 there were exported 2,642,469 frozen beef quarters, 232,220 mutton carcasses, 1,147,489 lamb carcasses, 126,486 short tons of canned meat, 7,234,688 salted ox hides, 971,693 dried ox hides and 2,582,777 calf skins. Quebracho extract exports totalled 276,755 short tons.

Manufactures.—Industrial establishments numbered 101,884 in 1947 (65,803 in 1943). Industrial employment in June 1950 totalled 917,700, of whom 210,600 were employed in the food and beverage industries and 132,900 in the textile industry. Estimated production data in 1950 included cement 1,705,000 short tons; flour 2,160,000 short tons, cotton yarn 83,000 short tons; electric energy 4,428,000,000 kw.hr.

Mineral Production.—Petroleum production totalled 23,353,000 bbl. in 1950. Gold, lead, zinc, copper, tin and coal were also produced. Coal and coke imports in 1950 amounted to 1,447,838 long tons, of which 976,213 tons came from the United Kingdom and 130,452 tons from the Union of South Africa.

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Arizona.

Arizona, nicknamed the "Grand Canyon state," lies in the southwestern part of the United States; the

Colorado river forms most of the western boundary. The official census of 1950 reported a land area of 113,575 sq.mi. and a population of 749,587, the latter figure an increase of 50.1% over 1940. The rural population was 44.5% and the urban, 55.5%. The 1940 census reported foreign-born whites (including Mexicans), 7.3%; other races including Indians, 14.4%. The capital, Phoenix, had (1950) a population of 106,818. Other cities were: Tucson, 45,454; Mesa, 16,790; Douglas, 9,442; Yuma, 9,145; Glendale, 8,179; Tempe, 7,684; Flagstaff, 7,663; and Prescott, 6,764.

History.—The state officers (1951) were: chief justice, Levi S. Udall; governor, J. Howard Pyle; secretary of state, Wesley Bolin; treasurer, E. T. Williams, Jr.; attorney general, Fred O. Wilson; superintendent of public instruction, Marion L. Brooks. All officials were Democrats except the Republican governor. The 20th legislature consisted of an entirely Democratic senate, a Republican governor and 11 Republicans out of 72 members of the house of representatives. Among the major bills passed were the following: making local school boards responsible for deciding whether Negro and white pupils should be segregated; regulating the granting of licences to drivers of motor vehicles in order to secure greater safety; providing for issuing leases of state land to develop oil and gas production; and licensing of artificial producers of rain. A short second session was called in June to reappropriate funds of the first session made illegal by a signed referendum plan for governmental reorganization.

Education.—The net enrolment and the number of teachers in the public schools for 1950–51 were reported respectively as follows: elementary schools, 129,689 and 3,959; high schools, 31,639 and 1,370. There were 12 accredited private secondary schools, and a number of nonaccredited secondary schools. In addition, there were parochial secondary and elementary, together with private elementary schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—The total number of recipients of state assistance for Oct. 1951 was 20,257. The state welfare appropriations for 1951 were: children's colony, $100,000; industrial school, $150,000; state hospital, $1,308,900; state tuberculosis sanatorium, $210,195; crippled children service, $265,500; pioneer home, $133,112; prison, $419,623.50; aid to the blind, $316,350; aid to dependent children, $1,272,240; old-age assistance, $3,555,900.

Communications.—Statements of the Arizona highway department as to mileage for 1951 were as follows: state highways, 3,921; county roads, 15,253; federal aid highways, 2,486; national roads, 8,066. Railroad mileage at the beginning of 1951 was 2,566. There was a total of seven telephone companies with 170,422 subscribers.

Banking and Finance.—National banks, June 30, 1951, had deposits of $353,896,364; loans and discounts, $169,041,255; U.S. government securities, $108,601,427. State banks had deposits of $128,012,945; loans and discounts, $38,569,029; U.S. government securities, $58,324,175, all figures an increase over the previous year except government securities in national banks. The treasurer's report for the fiscal year ending June 30, 1951, showed receipts of $120,759,475.89 and expenditures of $111,064,580.30. The 1950 gross debt of the state was $3,538,000; net debt, $3,228,000.

Agriculture.—Because of the high price of cotton, the acreage planted in cotton in 1951 was 102% greater than in 1950. In places the ground water level had dropped 230 ft. because of pumping for irrigation, and presented a real problem.

Table I.—*Principal Crops of Arizona*

	1951	1950	Average, 1940–49
Barley, bu.	4,900,000	7,850,000	3,037,000
Wheat, bu.	572,000	700,000	575,000
Oats, bu.	369,000	430,000	296,000
Grain sorghums, bu.	1,092,000	3,520,000	1,776,000
Corn, bu.	320,000	464,000	359,000
Alfalfa seed, bu.	171,000	234,000	126,900
Flaxseed, bu.	126,000	247,000	522,000
Cotton, bales	860,000	474,000	222,000
Cottonseed, tons	351,000	190,000	95,000
Grapefruit, boxes	2,800,000	3,150,000	3,294,000
Oranges, boxes	1,025,000	1,400,000	905,000
Potatoes, bu.	1,387,000	1,764,000	1,179,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Arizona*

(In short tons, except as noted)

	1949		1950	
Mineral	Quantity	Value	Quantity	Value
Clays	189,854	$ 432,813	223,586	$ 512,025
Copper	359,010	141,449,940	403,301	167,773,216
Gold (oz.)	108,993	3,814,755	118,313	4,140,955
Lead	33,568	10,607,488	26,383	7,123,410
Lime	43,259	607,709	51,530	717,885
Sand and gravel	1,511,953	970,813	2,498,777	1,590,001
Silver	4,970,736	4,498,767	5,325,441	4,819,793
Stone	356,050	203,295	228,490	139,810
Zinc	70,658	17,523,184	60,480	17,176,320
Other minerals		986,067		?
Total		181,094,831		?

Manufacturing.—Several government plants were established in 1951 for defense production. In Aug. 1951 the number employed in defense production plants was 18,800, an increase of 3,600 over 1950. (H. A. H.)

Mineral Production.—Table II shows the tonnage and value of those items of mineral production in the state in 1949 for which the value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Arizona ranks first among the states as a copper producer, second in zinc and fourth in silver and lead.

Arkansas.

Arkansas, a south central state of the United States, was admitted to the union in 1836. Termed the "Wonder state," its area is 53,104 sq.mi., including 429 sq.mi. of water. The population was 1,909,511 according to the 1950 census. Indications were that the 1950 population was 67% rural. The Negro population was 428,003 or 22% of the total.

Little Rock, the capital city, had 102,213 inhabitants in 1950. Other cities with their populations were: Fort Smith, 47,942; North Little Rock, 44,097; Pine Bluff, 37,162; Hot Springs, 29,307; El Dorado, 23,076; Fayetteville, 17,071; Jonesboro, 16,310; Blytheville, 16,234; Texarkana, 15,875.

History.—The 58th general assembly met in regular session Jan. 8 to March 8, 1951, and approved 417 of the 966 bills introduced. It defeated 132. Fourteen of the approved measures were vetoed by Gov. Sidney McMath. Governor McMath in his second inaugural address called for a four-point program to provide $17,000,000 a year in new revenue. The session's first new revenue measure placed an additional 2-cent tax on a packet of cigarettes to provide about $2,000,000 a year for a projected medical centre and for the public schools. The second and last revenue bill to have legislative endorsement was passed the final day of the session increasing liquor taxes which would be absorbed by the wholesaler, expected to produce $750,000. This money was earmarked for the Institutional fund.

Attempts in the legislature to increase the 2% sales tax, the severance tax and the gasoline tax and to establish an unprecedented levy on soft drinks all failed.

In the last days of the session the general assembly appropriated approximately $61,000,000 for the common schools during the next (1951–52, 1952–53) fiscal biennium, although it recognized that probably only about $46,000,000 could be anticipated at current revenue levels.

However, it adopted two important measures designed to ameliorate the school dilemma: (1) a proposal to allocate school aid on the basis of a new formula designed to place more school responsibility on the local level; (2) another measure calling for a study by the legislative council of the school system in Arkansas.

Governor McMath summoned the general assembly into special session on April 9, 1951, on a ten-point call: schools, public welfare, public institutions, new Confederate home, civil defense, an emergency fund, state livestock show construction, legislative expenses, loans to medical students and an appropriation to pay expenses of utility regulation. The legislature acted favourably on several of these points but failed to approve the crucial 1-cent sales tax increase for school purposes, and it adjourned nine days later.

The principal state officers in 1951: Sidney McMath, governor; Nathan Gordon, lieutenant governor; Ike Murry, attorney general; C. G. Hall, secretary of state; J. Oscar Humphrey, auditor; J. Vance Clayton, treasurer; Claude Rankin, land commissioner.

Education.—There were about 1,900 elementary schools in Arkansas during the year ending June 30, 1951, and 600 secondary schools. Elementary school enrolment was 300,918 and secondary school enrolment was 142,000 (preliminary estimates). Teachers and principals in elementary schools numbered 8,309; in secondary schools 5,406. Expenditures from state public funds for the year ending June 30, 1951, to school districts amounted to $26,271,590.89. Student transportation, a program to benefit handicapped children and the school lunch program were sig-

Table I.—*Principal Crops of Arkansas*

Crop	1951	1950	Average 1940–49
Corn, bu.	23,218,000	32,242,000	30,989,000
Cotton, bales	1,255,000	1,090,000	1,414,000
Cottonseed, tons	504,000	448,000	579,000
Hay, tons	1,294,000	1,319,000	1,613,000
Rice, 100-lb. bags	9,011,000	7,780,000	6,525,000
Soybeans, bu.	12,444,000	12,492,000	3,506,000
Oats, bu.	3,050,000	5,040,000	7,684,000
Potatoes, bu.	1,106,000	1,740,000	3,100,000
Sweet potatoes, bu.	518,000	946,000	1,669,000
Sorgo syrup, gal.	232,000	385,000	839,000
Apples, bu.	510,000	408,000	618,000
Peaches, bu.	1,296,000	1,980,000	2,206,000
Grapes, tons	12,400	12,400	9,720
Pecans, lb.	4,200,000	2,450,000	3,995,000

Source: U.S. Department of Agriculture.

nificantly expanded in 1951. A. B. Bonds, Jr., was commissioner of education.

Social Insurance and Assistance, Public Welfare and Related Programs.—Old-age assistance grants during the calendar year 1951 were paid in the amount of $20,264,926 to a monthly average of 67,927 recipients. A monthly average of 17,731 families received a total of $8,567,707 for dependent children; an average of 2,021 blind recipients were paid a total of $719,984; an average of 2,582 general relief cases received approximately $400,075. Unemployment benefits of $7,370,196 were paid during the year, a weekly average of $16.50 to 42,235 beneficiaries. Arkansas maintained one penitentiary and four reformatories at a total expense of $656,684 during the fiscal year ending June 30, 1951. There were approximately 1,520 adults and 247 juvenile inmates in penal institutions on Dec. 1, 1951.

Communications.—The state government spent $21,007,330 on roads and highways in fiscal year ending June 30, 1951. The state highway system comprised 9,716 mi. at the end of the calendar year 1951, and county highways (not in the state system) totalled about 53,722 mi. on the same date. About 853 mi. of roads in the state highway system were paved, surfaced or graded during the calendar year 1951 (unofficial estimate) and the state highway commission let contracts during the year for 610 mi. of surfacing and grading and 10,623 ft. of bridges. Main-track railway mileage was 4,269; airway mileage was 850. There were 85 airports and 2 seaplane bases in late 1951. Approximately 261,752 telephones were in use at this time.

Banking and Finance.—There were 177 state and 52 national banks on Dec. 31, 1951. Deposits in state banks on June 30, 1951, totalled $358,571,000; resources $390,770,000. Deposits in national banks on June 30, 1951, totalled $410,019,000; resources $444,099,000. The 8 state and the 35 federal saving and loan associations in Arkansas had combined resources of $72,000,857 on June 30, 1951. Real and personal property tax assessments listed by law at 20% of value totalled $682,373,956 during 1951. State treasury revenues during the fiscal year ending June 30, 1951, were $114,021,728.85; expenditures $137,591,269.11. The gross state debt on Dec. 31, 1951, was $127,218,500; the net debt was $120,236,000.

Agriculture.—The United States department of agriculture, University of Arkansas, estimated the value of principal crops harvested from 5,518,000 ac. (an increase in acreage of 1% from 1950) at $449,468,000 (preliminary), an increase in value of more than $20,000,000 over 1950. Crop production in 1951 was up 3% over 1950. Receipts from livestock and livestock products were $155,000,000.

Cotton ranked first, lint and seed having a value of $274,000,000, 61% of the total. Rice ranked second with a value of $45,000,000 (the second time on record that rice placed ahead of corn). Corn valued at $37,000,000 was third, followed by soybeans, $33,000,000. Arkansas' hay crop was worth $31,000,000 and truck crops, $12,000,000.

Manufacturing.—The value added by manufacturing in 1950 was $355,750,000; the number of establishments (including mining) totalled 3,428; the number of employees (average for 1950) was 81,643; and they received in salaries and wages a total of $183,304,000. There were 107 new industrial plants established during the year and 26 plants were expanded. (S. McM.)

Table II.—*Principal Industries of Arkansas*

Industry	Value added by manufacturing 1950*	1947	1939
Chemicals and allied products	$ 40,200,000	$ 29,194,000	$ 4,303,000
Food and kindred products	45,180,000	41,020,000	12,414,000
Lumber and products	129,137,000	92,800,000	29,596,000
Paper and allied products	31,393,000	21,887,000	4,443,000
Petroleum and coal products	23,124,000	17,064,000	3,894,000
Primary metal industries	24,909,000	18,885,000	747,000
Stone, clay and glass products	12,807,000	10,237,000	2,736,000
Other Industries	49,000,000	34,057,000	8,311,000
Total	$355,750,000	$265,144,000	$66,444,000

*Preliminary estimates only. The total figure of $355,750,000 was prorated to various types of industries on the basis of *The Blue Book of Southern Progress, 1950* breakdown of manufacturing business volume.

Table III.—*Mineral Production of Arkansas, 1949–1950*

(Short tons, except as noted)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Barite	363,382	$2,907,056	343,168	$3,088,512
Bauxite	1,226,315	6,433,964	1,464,215	7,531,535
Clays	433,909	1,067,033	460,826	996,253
Coal	961,511	7,534,415	1,169,068	8,882,876
Natural gas (thousand cu.ft.)	47,788,000	1,912,000	30,700,000	2,180,000
Natural gasoline (gal.)	59,927,000	4,080,000	58,932,000	3,802,000
Petroleum (bbl.)	29,936,000	74,360,000	31,108,000	76,530,000
Petroleum gases (gal.)	35,821,000	1,492,000	39,437,000	1,216,000
Sand and gravel	2,507,244	2,128,474	4,118,080	3,446,578
Stone	1,279,250	2,247,236	3,952,720	7,419,110
Other minerals	...	5,360,736	...	?
Total		$109,522,914		?

Mineral Production.—Table III shows the tonnage and value of mineral production in the state for those commodities whose value in 1949 exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Arkansas ranks first among the states as a producer of bauxite.

Armies of the World.

The opening of 1951 saw the Communist offensive in Korea driving the United Nations forces south of the 38th parallel. This offensive was followed by a second period of comparative stalemate with only local attacks. The third phase, in September, saw a limited but powerful offensive by U.N. forces that succeeded in advancing north of the 38th parallel at all points and establishing a strong defensive position that could be held in the event the truce talks were successful. The September attacks exacted heavy losses from the Communist forces, although losses on the United Nations side were not light. The U.N. forces, however, succeeded in anchoring their western flank firmly on the Imjin river, used the barrier of the Kwachon reservoir to shorten the front, and controlled the key ranges on the eastern flank of the front. Control of the major part of the so-called "iron triangle" of North Korea gave the U.N. forces a strong defensive position.

During the year, the complexion of the Communist forces in Korea changed considerably, with North Korean forces assuming less and less importance. The Chinese Communist forces identified in Korea included large elements of the 4th field army, including the 12th, 13th, 14th, 15th, 16th, 17th, 21st, 51st, 53rd, 55th, 56th and 57th armies. (Chinese Communist armies generally consisted of three divisions, each of 6,000 to 8,000 men.) Communist losses were heavy, by the end of 1951 totalling around 1,500,000 of which 153,000 were held prisoner by U.N. forces.

Most significant development on the Communist side during 1951 was the increase in the size and efficiency of the air support. Russian-made jet fighters stubbornly opposed Operation

"REVIEWING HIS TROOPS," a cartoon by Manning of the McNaught Syndicate, Inc., published in 1951

"Strangle," the U.N. air effort to destroy the supply routes and bases of the Communist forces. As many as 200 Communist jet fighters were encountered by U.N. planes on a single day. In addition, reports indicated a considerable build-up of Communist air forces in Manchuria, with some estimates of as many as 1,000 planes in the area organized into ten Chinese air divisions of 100–150 planes each.

Although truce talks between the U.N. and Communist forces started in July and continued the rest of the year, there was evidence that the Communist forces continued to receive considerable equipment both from China and from the Soviet Union. General mobilization continued in China. The Communist forces were able to increase the rolling stock and showed considerable increase in automotive equipment, tanks, artillery and especially radar-controlled anti-aircraft artillery.

On the U.N. side, fresh troops were rotated into Korea to relieve those which had been in combat for some time. The United States 40th and 45th infantry divisions (originally the California and Oklahoma national guard divisions) were reported in Korea. Other developments in the U.N. forces included the organization of a British Commonwealth division which included brigades from the United Kingdom and Canada as well as other members of the commonwealth, particularly Australia and New Zealand. South Korea asked U.S. assistance in equipping ten new divisions, in addition to those reorganized and re-equipped after the initial disaster. Equipment was the major shortage in this respect, inasmuch as South Korea had 500,000 soldiers who had completed basic training as well as 2,200,000 men eligible for military service.

Indicative of the supply problem, the U.S. military sea transport service carried 11,000,000 measurement tons of dry cargo and 7,000,000 long tons of petroleum products to Korea up until the end of 1951. (*See* KOREAN WAR.)

North Atlantic Treaty Organization.—Sovereignty was the principal issue that plagued the NATO. None of its members disagreed with the philosophy that in unity there was strength, but in certain countries there was political dissent from yielding the prerogative of the nation to an international body, and in Belgium, at least, there was a constitutional obstacle. By the end of 1951, it was generally accepted that there should be a European army to hold the centre, with the British army holding the left and the United States army the right flank.

The problems in addition to sovereignty facing Gen. Dwight D. Eisenhower as SCAPE—supreme commander Allied powers Europe—could be summarized in their order of importance as economic, German, equipment and organization.

Economic problems were predominantly in the minds of the European powers. Each nation felt that it had reached the road to recovery, and was reluctant to grant any greater proportion of its budget to defense. Many looked to the United States for a greater share of the economic burden. France, particularly, was outspoken on the subject, indicating that it could not continue to fight in Indochina and contribute to European defense without U.S. assistance. Indicative of the increased emphasis on defense was the increase in defense appropriations as indicated below:

	1951	1952	% national income
	(In millions of dollars)		
United States	42,000	60,000	14.0
United Kingdom	2,450	3,885	9.6
France	2,235	2,260	9.3
Italy	650	800	5.0
Netherlands	280	400	7.0
Belgium-Luxembourg	250	300	5.3
Norway	66	100	5.0
Denmark	56	90	2.7

It should be noted that the above defense appropriations were for all armed forces, with the percentage for the ground forces varying from country to country. The aggregate expenditures of NATO thus were estimated in the neighbourhood of $66,000,000,000, which did not include approximately $3,000,000,000 from western Germany.

The German problem facing NATO, in its simplest terms, was the paradox of fearing rearmament of the reich, combined with recognition of the absolute necessity of German manpower to form a holding force in western Europe. The Germans joined with the French in backing a European army under which all ground forces would be pooled and placed under a single supreme

GEN. DWIGHT D. EISENHOWER (third left) shortly after his arrival in Paris in Jan. 1951 to assume command of military forces for the North Atlantic Treaty organization. Supreme headquarters for Allied powers in Europe (SHAPE) was not formally activated until April 2

commander with a common budget. Under this plan, each country would provide a certain number of divisional slices composed of 30,000 men, each slice to include a 12,000-man combat division plus 18,000 supporting troops. Each slice would be integrated into a corps which would be composed of other nationalities. This plan called for an army totalling 1,290,000 men composed of 43 divisional slices, of which France would supply 14, Germany 12, Italy 12 and the Benelux powers 5. Under this plan each power would retain within its national boundaries certain troops for service and pipe-line functions, and for international duties in such places as Korea, as well as internal security forces.

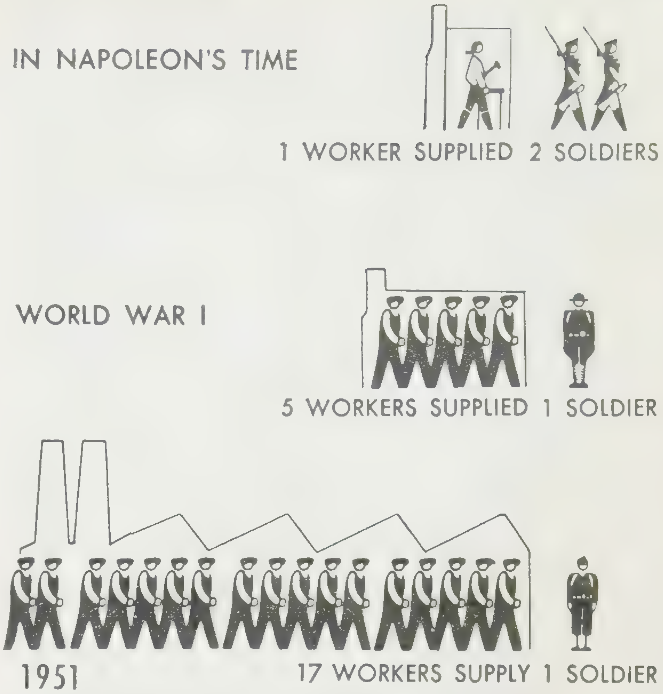
Equipment was the third major problem holding back European rearmament. Under a general agreement, the production of equipment was allocated among the various powers. It was generally agreed that the United States would produce heavy equipment, the Belgians small arms, the French light tanks, the Italians tanks and jeeps and the British medium tanks for the use of all the associated powers. However, the bulk of the equipment, at least 90%, was to be supplied by the United States. At the end of 1951 there were fewer than 20 divisions equipped for combat, largely as a result of the slowness in delivery of equipment. Tank production was only beginning, while the production of artillery, ammunition and vehicles was below requirements.

Organization of the NATO powers—the fourth problem of SCAPE—developed rapidly during the year. Eisenhower acquired some extremely competent deputies from the various powers. Italian Gen. Maurizio Lazzaro de Castiglioni was named commander of the ground forces for southern Europe under the command of U.S. Adm. Robert B. Carney; British Lieut. Gen. Sir Robert Mansergh was designated deputy commander of the northern command under British Adm. Sir Patrick Brind; and French Gen. Alphonse Juin was named commander of the central forces under Eisenhower.

Strategy.—Strategy of the NATO forces became clearer as the increase of forces in the field permitted the holding of large-scale manoeuvres. In Operation "Counterthrust" held in September, approximately 110,000 men participated in an exercise designed to throw back any attack across the north German plains. Participating in this operation were the British army of the Rhine, a regimental combat team from the French and U.S. armies and brigades from the Belgian, Danish, Dutch and Norwegian armies. In October the entire U.S. 7th army was put in action in Exercise "Combine" in which 160,000 troops participated in throwing back a hypothetical attack from the east. Other war games gave the NATO troops a chance to work with each other. The basic strategy that appeared to evolve centred around a possible thrust across the north German plains, in which the U.N. forces mounted flank attacks from Denmark and the North sea ports in the north and the Alpine region in the south. Emphasis was placed on a war of movement. The strategy envisaged 12 divisions east of the Rhine to hold; 25 divisions as the main blocking forces; and 100 divisions by D-day plus 90.

By the end of the year, the problem appeared closer to solution. The United Nations forces totalled almost 20 combat-ready divisions composed of 6 U.S., 4 British and 10 French, although admittedly some of the French divisions were short of equipment. In addition, about eight divisions were in varying degrees of combat readiness.

Training of the various NATO powers centred mostly around equipment. However, about 12,000 European officers and soldiers were trained in U.S. military schools. In addition, the North Atlantic Treaty Defense college was opened at the École Militaire in Paris at which 50 selected officers and civilians of the 12 treaty nations were to be trained each six months in the strategy, tactics, finance, economy and geography of the NATO powers.


IN NAPOLEON'S TIME
1 WORKER SUPPLIED 2 SOLDIERS
WORLD WAR I
5 WORKERS SUPPLIED 1 SOLDIER
1951
17 WORKERS SUPPLY 1 SOLDIER

WORKERS NEEDED to supply one fighting man in the U.S. army during Napoleon's time, during World War I and in 1951

One major problem facing the NATO powers was that of securing the right flank in the middle east. Greece and Turkey became, in effect, members of the defense community, and three methods were produced for incorporating the strengths of these powers into the organization. One method proposed a separate Balkan command, a second envisaged placing the powers under Admiral Carney in the Mediterranean command and the third saw the creation of a middle east command. One factor favouring the first method was the possible formal alignment of Yugoslavia with the U.N., which would advance the conditions favouring a Balkan command.

At the end of 1951, developments appeared to point toward a middle east command. In November Great Britain, France, Turkey and the United States communicated to the Arab powers and Israel the 11 principles on which they planned to establish a middle east command. It was clearly stated that the command would in no way interfere with disputes in the area, that all states would join on a basis of equality, that the command would not further the interests of any one state, that no power need place its forces under the command in peacetime and that no power would be forced to have foreign troops on its soil except by agreement. The plan undoubtedly contemplated blocking the solidification of any force around Egypt in its attempt to drive the British from the Suez Canal Zone. One objective was the elimination of defense deficiencies in the middle east; both Israel and the Arab states were offered the opportunity to acquire arms. The other principal attraction of the plan was the chance for economic development on the part of the indigenous powers. Nevertheless, Egypt rejected the plan in the heat of its Suez controversy with the British, while Lebanon, Iraq, Saudi Arabia, Syria and Israel were more receptive. At the end of the year there was no question but that the plan had created a major problem for the Arab league. (*See* also NORTH ATLANTIC TREATY ORGANIZATION.)

United States.—Army strength increased during 1951 from 1,100,000, and the equivalent in organized combat units of 18 divisions, to 1,600,000 and the equivalent of 24 divisions, composed of 18 divisions and 18 regiments. The budget for the army, which was $4,000,000,000 in 1950 and $19,500,000,000 in

1951, increased only slightly to $20,700,000,000 in 1952 (all fiscal years). Although there were serious deficiencies in equipment, particularly new medium and heavy tanks, specialized vehicles, rockets, guided missiles and radar, arms were flowing from the factories at the rate of $2,000,000,000 monthly at the end of the year. Deliveries of equipment to NATO powers were gradually building up, and 2,148 light and medium tanks had been delivered to France at the end of 1951. Over-all deliveries to all powers included 1,185 aircraft, 219 naval vessels, 6,907 tanks and combat vessels, 10,679 artillery pieces and 643,369 small arms and machine guns. (*See* also MUNITIONS OF WAR.)

Organization.—Although the role of tactical aircraft and control of ground-support missions continued to be a hotly debated subject between the army and the air force, no changes were made in controls. The air force announced the establishment of a pilotless bomber squadron to launch guided missiles in the direct support of ground troops. Ranger units were reduced in size and were to be assigned at the rate of one company per division.

Disposition.—By the end of 1951 the seven U.S. divisions in Korea were all up to strength and there were two divisions in reserve in Japan. The arrival of the 28th and 43rd infantry divisions in Germany completed the organization of the 7th army, which consisted of these units plus the 1st and 4th infantry divisions, the 2nd armoured division and the constabulary which was the equivalent of another armoured division. In the United States the 37th (Ohio national guard) and 44th (Illinois national guard) divisions were alerted for federal service early in 1952.

Training.—An air-ground support centre was established at Fort Bragg, N.C., to strengthen the field forces for combined exercises. A new training program was developed for national guard units. Several major training exercises were held, both in the United States and in Germany.

Exercise "Southern Pine" held during September was a controlled operation using the "aggressor force" as a training aid and stressing large-scale offensive and defensive night operations. Air-borne troops and tactical aviation played important roles as about 103,000 troops were used, including the 7th corps, 28th and 43rd infantry divisions, 82nd air-borne division, 511th regimental combat team of the 11th air-borne division, 2nd armoured cavalry regiment, 301st logistical command and elements of the 9th air force. While the exercise showed that the drop technique for heavy equipment was well-advanced, it proved the value of the C-122 assault transport for landing troops behind enemy lines.

Exercise "Combine" was the largest training operation yet held by U.S. troops in Germany. Using the characteristic attack from the east, the exercise indicated poor camouflage discipline, inadequate dispersal of troops and no security measures in rear area, but showed good speed in counterattacking and air-ground liaison.

Equipment.—The 57-, 75- and 105-mm. recoilless rifles proved themselves in battle and contributed to the doubling of the fire power of infantry divisions. New atomic weapons for tactical use in the field were tested. Canada, Great Britain and the United States agreed to standardize the use of 400 items, including the T-41 U.S. light tank and 8-in., 75-mm. and 240-mm. howitzers. But controversy continued over the adoption of a standard rifle, with the British .280, the U.S. .30 and the Belgian 7-mm. as the outstanding contenders. A new armoured personnel carrier was developed as well as an amphibious vehicle with great mobility over sand and tundra.

Development of tanks still lagged. The T-41 light tank was acknowledged one of the best in the world, with a 76-mm. gun, speed of 25 m.p.h. and weight of 25 tons, although it was too heavy for air-borne operations. Unreliable turret control hampered development of the T-47, which mounted a high-velocity 90-mm. gun and weighed 47–48 tons. No heavy tanks with 120-mm. guns were yet in operation.

Great Britain.—The position of the British in the European army caused some difficulty, as the decision was made not to integrate the British army of the Rhine into the continental forces. Defense expenditures increased to 24% of the budget and 8% to 10% of the national income. Tank production was doubled, including production of the 50-ton Centurion, which was supplied to the armoured divisions in Germany. The arrival of the 6th armoured division in Germany completed the army of the Rhine, which included, in addition, the 2nd infantry and the 7th and 11th armoured divisions. British troops participated with Norwegian, Dutch, Danish and Belgian brigades in joint manoeuvres. Egyptian attempts to get British forces from the Suez Canal area resulted in the reinforcement of that region at the end of the year with the 1st division from Libya and the 16th parachute brigade from Cyprus.

U.S.S.R.—There was no indication of any change of soviet strength during the year. The army strength continued at about 2,500,000 men organized into 175 divisions, of which about 65 were armoured or motorized. There were definite indications that soviet equipment was improving in quality, and tank strength was estimated at 30,000. Around 1,000,000 men were being drafted each year for a three-year period of military training, and trained manpower was estimated at 12,000,000 to 13,000,000.

Disposition.—Six soviet armies—the 1st, 2nd, 3rd, 4th and 7th guards armies and the 3rd shock army—were in Germany, all up to strength. Under the command of Gen. Vasili I. Chuikov, manoeuvres in 1951 tended to concentrate more on defense than previously. The last conscripts with battle experience, the class of 1927, returned to the U.S.S.R.

There were no indications of any major changes in soviet dispositions in Europe. There were reports of increased soviet forces in the far east.

France.—The continued fighting in Indochina was the major factor affecting the French army. Although France under Gen Jean de Lattre de Tassigny had made some progress in containing the Viêt-Minh forces, the attrition was considerable, with a total of 28,000 men and 1,014 officers listed as killed or missing. At the end of the year, there was apprehension of a major Viêt-Minh assault, perhaps with open intervention on the part of the Chinese Communists. During the year the Viêt-Minh progressed from guerrilla bands into well-equipped infantry organized into regimental combat teams and using such modern weapons as the 75-mm. recoilless rifle.

In metropolitan France conscription was lengthened from a year to 18 months, but the principal problem was equipment. Of the ten French divisions, two infantry and one armoured division in Germany were at combat strength, another armoured division was at 70% of strength and five infantry divisions and one armoured division in France were at from 20% to 70% of strength. The manpower, in trained reserves, awaited only the equipment to fill out the divisional strengths.

Training.—France revised the officer training system, abandoning the use of Coetquidan (which replaced war-damaged St. Cyr after World War II) as a single school for the training of officers in all branches. The modification adopted represented a change toward the pre-World War II system. Two academies at Coetquidan would provide two years of training for the élite of the officers' corps capable of advancing to higher ranks, and also would train in a one-year course noncommissioned officers and officer candidates from the ranks. Graduates would be sent to Saumur for motorized and cavalry training, Châlons for artillery, Angers for engineering and Fontainebleau for quartermaster specialization.

In addition to manoeuvres conducted in Germany with other NATO powers, France held special Alpine operations in August using the 27th Alpine infantry division. Experiments in these exercises included the use for the first time of mountain paratroopers in the "capture" of the mountain fortress of Briançon on the French-Italian frontier.

China.—*Nationalist.*—The U.S. military advisory group advocated a shake-up of the army, and a reduction of its size to take advantage of the available equipment. Of the 550,000 men, only about 300,000 were rated of good quality.

Communist.—Full mobilization continued in an effort to develop an army of 2,500,000. Five new military training schools were organized including artillery, tank and anti-aircraft artillery.

Other Powers.—*Arab Nations.*—Little increase in strength was shown during the year; total combined strength was two divisions. Jordan's legion, with the equivalent of an understrength division, and the Egyptian army, with one organized division, were the strongest forces. In addition, Egypt had a regiment of tanks composed of 16 British Centurions and a few U.S. Shermans.

Argentina.—A drastic army shake-up changed the command of three armies and eight divisions during the latter part of 1951.

Australia.—The forces in Korea were incorporated into the commonwealth division. The army was being equipped with British Centurion tanks.

Belgium.—The armament industry was developed as a major contributor to NATO equipment. Among the important items being produced were five-inch rockets, anti-tank grenades, nondetectable land mines, motor transport, Bofors anti-aircraft guns and radar equipment. The 7-mm. rifle was entered as a strong contender against the British .280 and U.S. .30 for standard usage. Its advocates stated that it was less complicated and cost 25% less. Like the others, this rifle could be used as a semiautomatic and fired as a submachine gun. In Korea the Belgian battalion changed its equipment from British to U.S., and adopted the U.S. 75-mm. recoilless rifle and U.S. company strength of 160 compared with the previous 120 to 130. Belgium extended the period of compulsory military service to 24 months and increased its defense budget to $250,000,000 or 17.1% of the total 1952 budget.

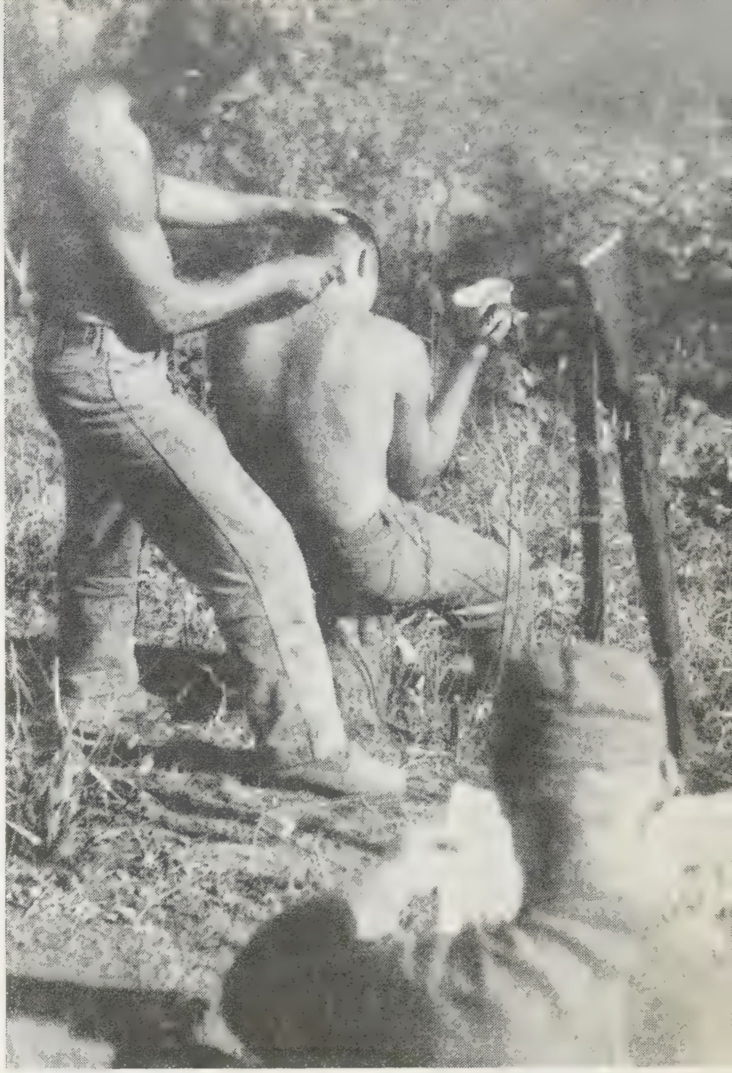
Brazil.—Talks were begun with the U.S. under the Mutual Security program.

Canada.—Canada announced a three-year defense plan that would cost a total of $5,000,000,000, and indicated that it planned to form another division toward an ultimate goal of 115,000 full-time personnel in its armed services. In addition to the brigade in Korea, the 27th brigade was sent to Hanover, Ger., as part of the 12,000 troops destined for Europe. Arms were supplied to one Dutch, one Belgian and one Italian division, and artillery to a Luxembourg artillery regiment.

Czechoslovakia.—The reconstructed armaments industry played an increasingly important role in the soviet program, with arms being sent to China. The army reached a strength of ten divisions, including four motorized and one armoured corps of three brigades, with an over-all strength of around 150,000 men.

Denmark.—The term of compulsory service was increased from 12 to 18 months to add 7,500 to 16,000 to the numbers called to active duty each year. One brigade continued to serve with the NATO forces as plans were made to form one complete division. Defense expenditures increased by 40%.

Germany—East.—The *Bereitschaften* was reorganized into 23 formations, each intended to be a 2,000-man cadre for a soviet-type infantry division of 11,000 men. It was reported that the top command was now under the Russians, and 150 senior officers were trained in the U.S.S.R. In addition, 5,000 officer candidates were trained in a nine-month course, with one in every seven specially trained as a political commissar.



MARINE CORPS photo captioned "tonsorial time out." It was taken during a lull in the fighting on the central Korean front in 1951, and the next customer, as in peacetime, leafed through an old magazine

Germany—West.—No rearmament was accomplished in 1951, as debate continued on the structure of the European army. Plans called for the organization of an army modelled on U.S. lines. Men 18 to 21 would be conscripted toward the development of an army composed of 12 divisional slices of 30,000 men each, with the U.S. or Great Britain supplying the heavy artillery and tanks. Another obstacle to the development of the army was German reluctance to bear the cost of its organization while paying the occupation costs of the U.S., British and French armies amounting to $1,400,000,000 a year. The probable composition of the German army would be three armoured divisions with around 300 tanks each, six motorized divisions with 70 tanks each, and three infantry divisions.

Hungary.—Reports varied on the actual strength of the Hungarian army. There was little question that the sovietization of this force reached a new high in 1951, perhaps including the cadring of Hungarian regiments into soviet divisions and elimination of purely Hungarian higher headquarters. Satellite manoeuvres were reported near Szolnok in September, including Russian, Rumanian, Bulgarian and Czechoslovak troops as well as Hungarian.

Israel.—The defense budget was more than tripled, and favourable reaction was indicated to the plan for a middle east pact, with a possible wartime contribution of 200,000 men.

Italy.—The most important development affecting the Italian army in 1951 was the lifting of the peace treaty limitations on the strength of the army as a result of notes from the major treaty signers. Biggest drawback to increasing the strength of the army beyond the previous 250,000 limit was equipment. The Italian units that appeared to be in greatest combat readiness were the Alpine brigades. Conscription was increased from 12 to 15 months.

Japan.—With the signing of a peace treaty, plans were made for the formation of an army. The natural cadre for this body was the Japanese national police reserve, composed of 75,000 men organized into two corps of two divisions each and armed with small arms, machine guns and mortars. Initial plans called for doubling this force.

Netherlands.—The conscription period was increased from 12 to 16 months.

Norway.—Conscripts were retained for additional defense courses, and reserve personnel were recalled. A budget of $350,000,000 for special defense measures through 1954 was passed.

Philippines.—Strength of the army was increased by 10 battalion-size combat teams, bringing strength to 24 battalions of 1,000 men each in addition to the constabulary of 7,500. Considerable progress was made toward cutting down the strength of the Hukbalahaps, whose armed strength was around 5,900.

Portugal.—A United States military mission was assigned to assist the development of the 30,000-man army, which was undertrained and underequipped. The goal was eight to ten divisions.

Rumania.—Compulsory military service for all specialized branches of the army was extended from two to three years.

Spain.—Outstanding development of the year affecting Spain was the agreement with the United States whereby use of bases was granted in exchange for assistance. The United States was granted the use of Cádiz, Cartagena, Ferrol, Santa Cruz, Barcelona, Madrid and Seville. U.S. inspection of the Spanish army immediately revealed only about 250,000 men in the army formed into 22 paper divisions, although the largest manoeuvres that could be held were in less than regimental strength. Small arms were plentiful, but all other equipment was an assortment left from the Spanish Civil War and was a combination of German, Italian, French and Russian. However, a good potential was revealed, with wartime mobilization of 2,000,000 and a natural ability at guerrilla warfare. Immediate steps were taken to train Spanish officers and noncommissioned officers in the United States, to increase the number of officers by increasing the program at universities, to provide artillery, radar and antitank weapons and to make essential economic improvements such as those in highways, railways and ports.

Sweden.—The commander in chief of the armed forces asked for a change in the draft law to permit calling up 70,000 men for a refresher course of six months.

Switzerland.—Steps were taken to increase the armoured force by 550 medium tanks. The annual budget of $115,000,000 for the army was to be augmented by $250,000,000 for extra equipment during the period 1951–55.

Yugoslavia.—Military aid commenced to arrive from the United States, and the U.S. chief of staff inspected the army. A U.S. military mission arrived to assist in training in use of the equipment. (*See* also ATOMIC ENERGY; AVIATION, MILITARY; NAVIES OF THE WORLD.) (L. B. K.)

Arsenic: *see* MINERAL AND METAL PRODUCTION AND PRICES.
Art: *see* ARCHITECTURE; PAINTING; SCULPTURE; etc.
Arteriosclerosis: *see* NUTRITION, EXPERIMENTAL.

Art Exhibitions.

A revival of interest in German Expressionism came about with the large showing of paintings by Lovis Corinth (1858–1925) at the Boston (Mass.) Institute of Contemporary Art. This museum also organized an interesting exhibition of the work of the 82-year-old Irish painter, Jack B. Yeats, brother of the noted poet and playwright, William Butler Yeats.

"Italy at Work," a comprehensive exhibition of crafts and industrial design produced since World War II, opened at the Brooklyn museum (Brooklyn, N.Y.), was then featured at the Art Institute of Chicago and went on circuit to ten other museums. Ceramics, glass, fabrics, metal work, furniture and toys made up a fascinating showing. An added feature was a group of four interiors, including the lobby to a puppet theatre and a small chapel.

As a joint endeavour the Detroit (Mich.) Institute of Arts and the Toledo (O.) Museum of Art showed "Travelers in Arcadia—American Artists in Italy 1830–1875." In the days before Paris and Munich became noted centres for art students, Rome and Florence were the main attractions. U.S. artists who could do so went there at least for brief study and often for several years' residence. These included such painters as Thomas Cole, Asher Brown Durand, G. P. A. Healy, John Frederick Kensett, Frederick Stuart Church, Washington Allston and William Page. Notable U.S. sculptors in Italy were Horatio Greenough, Hiram Powers, Randolph Rogers and Harriet Hosmer, the young woman who is presumably portrayed in Nathaniel Hawthorne's *The Marble Faun.*

With 100 works from 85 artists, the Museum of Modern Art (New York city) showed "Abstract Painting and Sculpture in America," covering the period from 1913 when the famous Armory Show gave the U.S. its first view of advanced art trends from abroad.

The Cleveland Museum of Art and the Museum of Modern Art combined on a full-length retrospective exhibition of paintings and some sculpture by the Italian-born Amédéo Modigliani (1884–1920) who settled in Paris and became a leader among the young moderns.

Yale university's Gallery of Fine Arts and the Baltimore (Md.) Museum of Art joined forces to do "Pictures for a Picture" of Gertrude Stein as a collector and as a writer on art and artists. This stimulating exhibition was largely drawn from Yale's rich collection of Stein manuscripts and from the noted Cone collection recently left to the Baltimore museum. Added to this was Pablo Picasso's famous portrait of Gertrude Stein lent by the Metropolitan Museum of Art (New York city).

A comprehensive memorial exhibition of paintings by C. S. Price was arranged by the Portland (Ore.) Museum of Art. Price, born in Iowa in 1874, was a cowboy in Wyoming and ultimately became a painter. Largely self-taught, he was a semi-abstract, visionary painter who evolved his amazingly advanced viewpoint from inner compulsions rather than from any contact with *avant garde* artists.

The 126th annual exhibition of the National Academy of Design was more lively than usual because of the inclusion of several younger artists outside the academy's ranks. Robert Philipp won the $1,000 Altman prize for figure with "Ladies of the Evening." The $1,000 Altman prize for landscape went to Francis Speight for "The Lockhouse." For the fourth consecutive season the University of Illinois at Urbana assembled a lively contemporary American painting exhibition. Three art department members acted as a committee to select 130 pictures and expended $7,500 as a purchase fund.

The art of the northwest coast Indian was featured at the Brooklyn museum where house posts, totem poles and many other wooden objects and weavings showed the highly developed culture of the tribes inhabiting the narrow 1,000-mi. coast area stretching from the Columbia river to Alaska. A similar exhibition was a summer event at the Colorado Springs Fine Arts centre where the noted designer, Herbert Bayer, did a special installation.

Carnegie institute's department of fine arts in Pittsburgh, Pa., showed eight centuries of French painting, 1100–1900, with 172 paintings, illuminations and drawings. Top quality material was borrowed from collections all over the country and was climaxed by Jean-Baptiste Siméon Chardin's "Saying Grace," lent by the Louvre in Paris.

New York city's Whitney Museum of American Art staged a lively, all-invited annual with 150 painters represented of whom 64 were newcomers.

The Art Institute of Chicago also featured an all-invited exhibition in its 60th annual of painting and sculpture. Prizes were awarded by a jury of three: Aline B. Louchheim, *New York Times* associate art editor, and artists Peter Blume and Hans Hofmann. The $2,000 Logan prize went to Willem de Kooning for "Excavation," the $1,000 Logan prize to Theodore J. Roszak for "Sea Quarry" (later purchased for the Norton gallery at West Palm Beach, Fla.) and the $1,000 Walter Campana Purchase prize was awarded to Herbert Katzman for "View of Prague."

A four-way combination of the art museums of Indianapolis, Ind., Dayton, O., Columbus, O., and Davenport, Ia., showed "Art in Colonial Mexico," 16th, 17th and 18th century painting, sculpture and decorative art objects. Lent from a few collections in the U.S. but for the most part from museums south of the border, this exhibition was witness to the increasing interest in Mexican culture.

The Brooklyn museum celebrated the publication of *Revolution and Tradition in Modern American Art* by their painting curator, John I. H. Baur, with an exhibition of 150 paintings showing the development of various trends in the U.S. since 1900.

One of the outstanding events of the season was the large retrospective exhibition at the Museum of Modern Art of the work of Henri Matisse, leader of the modern movement in France who was still active at the age of 82. The finest of his works were borrowed from the French government and from museums and private collections in the U.S., liberally supplemented by loans from abroad including many items from the artist himself. The exhibition was scheduled in 1952 for Cleveland, Chicago and San Francisco.

The Worcester Art museum organized an unusual exhibition of paintings based primarily on the question of having each item in a fine state of preservation. Called "Condition Excellent," the showing included a variety of works dating from as early as 1350 and as late as 1800.

The Metropolitan Museum of Art turned over its special exhibition galleries to celebrate the 75th anniversary of the Art Students league and gathered works by notable teachers as well as by some famous graduates. Thomas Eakins, Frank Duveneck, John La Farge, William Merritt Chase, George Wesley Bellows and Charles Dana Gibson were among the best known. Following its new plan for a series of outstanding contemporary American exhibitions, the Metropolitan put on an all-sculpture show, 200 items selected by jury on the basis of photographs submitted by artists from all over the country. (F. A. Sw.)

Great Britain and Europe.—The outstanding exhibition of the year was undoubtedly that of Michelangelo Amerighi da Caravaggio and his followers at Milan, It. This exhibition displayed the greater part of the master's known work, calling attention in particular to those noble last works which for centuries had been virtually incarcerated in the impenetrable gloom of Sicilian churches.

A Burgundian exhibition, first assembled at Dijon, Fr., and later shown in Amsterdam, Neth., and Brussels, Belg., included notable works by John van Eyck and Rogier van der Weyden, while the Museum of Arras (Fr.) staged an exhibition of mediaeval art in Artois. An exhibition of "Costume in Five Centuries of Painting," held at the Palazzo Madama, Turin, It., included works by Parmigiano, Lucas Cranach the elder, Peter Paul Rubens, Renoir and many others.

A remarkable collection of French Impressionist pictures from German collections was shown at the Orangerie in Paris, as was the comprehensive exhibition of Toulouse-Lautrec, which included a number of important loans from the U.S. Three outstanding shows of modern sculpture also took place in Paris: a retrospective of Pablo Picasso's work in sculpture at the Maison de la Pensée Française; a retrospective of Henri Laurens at the Musée d'Art Moderne; and the long-awaited exhibition of new works by Alberto Giacometti.

In Great Britain, 1951 being Festival year, English art tended to monopolize the countless loan exhibitions arranged by official bodies. The main section of the Royal academy's winter exhibition of 1950–51, entitled "Works by Holbein and Other Masters of the 16th and 17th Centuries," was devoted to Tudor portraits. Stuart art was represented by the examples of the Mortlake period which dominated an important exhibition of English tapestries held in Birmingham, and by the first exhibition of William Dobson, painter to the court of Charles I at Oxford, which was shown initially at Worcester and then transferred to the Tate gallery, London. The golden age of English portraiture was represented by Gainsborough at Bath, by Reynolds at Plymouth, by John Opie at Truro, by Lawrence in Bristol, Brighton and London (at Agnew's), and at the Tate gallery by a selection of Eton leaving-portraits. In Hampstead there was shown a well-chosen selection of "Constable and His Contemporaries."

Of the moderns, W. R. Sickert was seen to advantage in London at Roland, Browse and Delbanco's and at the South library, Islington, while at Southampton he figured in an important exhibition of the Camden Town group. Memorial exhibitions to Edward Wadsworth, Randolph Schwabe and A. S. Hartrick were held in London. There was a large-scale retrospective show of Henry Moore at the Tate gallery, and a smaller one of Graham Sutherland at the Institute of Contemporary Arts.

The Arts council's "Three Centuries of British Watercolours and Drawings" was an avowedly personal anthology compiled by Brinsley Ford. "Ten Decades: a Review of British Taste, 1851–1951," organized by the Institute of Contemporary Arts, was the most instructive and the most entertaining exhibition of English art held in Britain in 1951. The most distinguished artistically was the Royal academy's "First 100 Years of the Royal Academy, 1769–1868," in which all the leading English artists within the period were represented, with the exception of Romney, Rossetti and Whistler.

Three important exhibitions of non-European art were held in London during the year: the Rothenstein collection of Indian paintings at the Victoria and Albert museum, T'ang art at the British museum and, at the Imperial institute, "Traditional Art from the Colonies," including some newly excavated terra cottas from Nigeria. (*See* also ART SALES; ETCHING; MUSEUMS; PAINTING; SCULPTURE.) (A. D. B. S.)

Arthritis: *see* CORTISONE AND ACTH; RHEUMATIC DISEASES.
Artificial Weather: *see* METEOROLOGY.
Artillery: *see* MUNITIONS OF WAR.

Art Sales.

The Parke-Bernet galleries of New York city announced a 1951 season of $5,547,525. Prices on

top quality objects were on the increase while prices on more average merchandise remained about the same. All types of silver and jewellery were bringing higher prices. The highest prices paid for paintings were $13,000 for a François Boucher "Pastorale," $12,500 for Antoine Watteau's "Fête au Dieu Pan," $11,000 for Jean Nattier's "Marquis de Ligueris" and $10,000 for Walter Pater's "L'Escarpolette." The top price for a print was $1,600 for Henri de Toulouse-Lautrec's "Partie de Compagne."

A Philadelphia mahogany chair brought $6,500 in the Norvin H. Green sale, a Persian silk rug, about 1640, brought $11,500 and a marble bust by J. A. Houdon of the marquise de Sorcy-Thelusson sold for $8,000.

The Plaza auction galleries had an all-time high season of $1,925,876. Their top prices were $4,000 paid for George Romney's "Portrait of Mrs. Molony," $2,400 for a Tenier's Brussels tapestry and $1,350 for Frederic Remington's bronze "The Rattlesnake."

Kende galleries had a season totalling $923,861. The most important collections sold were those of Walter P. Chrysler, Jr., and Prince Kazuo Kawaguchi, brother of the emperor of Japan.

London as usual was the centre of numerous important auctions, often necessitated in order that families might pay the high death duties. Christie's sold the contents of Woburn abbey belonging to the duke of Bedford for £27,340. Of this, £2,625 was paid for Jacob van Ruisdael's "Wooded Landscape," £2,520 for Isaac van Ostade's "Two Horsemen Halting at an Inn" and £1,680 for a Bartolome Murillo "Madonna." Maj. Gen. Sir Allan Adair sold three panels by the early Italian master Taddeo di Bartolo for £2,835. A collection of 12 drawings and 46 small oils on paper, all by John Constable, brought £9,355 for Sir Frank Newson-Smith, former lord mayor of London.

High prices were paid for fine porcelain; for instance, £945 for a pair of Chelsea figures (Hugo Pitman sale, Christie's) and £2,050 for a Chelsea "Lady of the Italian Comedy" and £2,000 for a pair of Bow parrots (sales at Sotheby's).

The earl of Harewood sale at Christie's totalled £55,043, highlights of which were a Louis XVI upright *secrétaire,* £3,150; a jardiniere with Sèvres porcelain plaques, £2,310; and a console mahogany table, £2,310. Baroness Burton sold three Gainsborough portraits for £9,975 and Edward Hulton sold Sir Joshua Reynolds' "Portrait of General the Hon. Edward Bligh" for £2,625.

In silver, the major items were £620 for a silver-gilt steeple cup of 1626 (Mrs. Henrietta C. Tarleton), and £480 for a silver-gilt *tazza,* 1662 (L. Garfit Wilson), both at Christie's. Sotheby's sold a lion sejant spoon, dated 1525, for £550 and an Irish ewer by Thomas Boulton for £550. Great interest was taken in the Gwen, Lady Melchett sale at Sotheby's where a Leonardo da Vinci drawing of the Virgin sold for £8,000. This was acquired by the Metropolitan Museum of Art in New York city. A Rembrandt pen and ink sketch, "Isaac Blessing Jacob," brought £1,550 and Francesco Guardi's "Pope Pius VI Receiving the Doge and Senators," £4,400. A Rembrandt painting, "Christ at the Column," dating from 1628 ("property of a gentleman"), sold for £8,200.

The Walter Hutchinson collection brought £124,896 at Christie's, Constable's "The Young Waltonians" selling for £44,100, the highest auction price for a Constable. (F. A. Sw.)

Aruba: *see* NETHERLANDS ANTILLES.

BARGAIN HUNTER at a sale held in May 1951 at the Whitney Museum in Greenwich Village, N.Y. Entrance fee of $100 entitled ticket holders to one painting or statue, some of them valued four to six times higher. Artists' names were blocked out, but some buyers (as above) looked for hints

Asbestos: *see* Mineral and Metal Production and Prices.
ASCAP (American Society of Composers, Authors and Publishers): *see* Societies and Associations, U.S.
Ascension: *see* St. Helena.
Asia: *see* Afghanistan; China; etc.
Association for the Advancement of Science, American: *see* Societies and Associations, U.S.
Association of American Geographers: *see* Geography.
Association of Research Libraries: *see* Societies and Associations, U.S.: *Research Libraries, The Association of.*

Astronomy.

One of the most remarkable discoveries in many years was the observation in interstellar space of the hydrogen emission at a wave length of 21 cm. It was first observed in March 1951 by H. I. Ewen of Harvard university; a few weeks later it was also observed by C. A. Muller at Kootwijk, Neth. The presence of the emission line had been predicted by H. C. van de Hulst of Leyden, Neth., seven years earlier. The most intense radiation is observed in the direction of the centre of our galaxy. In certain directions the line is broadened by galactic rotation. As a result of the discovery, the rotation of the parts of the galaxy near the nucleus would now be measurable, and the shape of the line would give new information of a fundamental nature about our stellar system.

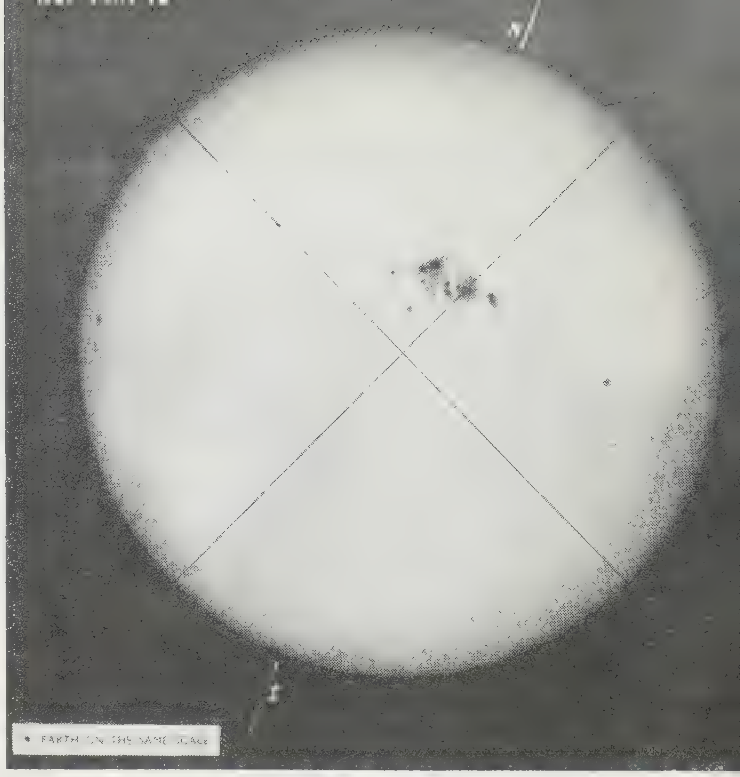
Solar System.—A connection between cosmic-ray intensity and disturbances on the surface of the sun was found by J. A. Simpson, Jr., of the University of Chicago. The intensity of fast neutrons was used as an indicator of changes in the intensity of the primary particles which arrive at the top of the earth's atmosphere. Certain solar flares which were accompanied by magnetic storms on the earth were also accompanied by a marked increase in the intensity of the fast neutrons. Two possible explanations were suggested by the investigator: (1) the low-energy primary particles are normal parts of the cosmic radiation, and are permitted to reach the earth through a temporary decrease in the magnetic field of the earth or sun; or (2) the low-energy particles are produced in the solar system during the period of solar eruptions (flares). The evidence was more favourable toward the latter explanation.

Unusual interest was shown in the solar eclipse which was to take place on Feb. 25, 1952. The path of totality would extend from the mid-Atlantic ocean near the equator across central Africa, the Anglo-Egyptian Sudan, Arabia and Iran, and end in Siberia. The most favoured site for observation was near Khartoum on the Nile; the chances for successful observation at this almost cloudless location were very good. In addition to the classical types of research, observations were to be made with radio telescopes.

A new satellite of Jupiter—its 12th—was discovered by S. B. Nicholson of Mount Wilson observatory, California.

The Stars and Nebulae.—Measures with the great 200-in. Palomar telescope (California) of distant galaxies by M. L. Humason gave motions in the line of sight greater than any previously known. The largest velocity measured, 60,900 km. per second, was about one-fifth the velocity of light. This velocity was observed for a galaxy in a cluster whose distance from the sun is of the order of 350,000,000 light-years.

Several important papers on galactic structure were published during the year by workers at Lick and Mount Wilson observatories. The rotation of galaxies was investigated by N. U. Mayall of the Lick observatory of the University of California. Extending the work of H. W. Babcock, he was able to make a fairly detailed comparison of rotational motions in our galaxy with those of the Andromeda nebula. The main body of the latter rotates like a solid. Emission nebulosities which lie at greater distances from the nucleus, however, show a definitely lower velocity of rotation; that is, in the outer, fainter parts the velocities of rotation tend toward those in a planetary system, where most of the mass lies in the inner regions. Now a direct comparison could be made with our galaxy. It was known that outside the region where the sun is located the stars revolve more slowly than the sun. Mayall thus concluded that somewhere in the galaxy, inside the sun's orbit, the rotational velocity reaches a maximum. He attempted to find this place by studying the velocities of cepheid variables and concluded that the sun is probably located slightly outside the main body of our galaxy.



GIANT SUNSPOT photographed in 1951 at the Royal observatory, Greenwich, Eng., the third largest on their records (compare the earth drawn on the same scale at bottom left for relative sizes). Sunspots cause occasional disturbances in long-distance radio communication

W. Baade of the Mount Wilson-Palomar observatories studied the galaxies from the point of view of composition. The fundamental quality which allows them to be divided into two groups is the presence or absence of dust clouds. When dust is present there are also blue giant stars; when it is absent the blue giants are also absent; the distinctive feature of dust-free systems is the presence of large numbers of red giants. Galaxies which have no dust are quite transparent; other more distant galaxies can be observed shining through them. Galaxies which have dust clouds (like the Andromeda nebula) show structure of a distinctive type; the dust clouds and blue giants are closely associated and are arranged in spiral arms; in between the spiral arms, and especially brilliant in the central region, are swarms of red giants. A comparison of this picture with our galaxy led Baade to the conclusion that the latter is a spiral of a type closely resembling the Andromeda nebula; the large-scale details of our own system are, however, far more difficult to investigate. (*See* also National Geographic Society.)

Films of 1951.—*The Infinite Universe* (Almanac Films, Inc.); *The Solar System* (Coronet Films). (W. W. M.)

Athletics: *see* Track and Field Sports; etc.
Atlantic Treaty: *see* European Union; North Atlantic Treaty Organization.

Atomic Energy.

Development by the United States of a tactical atomic bomb, a lightweight, compact weapon suitable for battlefield use against ground troops, was the most important event in the field of atomic energy during 1951. Many military authorities felt that it marked the beginning of a revolution in the art of warfare and that it would provide the United States and western Europe with the means of parrying the threat of superior manpower posed by the U.S.S.R. and Communist China.

The year saw a marked intensification of the atomic armament race. More nuclear explosions occurred in 1951 than in all the previous years since the discovery of atomic fission.

The United States, by unofficial count, set off 16 atomic explosions, while the U.S.S.R. was reported to have staged 2. Explosions in previous years included 8 set off by the U.S. and 1 by the U.S.S.R. Thus the grand total of all known nuclear detonations at the close of 1951 was 27.

No progress was made toward an agreement for the international control of atomic energy during 1951. The gulf separating the soviet bloc from the rest of the United Nations on this question remained as wide as ever.

On Dec. 29, 1951, the U.S. Atomic Energy commission announced the first production of useful electric power from atomic energy. Heat removed by a heat exchanger from a breeder nuclear reactor at the National Reactor Testing station at Arco, Ida., was employed to generate enough steam to drive a turbine generator.

Other events of importance in the realm of atomic energy during 1951 included the construction of a nuclear reactor as a joint project by the Netherlands and Norway; perfection by Canada of a "cobalt bomb," not a weapon, but a device for the treatment of cancer with radioactive cobalt; and the installation by the British of a heating plant employing atomic energy in an 80-room building at the Harwell atomic energy establishment.

U.S. Detonations in 1951.—The United States staged four series of atomic test explosions in 1951. Only a minimum of information concerning them was made public by the U.S. Atomic Energy commission.

The first series took place at Frenchman's Flat, a portion of the air force bombing and gunnery range located on a 5,000-sq.mi. tract about 75 mi. from Las Vegas, Nev. Five atomic explosions were set off on Jan. 27 and 28, Feb. 1, 2 and 6, each at 5:46 A.M., P.S.T.

The first explosion caused considerable excitement in Las Vegas where hundreds of persons saw the flash of the explosion. A greater number heard its thunderous roar, felt its vibrations and experienced the air blast which ran through the streets of the city in an irregular pattern.

The second explosion impressed Las Vegas observers as three times as powerful as the first. The dazzling flash of light and the thunderous noise were observed 200 mi. away in Arizona, southwestern Utah and southeastern California.

The third and fourth explosions were smaller but the fifth was the mightiest of all. The flash was seen 250 mi. S. of the Mexican border, a distance of 500 mi. from Las Vegas.

The Atomic Energy commission described the five blasts as "limited-scale weapons tests." It was believed that they were preliminary tests of tactical atomic bombs.

The Tests at Eniwetok.—The second series of tests in 1951 was held at the Eniwetok proving grounds in the Marshall Islands in mid-Pacific in April and May. The Atomic Energy commission described this as a "full-scale test program." It was believed that a total of four bombs were set off. Apparently they were several times more powerful than the bombs exploded over Hiroshima and Nagasaki.

A brief statement issued jointly by the Atomic Energy commission and the department of defense stated, "In furtherance of the President's announcement of Jan. 30, 1950, the test program included experiments contributing to thermonuclear weapons research." This aroused speculation as to whether an atomic bomb had been exploded in conjunction with hydrogen isotopes to test the ability of an atomic bomb to "trigger" the thermonuclear reaction required for a hydrogen bomb.

The tenth semiannual report of the Atomic Energy commission disclosed that experiments were carried out in the Eniwetok tests to determine the effects of atomic radiations, burns and blasts on living things and to obtain data as to the effects of atomic weapon explosions on structures, aircraft and various materials. Anaesthetized mice, dogs and swine were exposed to the explosions.

The report revealed that the Eniwetok tests demonstrated that lingering radioactivity after an air burst need not delay rescue and recovery work. After explosions, many scientists and technicians returned to the test sites promptly by helicopters and speedboats for sufficient periods to recover instruments and specimens.

Operation "Greenhouse," as the Eniwetok tests were officially called, was carried out by joint task force 3 under the command of Lieut. Gen. Elwood R. Quesada. Alvin C. Graves of the Los Alamos laboratory was deputy scientific commander.

Tactical Atomic Weapons.—The third series of 1951 tests took place at Yucca Flat, to the east of Frenchman's Flat in Nevada, in October and the first week of November. Five explosions were set off. It was believed that they were the final tests of revolutionary new tactical atomic weapons originally tried out in the first series of explosions of the year.

The first atomic explosion at Yucca Flat on Oct. 22 was the tiniest nuclear explosion on record. Smaller than a test T.N.T. blast, it was assumed to have been a "fizzle" until commission officials stated that this was not the case.

The second explosion was that of a bomb dropped from an aeroplane on Oct. 28. It exploded several thousand feet above the ground with the formation of an orange-red fireball followed by the familiar pillar of smoke topped with a "mushroom" cloud. Observers believed that this was a test of what air force spokesmen had previously described as a small-scale "air-to-ground" atomic bomb for use against ground troops.

The third explosion on Oct. 30 was also that of a bomb dropped from an aeroplane. It exploded at about 1,000 ft. with a dazzling flash and the formation of a fireball. The blast was seen 270 mi. away and observers agreed that it was several times bigger and brighter than the previous explosion. The general opinion was that this was a compact, tactical bomb with the explosive violence of the strategic bomb set off at Bikini.

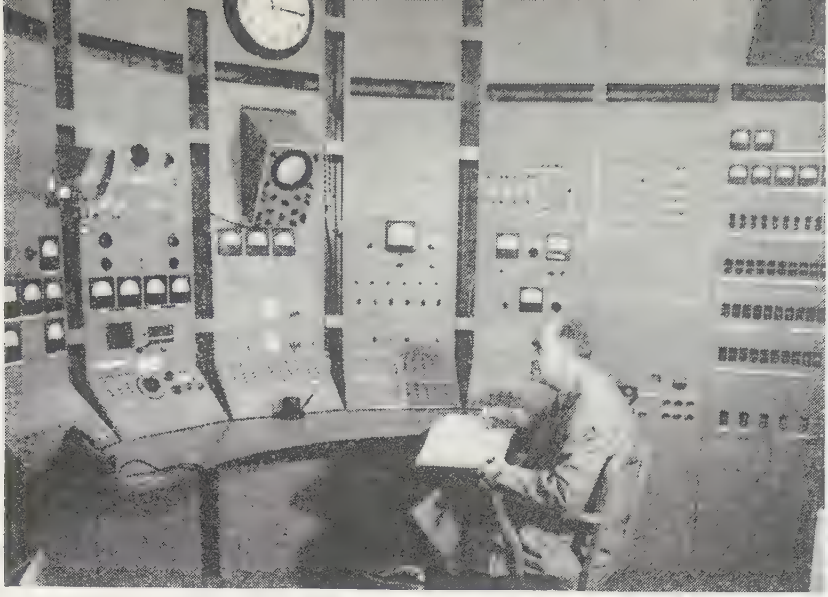
The fourth explosion on Nov. 1 was smaller while the fifth, on Nov. 5, was the most powerful of all.

The 1951 tests came to an end with a fourth series of tests consisting of two nuclear explosions at Frenchman's Flat on Nov. 19 and 29. The final blast was believed to have been an underground detonation, the first of its kind ever attempted.

Exercise "Desert Rock."—The first simulated atomic warfare manoeuvre in history was held at Yucca Flat in Nevada on Nov. 1 in conjunction with the explosion of the fourth bomb in the third series of 1951 tests. Known officially as Exercise "Desert Rock," it was under the direction of Maj. Gen. William B. Kean, veteran commander of the 25th infantry division in Korea.

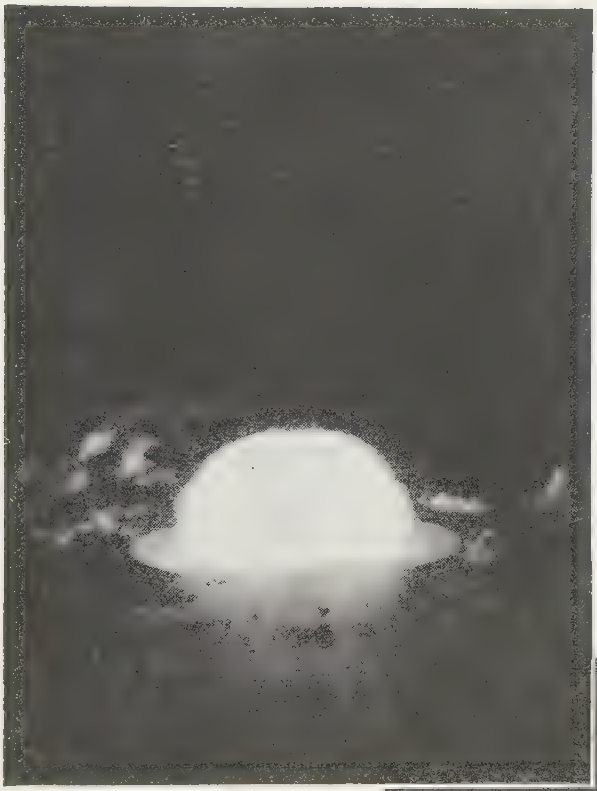
About 5,000 men and officers of the army, navy and air force took part in the manoeuvre or were present as observers. The chief participant was a reinforced battalion combat team of about 1,000 men.

This team set up simulated battlefield positions of a normal type with foxholes, barbed wire entanglements, etc., and then withdrew, leaving behind, however, equipment, scientific measuring instruments and a number of anaesthetized sheep, dogs



Left: ENRICO FERMI at the control panel of the University of Chicago synchrocyclotron, the largest atom smasher in the world at the time of its dedication in May 1951

Below: BELGIAN AND BRITISH physicists at the international atomic research station situated at 11,700 ft. in the Swiss Alps, where problems of cosmic radiation are investigated. The site was chosen because cosmic radiation increases with altitude



Left: NUCLEAR DETONATION during the 1951 series of U.S. tests at Eniwetok atoll in the Pacific. Purpose of Operation "Greenhouse" was partly the testing of materials and designs for bomb shelters and other buildings

Below: LOS ANGELES photographed by light from an atomic flash at 5:47 A.M. on Feb. 2, 1951. The test explosion took place about 300 mi. away in the Nevada desert

and rats. The entire armed force contingent, as well as about 2,000 other observers, including congressmen, government officials and scientists, took up their stations at various posts from six to ten miles from the "battlefield."

The bomb was dropped from an aeroplane at 7:30 A.M., P.S.T., and exploded at an estimated altitude of 1,000 ft. There were the usual bright flash, the orange-red fireball and the rising pillar of smoke.

After the explosions, the combat team returned to its "battlefield" positions to examine the damage that had been done to exposed equipment and the anaesthetized animals.

Soviet Atomic Explosions.—The first soviet nuclear detonation in 1951 was disclosed on Oct. 3 in a statement from the White House which said in part, "Another atomic bomb has recently been exploded within the Soviet Union. In spite of Soviet pretentions that their atomic energy program is being directed exclusively toward peaceful purposes, this event confirms again that the Soviet Union is continuing to make atomic weapons."

On Oct. 6 Joseph Stalin, in an interview published in *Pravda,* confirmed that an atomic bomb had been exploded, adding that he regarded atomic weapons necessary to the defense of the U.S.S.R., and that the development of such weapons would continue until international controls were established. He disclosed that atomic bombs of "various calibres" would be tested in the future.

On Oct. 22 the White House announced that "another atomic explosion" had taken place in the U.S.S.R. This was the second soviet nuclear explosion in 1951 and the third in history.

U.S. *v.* U.S.S.R.—It was difficult to evaluate the atomic strength of the United States *v.* the U.S.S.R. during 1951 since neither had disclosed the essential information for such a comparison. It was generally assumed that the U.S. had a stock pile of strategic atomic bombs in the neighbourhood of 1,000, while the U.S.S.R. was believed to have less than 50.

The best U.S. bomb was more than two and one-half times as powerful as the Nagasaki bomb, perhaps as much as six times as powerful. While the United States had not yet achieved a hydrogen bomb, it was assumed that the Atomic Energy commission was convinced that one could be built.

Some authorities were inclined to interpret Stalin's remark about bombs of "various calibres" to mean that the U.S.S.R. was also working on tactical atomic weapons.

Expansion of U.S. Facilities.—The expanded program in the field of atomic energy embarked upon by the United States in 1950 following the announcement of the first soviet atomic explosion was enlarged even more in 1951. Congress appropriated more than $2,000,000,000 for the activities of the U.S. Atomic Energy commission in the fiscal year 1951. Nearly three-fourths of this was spent on construction and equipment.

The Atomic Energy commission increased its supplies of raw material and its output of fissionable material during the year. Deliveries of uranium concentrates from the Belgian Congo and from Canada continued at scheduled rates. Domestic production increased to the point that the United States became second among the free nations in the mining and processing of uranium ores. Construction was begun in 1951 on plants in the Union of South Africa to extract uranium from gold ore residues.

The commission expanded its exploration program during 1951 to locate ore reserves in the United States.

Progress was made during 1951 on two new major production plants. One was the Paducah, Ky., plant for the separation of uranium 235 from ordinary uranium by the gaseous diffusion process. The other was the Savannah River plant, near Augusta, Ga., which would be capable of producing either fissionable materials or hydrogen isotopes.

Atomic Submarine.—On Aug. 21, 1951, the U.S. navy's bureau of ships announced that a contract for the first atomic-powered submarine had been given to the Electric Boat Co. of Groton, Conn. Subsequently a contract for the driving mechanisms for the submarine was awarded to the Westinghouse Electric Corp. It was believed that this company would also be commissioned to build the nuclear power plant for the submarine although both Westinghouse and the General Electric Co. had been working on the design of nuclear reactors suitable for power plants in submarines.

Atomic Aeroplane.—The U.S. air force announced on Sept. 5, 1951, that it had awarded a contract for the development of an atomic-powered aeroplane to the Consolidated Vultee Aircraft Corp. of San Diego, Calif. The General Electric Co., it was announced, was working on the design of a nuclear power plant for such a plane.

The problem was to design a plane capable of carrying aloft the considerable weight of a nuclear reactor with its necessary shielding to protect the crew from its radioactivity.

New U.S. Program.—Speaking from the floor of the senate on Sept. 18, 1951, Sen. Brien McMahon, chairman of the congressional joint committee on atomic energy, proposed a vast expansion of the nation's atomic energy program, increasing expenditures to $6,000,000,000 a year. He insisted that with mass production methods it would be possible to manufacture an atomic bomb for the current cost of a tank. He called for the creation of "an atomic army and an atomic navy and an atomic air force."

Speaking in Los Angeles on Oct. 5, Gordon Dean, chairman of the Atomic Energy commission, stated positively for the first time that the United States possessed tactical atomic weapons and that the time had arrived for considering their use on the battlefield. He stated that the weapons called for a revolutionary change in concepts of warfare and that their use against troops in the field, unlike the strategic bombing of cities, involved no greater moral considerations than the use of conventional battlefield weapons.

The congressional joint committee on atomic energy unanimously adopted a resolution on Oct. 17 calling on the department of defense and the Atomic Energy commission to prepare by Jan. 3, 1952, a detailed program for the maximum expansion of the role of atomic energy in national defense.

Experimental Breeder Reactor.—A report issued on Oct. 19 by the congressional joint committee on atomic energy under the title of "Development and Control of Atomic Energy" revealed that the experimental breeder reactor had been put into operation at the reactor testing station at Arco, Ida. It was hoped that this reactor would create more atomic fuel than it consumed.

The reactor uses enriched uranium as fuel and a blanket of natural uranium around the core as the "fertile" area in which breeding may take place. Other reactors under construction at Arco included a materials testing reactor and a land-based prototype of a reactor for submarine propulsion.

Long-range experiments included the design of a homogeneous reactor in which the atomic fuel was mixed with the moderating material in a liquid.

Private Enterprise in Reactors.—The U.S. Atomic Energy commission in June 1951 entered into agreements with four groups of industrial companies for joint studies of ways in which private firms might carry a larger share of the task of developing, building and operating nuclear reactors. The four groups were Monsanto Chemical Co. and Union Electric Co., both of St. Louis, Mo.; Detroit Edison Co. of Detroit, Mich., and Dow Chemical Co. of Midland, Mich.; Commonwealth Edison Co. and Public Service Company of Northern Illinois, both of Chicago; and Bechtel Corp. and Pacific Gas and Electric Co., both of San Francisco.

Radioactive Isotopes.—The U.S. Atomic Energy commission expanded the manufacture and distribution of radioactive isotopes during 1951. Isotopes were shipped to 500 institutions in the United States and to 175 institutions in 31 foreign countries.

Physical Research.—Four new atom-smashers, financed partly or entirely by the U.S. Atomic Energy commission, went into operation during 1951. They included cyclotrons at Oak Ridge National laboratory, Oak Ridge, Tenn., and Brookhaven National laboratory, Upton, N.Y., and synchrocyclotrons at the University of Chicago and Carnegie Institute of Technology, Pittsburgh, Pa.

At Brookhaven, the west face of the research reactor was partitioned off and declassified so that authorized scientists not cleared for access to restricted information could use that face of the reactor for nonsecret experiments.

Fission Products.—Production of plutonium in the gigantic reactors at Hanford, Wash., was accompanied by the accumulation of vast quantities of radioactive fission products. A search for industrial uses for these waste products was initiated with a study by the Stanford Research institute of Stanford, Calif. It was pointed out that five principal capabilities of fission products were that they could kill organisms, induce chemical reactions, ionize gases, activate phosphors and produce rays which penetrate solids.

Dutch-Norwegian Reactor.—A nuclear reactor built jointly by the Dutch and Norwegian governments at Kjeller, 20 mi. N. of Oslo, was dedicated on Nov. 28, 1951. The Netherlands furnished the uranium and Norway the heavy water for the moderator. The uranium had been bought by the Netherlands government in 1939 at the suggestion of W. J. de Haas of Leyden, who foresaw some future importance for the material. During World War II, Dutch scientists misled nazi officials into believing that the uranium stock pile was yellow ochre paint.

Amsterdam Atom-Smasher.—The largest atom-smasher on the continent of Europe was the synchrocyclotron put into operation in Amsterdam in 1951 by the Dutch Atomic Energy commission. While its voltage was only 30,000,000 ev, it had the highest current rating of any cyclotron in existence, from 20 to 40μ amp.

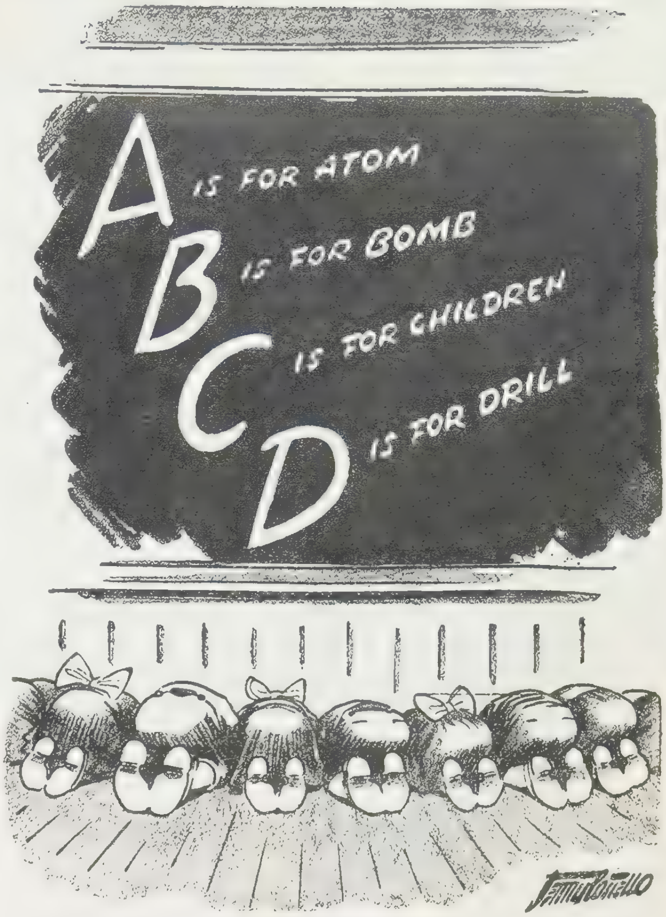
British Atomic Activities.—A heating system using atomic energy, the first of its kind in the world, was placed in operation in Nov. 1951 in an 80-room building at Great Britain's chief atomic research station at Harwell, Eng. Heat from a nuclear reactor was employed to produce hot water which flowed through the heating pipes.

Reports circulating in both London and Washington, D.C., during 1951 held that the British were nearing the perfection of their first atomic bomb and that permission would be sought from the U.S. government to test it in Nevada or at Eniwetok. Prior to resuming the office of prime minister, Winston Churchill criticized the Labour government for its failure to produce an atomic bomb.

Canadian Atomic Activities.—The most powerful source of radioactivity for the treatment of cancer is the cobalt bomb, perfected in 1951 after two years of research by the Eldorado Mining and Refining Co. This company, owned and operated by the Canadian government, is that nation's chief source of uranium and radium.

The first cobalt bomb was put in operation in November at the London, Ont., clinic of the Ontario Cancer foundation. It consisted of an ounce of radioactive cobalt enclosed in a three-and-a-half-ton, lead-lined steel tube. A window at one end of the tube is opened by electrical remote control to permit the momentary escape of radiation for the treatment of a patient.

An ounce of radioactive cobalt, produced at a cost of about $17,500, gives off the same amount of radiation as $50,000,000 worth of radium.



"MODERN EDUCATION," a 1951 cartoon by Costello of the *Knickerbocker News* (Albany, N.Y.)

The radioactive cobalt for the bomb was produced in the NRX reactor at the Chalk River atomic energy establishment, 130 mi. W. of Ottawa. This reactor, until the development of the new U.S. experimental breeder reactor, was the most advanced design in existence. It is characterized by its small size and neutron flux 10 to 20 times as high as other reactors of comparable size.

The reactor is a cylindrical vessel about eight feet in diameter and ten feet high. A total of 176 rods of metallic uranium are contained in a series of tubes in the cylinder. Heavy water is used as a moderator.

A new reactor under construction during the year at Chalk River would be Canada's third and largest. It was to cost $30,000,000 and would bring the Canadian investment in atomic energy equipment to more than $70,000,000.

Argentine Claims Discounted.—On March 24, 1951, Pres. Juan D. Perón of Argentina announced that a process employing a thermonuclear reaction for the controlled release of atomic energy had been perfected by Argentine scientists under the direction of Ronald Richter, Austrian-born director of the Argentine atomic energy project. The announcement was greeted with extreme skepticism by scientists in the United States and Europe.

International Control.—On May 21, 1951, the United States submitted a proposal to a 12-nation committee of the United Nations general assembly for a merger of the United Nations Atomic Energy commission and the Commission for Conventional Armaments. The proposal was bitterly assailed by the U.S.S.R.

On Nov. 8 the United States, Great Britain and France presented a disarmament program to the United Nations general assembly in Paris. The first step would be a census of armed forces and armaments including atomic weapons. The program included the plan for the international control of atomic energy which the general assembly had adopted on Nov. 4, 1948, by a vote of 40 to 6, the soviet bloc casting the negative votes.

The following day Andrei Y. Vishinsky, soviet foreign minister, told the general assembly that the U.S.S.R. would never agree to this plan for the international control of atomic energy.

The U.S.S.R. had insisted upon an immediate destruction of atomic weapons and had expressed the view that there would be a time lag between the declaration outlawing the bomb and the institution of international inspection.

On Dec. 5 France made it clear that it regarded U.S. superiority in atomic weapons as essential to its security and that it would not consent to any plan for their destruction that did not contain complete safeguards against violation of the agreement.

Soviet Atomic Espionage.—Four members of the spy ring which had conveyed atomic information to the U.S.S.R. during World War II were convicted in the federal district court of New York city on March 29, 1951. On April 5, Judge Irving R. Kaufman imposed the death sentence on Julius Rosenberg, 32, an electrical engineer, of New York, and his wife Ethel, 35. Morton Sobell, 34, an electronics expert, of New York, was sentenced to 30 years in prison. David Greenglass, 29, brother of Ethel Rosenberg, was sentenced to 15 years in prison.

The Rosenbergs and Sobell appealed to the U.S. circuit court of appeals and on Aug. 2 were granted until Oct. 15 to file briefs. The spy ring obtained information from three individuals, Klaus Fuchs, German-born British scientist, Alan Nunn May, British scientist, and Greenglass, a United States citizen who worked on atomic weapons at Los Alamos while an army technical sergeant.

British courts sentenced Fuchs to prison for 14 years and May for 10 years. In the U.S., Harry Gold, 40, a biochemist, of Philadelphia, was sentenced to prison for 30 years. He had been the courier between Fuchs and Greenglass and the spy ring.

Another source of secret atomic information became available to the U.S.S.R. in Oct. 1950 when Bruno Pontecorvo, an Italian-born British scientist, fled from England where he had been working at Harwell and disappeared behind the iron curtain. (*See* also METALLURGY; PHYSICS; STANDARDS, NATIONAL BUREAU OF; URANIUM.)

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FILMS OF 1951.—*Atomic Alert* (Encyclopædia Britannica Films Inc.); *Pattern for Survival, Target U. S. A.* (Cornell Film Co.); *Survival Under Atomic Attack, Unlocking the Atom*—(*Nuclear Fission*) (United World Films); *The Atom* (Almanac Films, Inc.); *You Can Beat the A-Bomb* (McGraw-Hill Book Co., Text-Film Department). (D. Dz.)

Atom Smashers: *see* ATOMIC ENERGY.

Attlee, Clement Richard

(1883–), British statesman, was born in London on Jan. 3. He was educated at Haileybury and University college, Oxford. After a period of legal practice, he was secretary of Toynbee hall, London, and a lecturer at Ruskin college, Oxford. In 1913 he joined the staff of the London School of Economics. During World War I he served in Gallipoli, Mesopotamia and France. He was first Labour mayor of Stepney, London, 1919–20, was elected member of parliament for Limehouse in 1922, and in the second Labour government was chancellor of the duchy of Lancaster and later postmaster general. He was deputy prime minister in the wartime coalition government and became prime minister when the Labour party achieved a majority in July 1945.

Attlee presided at the meetings of the commonwealth prime ministers which opened in London on Jan. 4, 1951. In a broadcast on Sept. 19, he announced that a general election would be held on Oct. 25. At the Labour party conference at the end of September, he introduced the party's election manifesto and made another offer to the U.S.S.R.: The British government was ready "to meet and deal with the people on the other side of the 'iron curtain' when they made a response, not only in words, but in action."

In the election, Attlee was returned with a majority of 11,574 in his constituency of West Walthamstow, but his party lost its majority and on Oct. 26 he was received by King George VI, who accepted his resignation. (R. JAN.)

Audio-visual Education: *see* MOTION PICTURES.
Aureomycin: *see* CHEMOTHERAPY.

Auriol, Vincent

(1884–), French statesman, was born on Aug. 27 at Revel, Haute-Garonne. After receiving his degree of doctor of laws at the faculty of law in Toulouse, he practised in that city. In 1909 he became editor in chief of the newspaper *Le Midi socialiste*. He was elected to the chamber of deputies as Socialist member for Muret (Haute-Garonne) in 1914 and was constantly re-elected up to the collapse of France in June 1940. Auriol's first cabinet post was in Léon Blum's cabinet in 1936, when he was appointed minister of finance. He was minister of justice in the Camille Chautemps cabinet (1937–38) and held a post in the short-lived Blum cabinet in 1938. He was among the 80 French parliamentarians who on July 10, 1940, voted against according full powers to Marshal Henri Philippe Pétain; he was imprisoned by Vichy authorities for several months but was later released. In Oct. 1943 he escaped to London where he joined Gen. Charles de Gaulle's movement. He became a member of the consultative assembly set up in Paris after its liberation in Aug. 1944, and a year later he was appointed minister of state without portfolio in the De Gaulle government. He was elected president of the French constituent assembly on Jan. 31, 1946, and on Jan. 16, 1947, he became the first president under the constitution of the fourth republic.

In March and April 1951 he paid an official visit to the United States and Canada, the first by a president of France while in office. His main theme in the 45 speeches he made in the two countries was an outspoken defense of France against those who doubted its will to resist aggression. He explained recurring ministerial crises by saying that it was not the government team that was changed from time to time, but only the leader. (*See* also FRANCE.) (R. JAN.)

Austin, Warren Robinson

(1877–), U.S. delegate to the United Nations, was born at Highgate, Vt., on Nov. 12, and was graduated from the University of Vermont, Burlington, in 1899. He practised law and became active in Republican politics. Elected U.S. senator from Vermont in 1931 to fill an unexpired term, he was re-elected in 1934 and 1940, but resigned to become acting U.S. representative to the United Nations, by appointment of Pres. Harry S. Truman, on June 5, 1946. On Jan. 13, 1947, Austin became U.S. representative at the seat of the United Nations with the rank of envoy extraordinary and plenipotentiary, and U.S. representative on the Security council, as well as member of the U.N. Atomic Energy commission. In the United Nations he frequently had occasion to represent western viewpoints against the U.S.S.R. and its bloc. In Jan. 1951 he offered a seven-point resolution in the United Nations to pave the way for sanctions against red China, because of that country's intervention in the Korean war. At the same time he offered to keep the way open for further negotiations, with both China and North Korea. He appealed in a radio broadcast in April to other members of the U.N. to provide proportionate shares of their manpower to the armed forces in Korea. Expressing official U.S. views, he warned Communists in Asia that the United Nations would fight until the reds had had enough.

Australia, Commonwealth of.

A self-governing member of the Commonwealth of Nations, Australia is situated in the southern hemisphere. Areas and populations of the six federated states, Australian Capital Territory and Northern Territory are:

States and Territories	Capital	Area (in sq.mi.)	Population (1947 census)	Population (Dec. 1950 est.)
New South Wales	Sydney	309,433	2,985,464	3,278,036
Victoria	Melbourne	87,884	2,055,252	2,231,255
Queensland	Brisbane	670,500	1,106,269	1,191,245
South Australia	Adelaide	380,070	646,216	712,010
Western Australia	Perth	975,920	502,731	573,671
Tasmania	Hobart	26,215	257,117	294,397
Northern Territory	—	523,620	10,866	15,131
Australian Capital Territory	Canberra	939	16,905	20,054
		2,974,581	7,580,820	8,315,799

In 1944 fullblood aboriginals were estimated at 47,000 and half-castes numbered 24,881. Territories under the administration of the commonwealth but not included in it comprise Papua Territory, Northeast New Guinea, Norfolk Island, the territory of Ashmore and Cartier islands and the Australian antarctic territory. Language: English. Religions (census, 1947): Anglican 2,957,032, Roman Catholic 1,569,726, Methodist 871,425, Presbyterian 743,540, Baptist 113,527, Lutheran 63,243, other Christian 354,443; Jewish 32,019. Chief towns (pop., 1949 est.): Sydney (1,550,000); Melbourne (1,288,000); Adelaide (470,000); Brisbane (430,000); Perth (294,000); Newcastle (1947, 127,188); Hobart (1950 est., 84,000). Governor general: Sir William McKell; prime minister: Robert Gordon Menzies.

History.—During the first quarter of 1951 outstanding events were the passage of the much-disputed Communist Party Dissolution act, after Labour party opposition had been suddenly withdrawn, and other legislation, particularly the Commonwealth Bank Amendment act to restore control by a board, which the Labour-controlled senate had held up. On the application of the government the governor general held that this bill had "failed to pass both houses" and a double dissolution was granted. In the election that followed, the Liberal-Conservative government was returned with a majority in both houses, although that in the house of representatives was reduced.

H. V. Evatt, deputy leader of the Labour party, led an application by several unions to the high court to test the Communist Party Dissolution act which affected trade-union leaders alleged to be Communists. The court held the act to be unconstitutional. The government proceeded in the new parliament to enact law to hold a referendum to give it powers to pass the disputed bill into law and also to pass similar or related matters. The referendum was defeated by an absolute majority in the commonwealth as a whole and in three of the six states. On June 13 the whole commonwealth was overshadowed by the news of the sudden death in Canberra of J. B. Chifley, leader of the Labour party and former prime minister. In Victoria an act to provide for the election of the legislative council by adult franchise was passed just 100 years after its establishment and 93 years after attempts were first made to secure such election.

Foreign Affairs.—Australia's contribution to the Korean war continued with the engagement of all three arms of the services. The Japanese peace treaty was supported by the Australian government but there was strong resistance from the Labour party with no occasion for a vote in the house. Australian foreign policy continued to move closer to that of the United States, which offered Australia assurances of assistance in the event of attack. During the year a meat marketing agreement was signed with the United Kingdom under which Australian producers were guaranteed for several years 1951 prices as minima.

JUBILEE PROCESSION held in Sydney on Jan. 29, 1951, celebrating 50 years of federation in Australia. This float symbolized the growth of music and carried the names of Australian musicians and composers

Industrial and Economic.—There were few strikes and none of more than local significance. The most notable event was a marked increase in inflation. Economic activity continued at much above full employment level. The setback in wool prices had had no apparent deflationary effects by the end of the year. The average total personal income in 1950–51 was £A2,916, an increase of 24% over 1949–50. There were 2,629,600 wage and salary earners in employment; nominal unemployment was shown at 0.8% and less.

The rise in the value of exports continued to be the main force behind inflation. Exports in 1950–51 were £A984,000,000, an increase of £A370,000,000, or more than three times the previous highest annual increase. Imports reached £A742,000,000, an increase of £A206,000,000 over the year before. The factors in the balance of payments were unable to prevent a fall in overseas funds. The dollar loan obtained from the International Bank for Reconstruction and Development was allocated during the year.

The 1950–51 actual commonwealth budget expenditure was £A881,000,000, and there was a net increase in government indebtedness during the year of £A94,000,000; part of this was financed by loan money and part by the issue of treasury bills. Approximately 37% of revenue came from indirect taxes and 54% from direct. It was expected that the 1951–52 budget would maintain a high expenditure, with an increase on war and defense to £A200,000,000, but that there would be some reduction in other directions. The main anti-inflationary device of this budget was increased taxation, mainly indirect. Taking all these matters into consideration it was possible that deflationary influences might be operating in the Australian economy, but this would depend particularly upon the level of U.S. and European buying.

Immigration and Housing.—Permanent new arrivals during the year were 154,290. Easy absorption of immigrants into primary and secondary industries continued, but the housing of them became more acute. During the year 1949–50, 55,485 houses were completed, an increase of 4,146 over the year before. Although these were the highest figures ever reached in any one year they were still below the requirements of existing population demands for new houses and normal replacements.

General.—The most conspicuous feature of the year was high money incomes and inflation. In all fields money demand was so high that resources were strained beyond capacity. Inflation moved from a suppressed state into an open or uncontrolled one. Politically, the characteristics were uncertainty and lack of positive government action, much of the time of parliament being taken up with the abortive attempts to provide new legislation to deal with the Communist party. Again, in this respect, the difficulties in the way of changing the constitution were revealed. (J. F. C.)

Education—(1950) State schools 7,969, pupils 869,906, teachers 33,271; private schools 1,835, pupils 281,056, teachers 12,425; universities 8, students 33,000.

Finance and Banking.—Budget: (1951–52 est.) revenue £A1,041,500,000, expenditure £A927,000,000. National debt (Dec. 1950): £A1,850,900,000. Currency circulation (July 1951) £A275,000,000. Gold and foreign exchange (March 1951) U.S. $1,878,000,000. Bank deposits (July 1951) £A1,100,000,000. Monetary unit: Australian pound, with an exchange rate of £A1.25 to the pound sterling and £A0.45 to the U.S. dollar.

Foreign Trade.—(1950) Imports £A630,000,000; exports £A744,000,000. Main sources of imports (1950–51): U.K. 48.1%, U.S. 8.2%, India 4.8%. Main destinations of exports (1950–51): U.K. 32.5%, U.S. 15.2%, France 9.2%. Main imports: machinery 24%; piece goods 14%; vehicles 12%; oils 10%. Main exports: wool 65%; wheat and flour 11%; meat 3%; metals, minerals and ores 4%.

Transport and Communications.—Roads (1946 est.): 500,497 mi. Licensed motor vehicles (Dec. 1950): cars 876,902; commercial 475,926. Government railways (1949–50): 26,980 mi.; passenger journeys 504,600,000; freight carried 40,600,000 tons; train-miles run 93,300,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 355; total tonnage 541,424. Air transport (1950): miles flown 44,000,000; passenger-miles 788,000,000; freight, including mail, net ton-miles 31,400,000. Telephones (March 1951): instruments 1,182,035. Radio receiving set licences (March 1951): 2,074,775.

Agriculture.—Main crops (metric tons, 1950–51): wheat 4,981,000; oats 471,000; barley 517,000; maize (1949–50) 160,000; sugar, raw value, 920,000; potatoes 500,000. Livestock (March 1950): sheep 112,891,000; cattle 14,640,000; pigs 1,123,000; horses 1,057,000. Wool production (greasy basis, 1950) 534,000 metric tons. Milk production (1950–51) 1,211,000,000 gal. Food production (metric tons, 1950–51): butter 162,400; cheese 45,300; meat 1,028,400, of which beef 660,000.

Industry.—Manufacturing establishments (1948–49) 40,010; persons employed, including working proprietors, 890,454. Fuel and power (1950): coal 16,788,000 metric tons; lignite 7,416,000 metric tons; manufactured gas 1,064,000,000 cu.m.; electricity 10,251,000,000 kw.hr. Raw materials (metric tons, 1950): refined copper 13,800; refined lead 203,000; zinc 85,000; pig iron 1,336,000; steel ingots and castings 1,448,000; gold 861,000 fine ounces. Manufactured goods (metric tons, 1950): wool yarn 21,500; cement 1,278,000. New dwelling units completed numbered 52,884 in 1949 and 61,884 in 1950.

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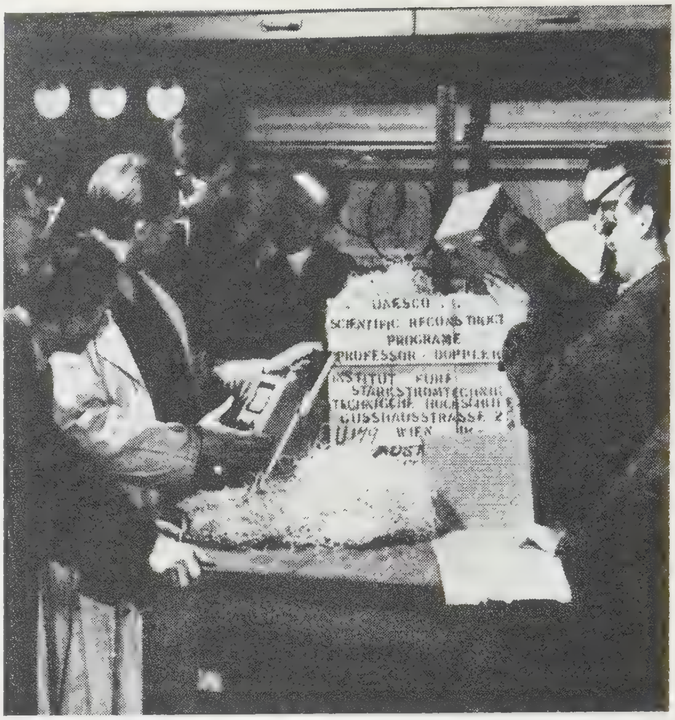
FILMS OF 1951.—*Geography of Australia* (Young America Films, Inc.).

Austria.

A republic of central Europe, Austria has an area of 32,375 sq.mi. Pop. (1951 census) 6,881,100. Language: German 98%, other 2% (mainly Slovene in Carinthia). Religion: mainly Roman Catholic. Principal towns (pop. 1951 census): Vienna (cap., 1,760,784); Graz (226,271); Linz (185,177); Salzburg (100,096); Innsbruck (94,599); Klagenfurt (62,792). President, Theodor Koerner (*q.v.*); chancellor, Leopold Figl. The Austrian government had jurisdiction throughout Austria, with certain limitations regarding matters control over which was reserved to quadripartite decision in the Allied Council for Austria. By Dec. 31, 1951, members of the A.C.A. were: France, Jean Payart; United Kingdom, Sir Harold Caccia; U.S., Walter J. Donnelly; U.S.S.R., Lieut. Gen. V. P. Sviridov.

History.—Throughout 1951 unsuccessful attempts were made to persuade the soviet government to do away with the special permits necessary to enable citizens of the three western occupation zones to travel through the soviet zone. Attempts to induce the soviet government to sign the Austrian peace treaty were again unsuccessful. The points of difference on the treaty itself were narrowed down to four minor ones but the soviet government made its signature dependent on acceptance by the west of various matters entirely unconnected with the treaty.



UNIVERSITY OF VIENNA students unpacking a shipment of scientific equipment purchased under the U.N.E.S.C.O. gift coupon program launched in 1951. The coupons were an international currency for use by educational institutions in securing books, films, laboratory equipment, etc.

In these circumstances, the Austrian scene continued to be dominated throughout the year by the wider question of the relations between the four great powers. While the U.S. government poured $104,360,000 into Austria through the medium of the Economic Cooperation administration (July 1, 1950, to June 30, 1951), the soviet government took at least $50,000,000 out through the network of former German firms and undertakings administered by the U.S.I.A. (Upravlenye Sovietskim Imushchestvom v Avstrii, or, Administration of Soviet Properties in Austria). About one quarter of this sum was the value of oil from the wells round Zistersdorf in the soviet zone of Austria. During the year, the U.S.I.A. extended its operations by setting up a large number of retail stores in the towns of the soviet zone and the soviet sector of Vienna. The U.S.I.A. stores imported goods free of customs duty and most of them, like the U.S.I.A. factories, did not pay taxes or social insurance contributions. Consequently they competed on specially favourable terms with Austrian private enterprise. The non-Communist political parties called on their followers to boycott the U.S.I.A. stores and most Austrians did so.

In spite of the E.C.A. help, the Austrian economy again found itself in serious difficulties. A new wage-price agreement (the fifth since Aug. 1947) had to be negotiated in July 1951. This was followed by an all-round increase in rents in the autumn. Though the changes were not accompanied by Communist-inspired riots as in 1950, they meant hardship for many people. The prices of many consumer goods and also bread were subsequently reduced slightly but the economic crisis was not solved. Austrian imports during the year, excluding Marshall plan aid, were greatly in excess of exports and it was clear that productivity would have to be raised if the country was to avoid a drastic decline in its standard of living.

Considerable progress was made during the year in developing

Austria's water power resources. The first half of the giant hydroelectric station at Kaprun which harnesses water from glaciers around the Gross Glockner was completed in Sept. 1951. Electrification of the Austrian railway system also progressed considerably. Reconstruction of buildings destroyed during World War II continued on an increased scale. Thanks largely to this, unemployment which reached the high level of 219,490 in February fell to 79,581 in June 1951. This was the lowest figure recorded since the war. On the other hand there was a serious shortage of coal.

Much of the reconstruction in all fields was the result of the release of E.C.A. counterpart funds. In September, General Sviridov, the soviet high commissioner, accused the three western occupying powers of remilitarizing Austria under the pretense of reconstruction. His accusation, raised under the heading "other business" at a meeting of the Allied council, touched off a furious campaign in the Communist press. The Austrian "Peace council" later published a White Book of specific charges which was given to the delegates of the World Peace council who met in Vienna in November. At a meeting of the Allied council on Nov. 30, the soviet representative brought forward a resolution in two parts, one calling for a quadripartite commission of inspection and the other requiring the council to write to the federal chancellor ordering him to reduce the number of *gendarmerie*, cease the construction or reconstruction of military installations, switch all military production to peacetime needs and repeal various measures aiming at remilitarizing Austria. The U.S. representative tabled a substitute resolution which declared that internal security was the affair of the Austrian government, demanded the restoration of interzonal freedom of movement so that everyone could judge of the truth of the militarization charges for themselves and the immediate signing of the peace treaty. All three western representatives dismissed the soviet charges as having been advanced purely for propaganda purposes.

In the political sphere, the year was marked by the election at the second ballot on May 27, 1951, of Theodor Koerner, formerly Socialist burgomaster of Vienna, as president of the republic in succession to Karl Renner who died on Dec. 31, 1950. Relations between the three western powers and the Austrian government continued to improve. Progress was also made in dealing with the grievances of Austrians in the south Tirol and in establishing more friendly relations between Austria and Yugoslavia, which dropped all territorial claims against Austria in the course of the year. The soviet government refused to accept the Austrian proposal, supported by the three western powers, to abolish the so-called Austrian censorship. Accordingly, on Nov. 21 the Austrian postal authorities gave notice to the 863 employees of the department that their employment would cease on Jan. 1, 1952. The Austrian government also failed to get satisfaction from the soviet authorities on the subject of prisoners of war and Austrian political prisoners in the U.S.S.R. Such prisoners were, however, allowed to write to their families after Sept. 5, 1951. (G. Ls.)

Education.—Schools (1949–50): elementary and private 5,073, pupils 846,846, teachers 35,874; secondary 168, pupils 50,140, teachers 3,550; technical and commercial 63, pupils 17,623, teachers 1,738; teachers' training colleges 28, students 4,338, lecturers 530; universities 4, students 17,029, professors and lecturers 1,787.

Finance and Banking.—Budget: (1950 actual) revenue 12,023,000.000 schillings, expenditure 12,234,000,000 schillings; (1951 est.) revenue 11,869,000,000 schillings, expenditure 12,570,000,000 schillings. Internal debt (Dec. 1949) 11,826,000,000 schillings. Currency circulation (July 1951) 6,796,000,000 schillings. Bank deposits (June 1951) 8,197,000,000 schillings. Monetary unit: schilling, with an exchange rate (Nov. 1951) of 60.20 schillings to the pound and 21.49 schillings to the U.S. dollar.

Foreign Trade.—(1950): imports 7,092,000,000 schillings; exports 6,516,000,000 schillings. Main sources of imports (1950): U.S. 23%; Germany 17%; U.K. 8%; Italy 7%. Main destinations of exports: Germany 16%; Italy 13%; Czechoslovakia 6%; U.S. 6%. Main imports: coal, machinery and vehicles, and grains. Main exports: iron, steel and manufactures, textile manufactures and wood.

Transport and Communications.—Roads (1947): 53,000 mi. Licensed motor vehicles (Dec. 1950): cars 45,000, commercial 48,000. Railways (March 1951): 3,761 mi.; passenger-miles (1950) 2,670,000,000; freight ton-miles (1950) 3,311,000,000. Telephones (1950): subscribers 261,000. Radio receiving set licences (1950): 1,200,000.

Agriculture.—Main crops (metric tons, 1951): wheat 400,000; barley 263,000; oats 330,000; rye 415,000; sugar 95,000; (1950): maize 150,000; potatoes 2,548,000. Livestock (Dec. 1950): cattle 2,279,000; sheep 363,000; pigs (March 1951) 2,094,000; horses 283,000; goats 323,000; poultry 6,934,000.

Industry.—Insured persons employed (Aug. 1951): 2,046,000. Fuel and power (1950): coal 182,000 metric tons; lignite 4,308,000 metric tons; manufactured gas 356,000,000 cu.m.; electricity 4,908,000,000 kw.hr.; crude oil 1,525,000 metric tons. Raw materials (metric tons, 1950): iron ore 1,860,000; pig iron 883,000; steel, ingots and castings 943,000; magnesite 545,000; lead, smelter 9,200. Manufactured goods: woven cotton fabrics 13,400; cotton yarn 19,400; wool yarn 11,000; rayon staple fibre 31,100; fertilizers 364,000; chemical pulp and paper 489,000.

Autobiography: *see* ENGLISH LITERATURE; etc.

Automobile Accidents: *see* ACCIDENT PREVENTION.

Automobile Industry.

Instead of the emphasis on production which resulted in an all-time record of 8,002,782 vehicles manufactured in the United States in 1950, the industry in 1951 was engaged in a worried, losing struggle to keep in full operation. In spite of production curtailments and scattered strikes, however, the automobile makers managed to produce 5,336,000 passenger cars and an all-time record of 1,430,000 trucks. The total of 6,766,000 vehicles was second only to the 1950 mark. This 15% drop in output was in sharp contrast to some pessimistic predictions early in the year that by August materials shortages would cut automobile production by 50%.

The most unfavourable factor in the production struggle was the materials shortage. The newly formed National Production authority (NPA) became the barometer for the industry. With more and more critical material being used, allocated or stockpiled for defense, less and less was left for civilian production and the automobile industry.

The year was further marked by a continuous stream of war contract announcements and construction of new and additional defense plant space. But despite the large volume of defense contracts which was poured into the industry automobile production curtailments ran ahead of actual work on defense orders, most of which were still in the preparatory stages of plant construction, tooling, etc. As the year ended, thousands of automobile workers were idled.

Table I.—*Monthly Production of U.S. Vehicles, 1951*

	Passenger cars	Trucks	Buses	Total
January	478,589	127,583	661	606,833
February	505,865	111,935	521	618,321
March	617,399	136,794	829	755,022
April	503,038	135,415	819	639,272
May	511,938	140,047	742	652,727
June	482,029	134,818	838	617,685
July	381,407	110,244	665	492,316
August	426,932	121,993	783	549,708
September	365,906	109,353	743	476,002
October	414,533	110,737	1,174	526,444
November	356,788	93,740*	840*	451,370*
December*	291,575	87,925	800	380,300

*Estimated.

Source: Automobile Manufacturers Association.

New Models.—Three new lines appeared during the year, all outside the standard big-car field. The "Nash-Healey" was a two-passenger sports car to be produced for the Nash-Kelvinator Corp. by the Donald Healey Co. of England; the "Aero Willys" was a light car to be produced by Willys-Overland Motors, Inc.; the other was a modified version of the "Henry J" to be produced by Kaiser-Frazer Corp. and distributed solely by Sears, Roebuck & Co. under its own brand name, "Allstate."

The popularity of the "hard top" continued to increase in 1951 and by the end of the year all but two manufacturers offered hard top styling on at least one line of car.

Defense Production.—The year 1951 saw the beginning of the second large-scale U.S. defense mobilization within ten years. Pres. Harry S. Truman's state of the union message revealed that the country's industrial structure was being geared for an annual production of 50,000 military planes and 35,000 tanks. This meant that the automobile industry was to be vitally involved, and its response was indicated by the achievement of one manufacturer in delivering the first of a new type of light tank approximately three months ahead of schedule.

Table II.—*U.S. Motor Vehicle Production, 1945–51*

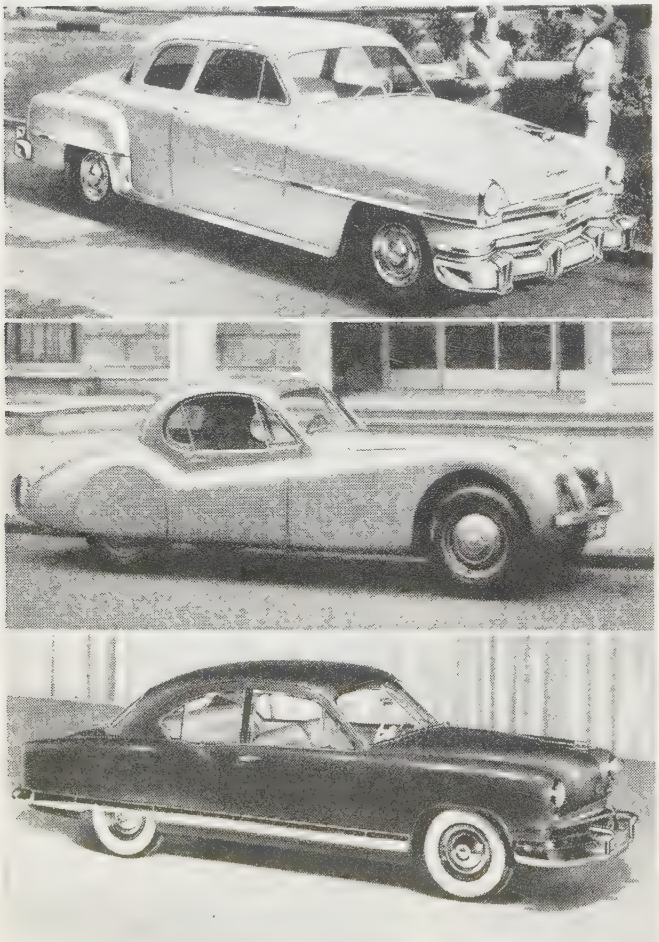
Year	Passenger cars	Trucks and buses	Total
1945	69,532	655,683	725,215
1946	2,148,699	940,866	3,089,565
1947	3,558,178	1,239,443	4,797,621
1948	3,909,270	1,376,274	5,285,544
1949	5,119,466	1,134,185	6,253,651
1950	6,665,863	1,337,182	8,003,045
1951*	5,336,000	1,430,000	6,766,000

*Estimated.
Source: Automobile Manufacturers Association.

An inevitable result of the sudden conversion to defense production was a critical shortage of machine tools as well as other vital materials. Hundreds of machine tools put away after World War II as a moth-ball fleet were being rehabilitated and modified for new defense production assignments.

By mid-October it was evident that all the car manufacturers were going to be able to offer new models for 1952, but this was only because they were already far along in their tooling programs.

In November the NPA stopped major model changes in automobiles after Feb. 1, 1952, by placing a ban on unrated machine tool shipments.



AUTOMOBILES INTRODUCED IN 1951. Top: the 1952 Chrysler Windsor club coupé; centre: the Jaguar coupé shown by British exhibitors at the motorcar salon held in Geneva, Switz., in March; bottom: the two-door Kaiser sedan

Table III.—*Exports and Imports of U.S. Motor Vehicles, 1945–51*

	Exports		Imports	
	Passenger cars	Trucks and buses	Passenger cars	Trucks
1945	1,439	37,430	526	5
1946	144,050	187,021	1,950	15
1947	260,847	251,489	2,102	22
1948	233,177	203,040	28,428	684
1949	156,141	131,634	7,851	515
1950	152,925	150,760	21,608	81
1951*	250,000	220,000	25,000	250

*Estimated.
Source: Automobile Manufacturers Association.

In the midst of all this, the automobile makers were engaged in a determined campaign to establish the essentiality of the automobile as a tool rather than a luxury. This was an effort both to avoid a repeat of the wartime shutdown of passenger-car production lines, and to hold down excise taxes, which were threatening to rise to 20%. A survey conducted during Jan. and Feb. 1951 revealed that 73% of the nation's cars were used wholly or partly for work, and that 92% were used for work, shopping or both. There were some indications that the campaign was successful. A defense official stated that with industry moving outside cities, the passenger car had become essential for getting workers to the plants.

A later report, by the Brookings institution, also defended the essentiality of the car and maintained that the existing annual rate of 4,000,000 passenger cars was a desirable minimum production.

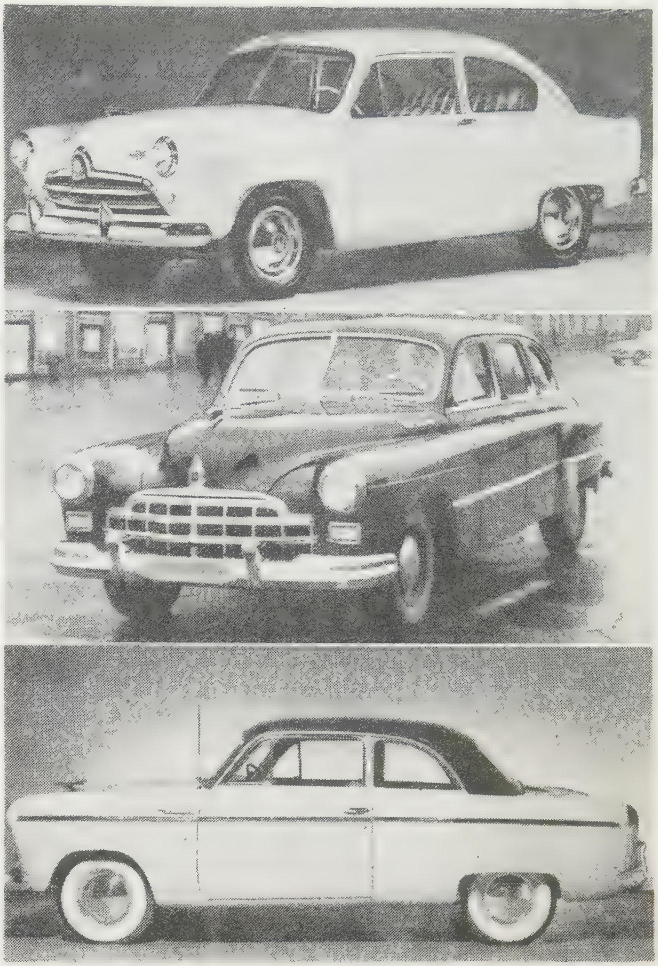
Materials.—Materials shortages and allocations were responsible for most of the woes of U.S. automobile manufacturers during 1951. NPA decrees were issued almost daily, and the vast number of revisions made necessary by the ever-changing materials situation only added to the confusion already prevalent in the industry.

Early in the year, boron-treated steels were offered as a substitute for scarcer alloy steels. But even substitutions such as this could not make the supply of steel meet the needs of both defense and civilian production. The NPA cut passenger-car steel 20% for the second quarter, with a forecast of a 10% additional cut for the third quarter. By June 1 the supply had to be cut another 5%, and quotas for the third quarter were lowered to 65% of the monthly consumption during the first half of 1950. By the final quarter, steel allocations for the industry had been dropped to 58% of the pre-Korean war level. As part of the effort to keep up the supply, a concerted drive was begun to recover dormant scrap steel and iron from industry and commercial establishments.

A gradual increase in the supply of synthetic rubber resulted in an alleviation of the rubber shortage that threatened in the first half of the year. White sidewalls on tires were banned by the NPA in February. Two months later the quota of tires and tubes for new cars was cut 25%, followed immediately by a ban on the fifth or spare tire for new passenger cars. The next order limited tire retailers to a 30-day supply and finally, in mid-July, the spare-tire ban was lifted.

One of the first warnings that cars might be looking different in the future was the NPA order that banned the use of nickel in automobile brightwork after March 1. This order was expanded in late summer by the ruling that no more nickel-bearing stainless steel could be used for decorative purposes. As far as the 1951 models were concerned, however, substitutions and new plating techniques kept the brightwork plentiful.

Already on the critical list, the nation's supply of copper was hit late in the year by a strike of 58,000 miners and smelter workers in the copper and nonferrous industry that resulted in an estimated loss of 40,000 tons of copper. To give relief to industry, 55,000 tons of copper were released from government



AUTOMOBILES FIRST SHOWN IN 1951. Top: the 1952 Allstate, introduced by Sears, Roebuck & Co. for the first large-scale merchandising of automobiles through department stores; centre: the ZIM, a soviet-built automobile; bottom: the 1952 Willys-Overland, first passenger sedan built by that company since 1942

stock piles, but fears were still prevalent that the copper shortage might cause a complete shutdown of the automobile industry.

Already, one manufacturer was using steel for radiator tanks, and others were considering the use of copper-clad steel in place of brass.

Effective Oct. 1, another order aimed at conserving scarce materials was issued which raised a storm of protest from several manufacturers. This decreed that automatic transmissions could be installed on only 35% of the production of automobiles retailing at the factory for less than $1,800, and 65% of the production of cars retailing at the factory for $1,800 to $2,500. Over $2,500 there was no limitation imposed. With automatic transmissions being installed on almost 100% of some automobiles in the $1,800 to $2,500 range, the order was bound to have a drastic effect, especially since increased facilities for producing standard transmissions were not available.

Prices and Wages.—The first move in the 1951 fight to halt the spiralling rise of prices and wages was an order by the Economic Stabilization agency freezing most prices and all wages at the Jan. 25, 1951, level. The prices of automobiles, which had been rolled back in Dec. 1950 after an attempted price increase, were placed under an Office of Price Stabilization ceiling, effective March 2. The day before this ceiling went into effect, the OPS allowed a 3.5% increase to offset, partially, increases in production costs. A promise of relief from this ceiling was offered to the industry at the end of July, when the new Defense Production act of 1951 was passed. The Capehart amendment to this act allowed manufacturers to apply for a higher price ceiling to be based on pre-Korean war prices, plus all reasonable cost increases up to July 26, 1951. The difficulty was that the formula on which these increases were to be based was not made known for another four months. As a temporary relief, prices were allowed to go up after Labor day by an average of 5% to 6% at the manufacturers' level. This increase was to be considered as part of any later increases allowed under the Capehart provision. At the end of the year, the Capehart formula was finally issued, and manufacturers were invited to submit their figures for price increase permission.

On Nov. 1 automobile excise taxes were raised from 7% to a new rate of 10%. Truck excise taxes rose from 5% to 8%. The tight credit rules of regulation W were eased somewhat by another provision of the Defense Production act which extended the term of payments from 15 to 18 months, but down payments of one-third were still required.

The issue of wages under the freeze caused many complaints from labour, which feared that the freeze order, even with an allowed increase of 10% over the level of Jan. 19, 1950, threatened existing contracts including quarterly cost-of-living and annual productivity increases. Within a short time, however, cost-of-living increases were approved, and a four-cent productivity increase was granted.

The cost-of-living increases granted for each of the four quarters of 1951 were, respectively, five cents, three cents, one cent and one cent per hour.

Unemployment.—By late June the growing list of unemployed automobile workers had reached such proportions that Sen. Blair Moody (Dem., Mich.) demanded a congressional investigation of materials cutbacks and the threat of mass unemployment in the automobile industry. Subsequently, a special senate subcommittee was set up to investigate the spread of unemployment in peace-time industrial centres, with Senator Moody as chairman. In July, the president announced that he had directed the defense agencies to review Detroit's unemployment situation, and three months later he said that the defense mobilization administrators would be asked to alleviate conversion unemployment there.

At the year's end, however, there were more than 100,000 unemployed workers in metropolitan Detroit alone—an increase of 30% from the first of the year.

Engineering.—The 1951 models brought another boost in horsepower, the highest available in a standard engine being 180 h.p. A major innovation introduced by one manufacturer was power steering, in which two hydraulically operated pistons do the work of steering. The manual effort involved was said to be one-fifth that of conventional steering, and in the event of failure of the hydraulic system, the car could still be manually controlled. One of the early-appearing 1952 models offered power braking, a device operating on the engine vacuum, which reduced pedal pressure by 40% and driver reaction time 29%. "Feel" of the brakes was retained by the resistance of a small vacuum diaphragm. In case of engine stoppage, a vacuum reserve was sufficient for three complete stops.

In early May, General Motors Corp. announced the results of tests on a standard car equipped with a new 12:1 compression ratio engine and an improved automatic transmission. With the engine displacement chosen to give approximately the same horsepower as the stock engine, a fuel saving of 30% was achieved. The chief deterrent to production of this engine was reported to be the fact that available gasolines were not yet up to the required octane number for the engine. The automobile involved was a Cadillac.

Three rolling laboratories—futuristic automobiles equipped with experimental devices and engines of horsepower ratings from 300 to 310, were unveiled, two by General Motors Corp. and the other by the Chrysler Corp. Two of the engines, operating at 10:1 compression ratio, required a mixture of alcohol and gasoline; the third, with a compression ratio of 8:1, used commercial premium grade gasoline.

In midyear, General Motors announced that it was designing a 300-h.p. gas turbine to investigate the use of turbine plants on civilian vehicles. This was to be installed in a bus for road testing when completed, and represented the first efforts of the automobile industry in this field.

Design.—Interest in automobile design came from an unexpected source in late summer when the Museum of Modern Art, New York city, selected eight cars for their "excellence as works of art and for their relevance to contemporary problems of car design." Three of these cars on exhibit were American, but none of the three represented contemporary trends in automobile styling. Two were extinct lines of car and the third was the "Jeep," selected as a "genuine expression of machine art." (*See* also MOTOR TRANSPORTATION; MUNITIONS OF WAR: ARMY.)

FILMS OF 1951.—*Auto Suggestion* (British Information Services).

(C. F. KE.)

Automobile Insurance: *see* INSURANCE.

Automobile Racing.

Roaring over the 500 mi. in record time, Lee Wallard of Altamont, N.Y., won the Indianapolis Memorial day race, blue-ribbon event of the sport. Piloting a Belanger Special, Wallard was timed at 3 hr. 57 min. 38.05 sec. for an average speed of 126.244 m.p.h. He received a purse of $63,612 in prizes, which was a new high for the classic. Finishing second in the long test witnessed by 150,000 spectators was Mike Nazaruk, a newcomer from East Meadow, L.I., N.Y., who drove a Robbins Special. Third money went to Jack McGrath of Glendale, Calif., who had a relief driver, Manuel Ayulo of Burbank, Calif.

Tony Bettenhausen of Tinley Park, Ill., a consistent winner all season, captured the scoring championship of the American Automobile association.

Al Rogers of Colorado Springs, Colo., took first money of $5,400 in the annual Pikes Peak race with his fourth straight triumph in the event.

Lieut. Col. A. T. Gardner, 60-year-old Englishman, broke ten U.S. and six international class F marks in speed trials at Bonneville Flats, Utah, Aug. 20. Gardner drove his Magic Midget at 139.3 m.p.h. in a one-hour run from a flying start for one of his new U.S. records. He set a one-hour international standard for small cars at 137.4 m.p.h.

The second Pan-American highway race for stock sedans that ended at Juarez, Mex., on Nov. 25 was won by Piero Taruffi of Rome driving a Ferrari. Covering the paved highway distance of 1,933 mi. in 21 hr. 57 min. 52 sec., Taruffi took a purse of $23,180. Another Italian, Alberto Ascari of Milan, who also piloted a Ferrari, was second, and Bill Sterling of El Paso, Tex., driving a Chrysler, was third. (T. V. H.)

Aviation, Civil.

As of the midyear of 1951, there were 3,830 transport aircraft in operation by 217 common carrier air lines throughout the world. Of these planes 80% were manufactured in the United States, 13% in the United Kingdom and the remaining 7% in Australia, Canada, France, Germany, Italy, Peru, Sweden and the U.S.S.R. Since 1949 there had been little change in the over-all total of aircraft in air line service. The number of larger, faster four-engined transports, however, had steadily increased until it stood at more than 1,000 by the end of 1951; while the number of single-engined and three-engined planes in operation had proportionately declined.

Table I.—*U.S. Commercial Air Transport Industry*

(Calendar year)

Item	1950 (actual)	1951 (est.)	Per cent increase
Traffic			
Revenue passengers	19,083,517	24,416,000	28
Revenue passenger-miles (000)	10,929,799	14,133,000	30
Mail ton-miles	68,066,580	85,906,000	26
Cargo ton-miles	318,870,093	389,386,000	22
Total revenue ton-miles (mail, cargo and passengers)	1,487,516,507	1,880,436,000	26
Revenue			
Passenger revenues	$629,477,421	$801,580,000	27
Mail revenues, U.S.	118,400,622	114,474,000	3*
Cargo revenues	74,335,946	91,311,000	23
Total operating revenues	858,596,708	1,043,325,000	21

*Decrease.

Scheduled carriers of the United States and its territories operated almost one-third of the total world fleet, or 1,218 planes as of July 1951. The United Kingdom had the second largest fleet, with 240 aircraft. Next in order were Australia with 201 transport aircraft in common carrier service; Brazil with 186; Mexico with 155; France with 135; Canada with 128; India with 117; and Colombia with 96. Considerably more than half the world air transports in scheduled service flew the flags of western hemisphere countries.

U.S. Air Transport Industry.—Air transportation in the United States showed a spectacular growth in every respect during 1951, stimulated by the defense mobilization program which, in the period since the outbreak of the Korean war, brought production and business activity to the highest levels in the nation's history. Revenue passengers increased from about 19,000,000 to more than 24,000,000, a gain of 28%, while revenue passenger-miles flown were up 30%, to more than 14,000,000,000. For the first time, U.S. air transportation became a $1,000,000,000 industry.

The figures in Table I include the operations of the five principal divisions of the industry; *i.e.*, the 16 domestic trunk air lines, the 10 international lines under the U.S. flag, the 15 domestic local service air carriers, the 4 certificated cargo air lines and more than 50 irregular service operators. They do not include three territorial air lines, Alaskan air services, other than Pan American Airways, and a substantial number of smaller irregular service carriers for which data were incomplete. Actually, the highest percentage increases during the year were recorded by the local service air lines, the cargo operators and the irregular carriers. The U.S. flag international air lines showed the smallest percentage gain, as shown in Table II.

Passenger traffic on commercial air carriers had by 1951 forged well ahead of Pullman traffic, which totalled 9,340,000,000 passenger railroad-miles in 1950 and was not expected to exceed 11,000,000,000 in 1951. With the introduction in 1952 of lower air-coach fares on a far wider scale than ever before attempted, this dominance of air passenger travel was expected to increase during the year 1952.

The Trend to Lower Fares.—After years of pioneering effort, primarily by the U.S. irregular, domestic operators, the idea

Table II.—*Principal Divisions of U.S. Air Transport*

(Calendar year)

Item	1950 (actual)	1951 (est.)
Revenue ton-miles		
Domestic trunk lines	963,257,032	1,206,808,000
Domestic local service lines	20,267,842	30,868,000
International carriers	319,576,173	356,761,000
Certificated cargo lines	71,415,460	100,000,000
Irregular carriers	113,000,000	186,000,000
Total revenue ton-miles (mail, cargo and passengers)	1,487,516,507	1,880,437,000
Operating revenues		
Domestic trunk lines	$524,108,612	$657,294,000
Domestic local service lines	27,908,802	35,925,000
International carriers	258,405,415	278,916,000
Certificated cargo lines	12,360,169	16,700,000
Irregular carriers	35,813,710	54,500,000
Total operating revenues	$858,596,708	$1,043,335,000

of a second-class or coach service at less than first-class rates finally caught on all over the world. The scheduled air lines of the world were being ushered into the mass transportation business in 1952, almost despite themselves. Instead of about six cents a mile, transcontinental fares on the coach services were expected to average about four cents a mile. Coast-to-coast flights would cost $99 or less. Coach fares between New York city and Miami, Fla., would drop to three and one-half cents a mile, to match those between Los Angeles and San Francisco, Calif. Meanwhile, first-class rates on railroads in the U.S. averaged four and one-fourth cents per mile or higher.

Under pressure from United States carriers, the other member air lines of the International Air Transport association agreed to start transatlantic air-coach service May 1, 1952. New York-London round trips, which formerly cost $711 in the vacation season, would be available, air coach, for $486. An overnight ocean crossing at this rate would put a vacation in Europe within the reach of a greatly increased number of Americans, and it was estimated that total transatlantic air travel would increase from 339,000 passengers in fiscal year 1951 to more than 500,000 by 1953.

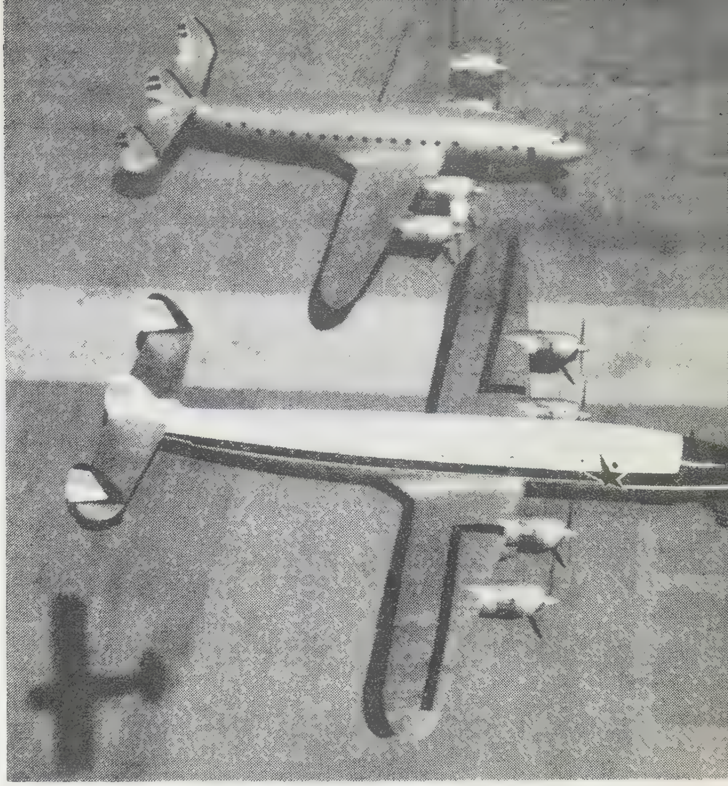
U.S. flag carriers had faced increasingly stiff competition on the heavily travelled Atlantic routes in the previous few years. Immediately after World War II, before Europe had rebuilt its civil air fleet, U.S. operators had the field largely to themselves and carried about 95% of the traffic. By the fiscal year 1951, United States flag lines traffic accounted for only about 60% of the passengers arriving from Europe. (*See* also CIVIL AERONAUTICS ADMINISTRATION.)

Record Transport Backlog.—In anticipation of the rush for coach business, United States carriers had at the close of 1951 a substantial amount of new equipment on order for early delivery. Although about 95% of the U.S. aircraft manufacturing industry's efforts during 1951 was devoted to military production, the demand for modern air transports increased unfilled orders at the end of the year to more than 500 units, representing an all-time high for the industry. Lockheed Aircraft Corp., for example, reported 75 orders for its new L-1049 Super Constellation, which was certificated late in 1951 and had space for up to 93 first-class passengers or 110 coach fares. Late in Dec. 1951, Douglas Aircraft Company, Inc., announced that American Airlines, Inc., had contracted for 25 DC-7 aeroplanes, a new version of the Douglas DC-6B, powered with four Wright Turbo Compound engines rated at 3,250 h.p. each and cruising at 363 m.p.h., with 60 passengers in standard seating or 95 in coach service. Fuel consumption of the compounded R-3350 Turbo-Cyclone engine was 0.39 lb. per brake horsepower, which was virtually half that of existing turboprop engines and about 20% below that of conventional piston engines. Progress on the new twin-engined transport types, the Martin 404 and the Convair 340, was also proceeding on schedule and both were expected to be in service in 1952.

Production of other commercial types, light utility, agricultural and business planes, was seriously affected by material shortages and by military demands during 1951, about 2,300 light planes being built, compared with 3,400 in 1950. This was the lowest ebb since World War II, but it at least resulted in demand exceeding supply for the first time since the immediate postwar period.

The safety record of the scheduled carriers approximated that of the preceding year; *i.e.*, 1.3 passenger fatalities per 100,000,000 passenger-miles. That of the "nonskeds," or irregular carriers, however, which had been outstanding for many months, was marred by a series of C-46 accidents in the closing weeks of the year.

Following lengthy hearings before the committee on interstate and foreign commerce of the U.S. senate, the Civil Aeronautics board established an administrative separation of service-mail pay from subsidy-mail pay. For the fiscal year 1951 the board estimated that a subsidy of $34,565,000 had been included in the total domestic mail pay of $61,934,000 for that period. It was the board's belief that by 1953 the subsidy would decline to about 30% of the total mail pay for that year.

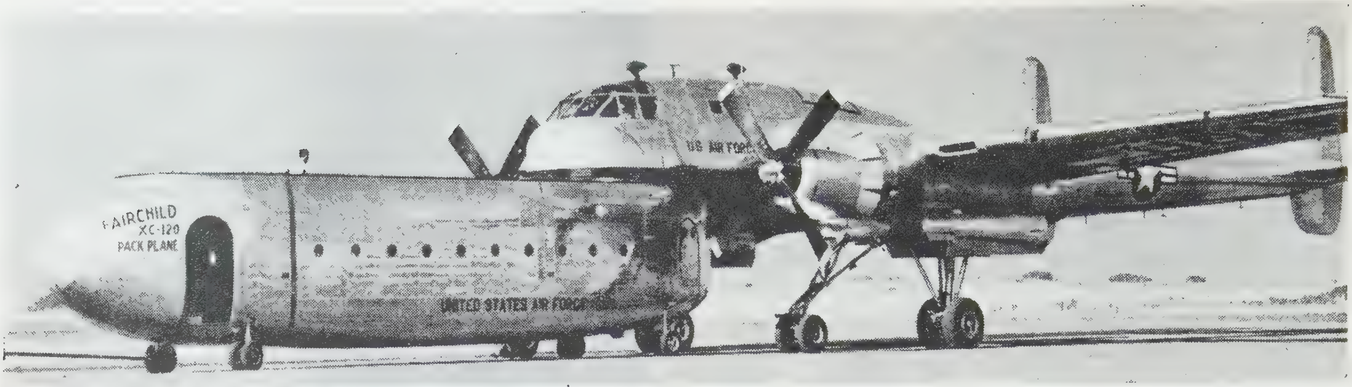

THE LOCKHEED SUPER CONSTELLATION (foreground), first flown in 1951, pictured beside an earlier Lockheed transport. The new air liner accommodated from 54 to 88 passengers, at speeds up to 374 m.p.h.

On Dec. 17, 1951, Secretary of Defense Robert A. Lovett and Secretary of Commerce Charles Sawyer jointly announced a plan for the establishment of a civil reserve air fleet, consisting of several hundred of the four-engined aircraft, with their crews, normally engaged in commercial air transport service. This was the first time that a co-ordinated plan for the mobilization of the civil air industry had been worked out in advance, providing for a sound balance between essential civilian and strategic military air transport requirements.

I.C.A.O. Meetings in South America.—Two important meetings of the International Civil Aviation organization were held in South America during the year. The second Regional Air Navigation meeting convened in Buenos Aires, Arg., in Oct. 1951. It made substantial progress in planning for standard facilities and practices for such aids to air navigation as airports, communications, meteorology and traffic control.

Elimination of red tape for passengers, baggage and aeroplane crews was the objective of the Facilitation conference which met in Buenos Aires in Nov. and Dec. 1951. The conference recommended simplification of international procedures, comparable with those used in domestic services, and the elimination of passenger manifests, consular visas for goods and particularly of transit visas.

Throughout Latin America both domestic and international trunk air routes continued to furnish highly important service for passengers, cargo and mail in an area characterized by formidable geographical obstacles and limited surface transport facilities. Improvements of the Manáos (Brazil) airport on the Amazon river, scheduled for completion during 1952, would permit some major changes in international trunk routes bisecting the South American continent. Other airport improve-



FAIRCHILD XC-120 Pack Plane, which completed flight testing in 1951. Featuring a detachable pod, it could get into relatively small fields, detach its cargo pod and fly away for another loaded pack

ments of international interest were scheduled in 1952 for Quito and Guayaquil in Ecuador. Statistics from Brazil shown in Table III are indicative of the growth of air transportation throughout the American republics. (*See* also Aircraft Manufacture; Aviation, Military; Civil Aeronautics Administration; Jet Propulsion; Petroleum.) (J. P. V. Z.)

Table III.—*Air Traffic in Brazil*

(In millions)

Year	Kilometres flown	Passengers carried	Cargo (kilograms)
1950	91.0	1.7	44.0
1949	72.0	1.3	33.5
1948	69.7	1.1	22.4
1947	54.6	0.8	12.3

Great Britain, Commonwealth and Europe.—Traffic on most air lines was good in 1951 but was accompanied by higher operating costs. Few operating companies made a profit, yet most reported smaller losses and some were evidently approaching a period of prosperity. On a number of routes, fares were increased to meet higher costs and plans were in hand to develop tourist or third-class travel by fitting aircraft with more seats. This plan had already been adopted by Air France on routes between France and French North Africa, as distinct from the method of reducing fares at "off" seasons and in "off-peak" hours. As Air France, alone among the chief European operators, made a profit in 1950, third-class air travel seemed worthy of careful examination.

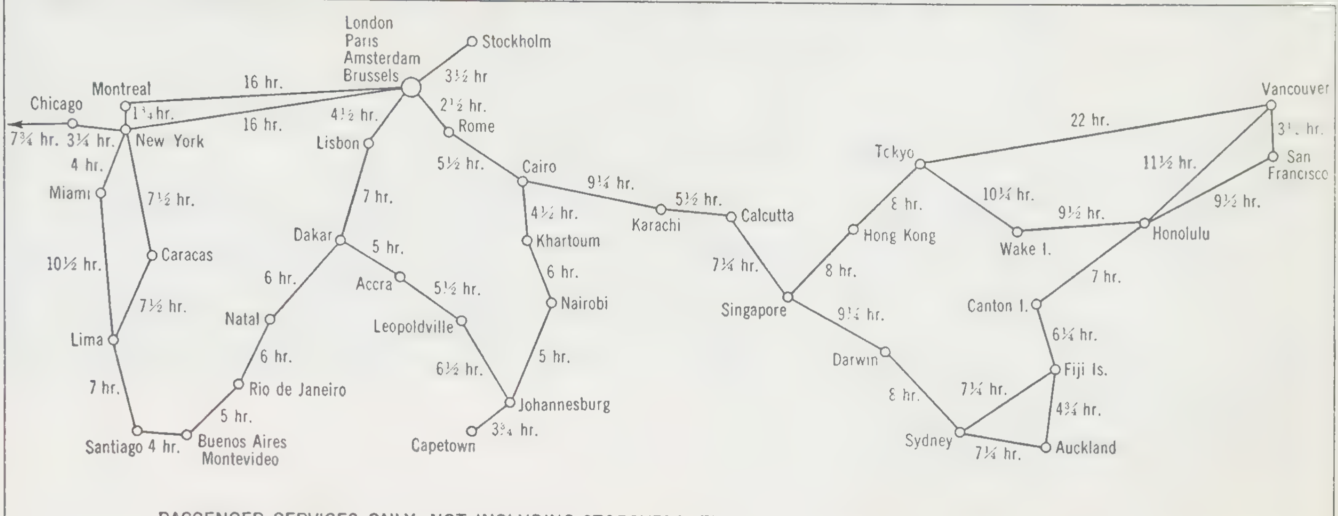
In preparation for tourist traffic, Scandinavian Air services was arranging to fit at need into its Atlantic DC6s 80 seats instead of the normal 69. British Overseas Airways corporation (B.O.A.C.), reluctant to embark on this project until its Comets were in service, was nevertheless contemplating an optional increase in Constellation seats from 43 to 68. Royal Dutch Airlines (K.L.M.), in ordering new Constellations, arranged to have the seats set on rails so that they could be differently spaced for first-, second- and third-class services. Schedules of tourist fares had not been announced at the end of the year, but certain U.S. operators forecast a saving of more than 30% on the return fare between New York city and London or Paris. The expectation was of an average saving of 20% to 25%. Some experience of this type of traffic had already been gained by private charter companies and tourist agencies in transporting holiday parties and groups of emigrants. Given full loads, it had yielded remarkably low fares. The secret was seen to lie in obtaining full or nearly full loads instead of computing fares on a basis of filling 65% of available capacity.

The threat of competition had to be met in one way and another by the big operators throughout the year. South African Airways sought to have K.L.M.'s services between Amsterdam and Johannesburg reduced from two to one a week, but failed. On the London-New York run, British, French and U.S. operators vied with one another in offering luxurious travel. K.L.M.'s contribution to the summer attractions on the Atlantic route was an all-sleeper service with 30 berths instead of the customary 43 seats in its Constellations.

In these efforts was reflected the desire to continue the improvement shown in the previous year's accounts. B.O.A.C. in 1950–51 had reduced its deficit by £3,250,000 but was still left with a loss of £4,500,000. The loss of the British European Airways corporation (B.E.A.) was reduced by 28% and stood at £979,267. K.L.M.'s deficit of £3,500,000 in 1949–50 was brought down to about £1,000,000. Sabena, which had lost £636,800 the previous year, was reported as breaking even. Swissair, with more traffic, still suffered a loss largely through the effects of devaluation. Scandinavian Air services too had a deficit. The only profit was earned by Air France and that amounted to £10,500. There were profits for some of the smaller companies. Aer Lingus showed a profit of £14,646; Cyprus Air Lines made £17,478 and Iberia, the Spanish company, made £258,212. All the evidence pointed to the willingness of the public to make increasing use of the air services and to the difficulty on the part of the operators in preventing increased revenue from being defeated by increased costs. K.L.M. with 16,000 more passengers, 3,700 tons more of freight and revenue up by 44% still lost money. B.O.A.C., flying 26% more passenger-miles, having revenue increased by £4,750,000 and staff reduced by 1,340 in the year, still showed a large deficit, though with still further improved traffic in the first half of the year 1951–52 it made a profit of £113,000. B.E.A.'s traffic in 1950–51 was so much improved that revenue advanced by 30%, but operating expenditure increased by 20.9%. B.E.A. also showed a profit of £243,000 in the first half of the year 1951–52.

In preparing for the future, few operators were ready to embark straight away on the use of jet or turboprop aircraft. B.O.A.C. remained fully committed to the use of the Comet jet liner from 1952 on main routes where stage lengths up to about 1,500 mi. were normal and it looked for the first deliveries of the turboprop Bristol 175 liners about a year later. It had also ordered some of the later Comets which, with Rolls-Royce Avon engines, were estimated as suitable for 2,000-mi. stages while carrying the same pay load of 14,000 lb. The first of these was expected during 1953. Orders for this make of Comet were placed by Panair do Brasil. Two of the earlier Comets were still on order for Canadian Pacific Airlines. Intended originally for the arctic route between Vancouver and Tokyo, these were now said to be planned for use on those stages of the company's route to Australia which lie south of Honolulu. Air France, too, showed much interest in the Comet; it raised its order for Viscount turboprop liners from 5 to 12. B.E.A. began acquiring experience with turboprops by fitting two of its freighter Dakotas with Dart engines similar to those used in the

WORLD AIR DISTANCES IN HOURS, 1951



PASSENGER SERVICES ONLY, NOT INCLUDING STOPOVERS. TIME SHOWN IS FOR FASTEST SCHEDULED FLIGHTS

Viscount, 22 of which it had on order. First impressions of this turboprop in heavy service were extremely good.

Beyond this, active interest in the gas turbine for commercial purposes did not go in 1951, although anxiety among some U.S. operators lest they should find jet competition hard to meet was evident. In Europe the general tendency was to stick to established types. K.L.M. boldly declared its lack of faith by ordering five of the new Constellation 1049Cs and taking an option on four more. Sabena added two more Convair liners to its fleet, making a total of eight. Most of the other principal companies continued to rely on Constellations, DC-4s and DC-6s.

This disinclination to abandon the piston engine rested almost wholly on fears of the gas turbine's high fuel consumption, particularly at low levels. Operators foresaw serious difficulties, especially in European winter weather, if gas turbine aircraft were kept waiting to land, and were not persuaded that traffic patterns at the approaches to busy airports could be sufficiently adjusted to diminish delays. British authorities, after nearly two years of flight by the Comet along the principal European routes, acknowledged the need for careful organization but did not share the general scepticism concerning the prospect of an early solution.

B.O.A.C., after a full eight months of route survey flying with the Comet on the runs to Johannesburg and Singapore, was equally hopeful of control modifications sufficient to meet the Comet's high speed and critical endurance limitations at airport approaches.

In the face of all doubts and disbelief B.O.A.C. was preparing to put Comets on the run to Cairo early in 1952, and to extend their service subsequently, first southward through Africa to Johannesburg and later eastward through Pakistan and India to Singapore and ultimately to Australia. It had plans also for starting late in 1952 a Comet service between New York and Bermuda and afterward between New York and Nassau. Confidence in these prospects led the corporation to begin trimming its fleet. It sold 23 Yorks and 4 Hermes IVs and declared a fifth surplus to requirements. It finally declined the three 140-ton Princess flying boats which were being built for it, and these were promised to the R.A.F. for troop carrying. Meanwhile, B.E.A., which had expected to have the use of its Ambassador aircraft to help with the heavy summer traffic, was still without them at the end of the year, mainly because of modifications to reduce the drag of the engine cooling system and to improve radio reception. There was some delay, too, in the conversion of 26 Dakotas into Pionairs with four extra passenger seats and a crew of two instead of three. Nevertheless the corporation contrived to carry 1,000,000 passengers in the year and to become the first operating company outside the United States to do so.

All lines working between Europe and the far east in the second half of the year were at some disadvantage through the cessation of fuel supplies from Abadan. The effect was to restrict the fuel available at places east of Iran. B.O.A.C. cancelled for a time its freight services between London and Singapore. No passenger service was abandoned but charter flights to the far east became impossible. In consequence the movement of goods by air to the far east was subject to delays; congestion was increased by the heavy loads of Christmas traffic and mails and delay at one time amounted to more than a month.

In November B.O.A.C. restored one of its freight services to Singapore.

British helicopter services were continued throughout the year. The original passenger service between Liverpool and Cardiff was discontinued and a new one, over 95 mi., between London and Birmingham was started. (E. C. Sd.)

Films of 1951.—*Fred and Billy Take An Airplane Trip* (Coronet Films).

Table IV.—*United Kingdom Civil Air Traffic*

Item	All services* 1950–51†	All services* 1949–50	Internal 1950–51†	Internal 1949–50	External 1950–51†	External 1949–50
Miles flown (000) . . .	50,609	44,516	7,095	6,151	43,514	38,365
Passengers carried (000)	1,201	971	488	461	713	510
Passenger-miles (000) .	865,583	643,064	80,968	74,267	784,615	568,797
Freight (000 short tons)	22,037	16,547	2,203	2,145	19,834	14,402
Freight (000 short ton-miles)	26,330	20,599	404	405	25,926	20,194
Mail (short tons) . . .	7,531	6,177	1,653	1,435	5,878	4,742
Mail (000 short ton-miles)	14,214	12,063	274	238	13,940	11,825

*B.O.A.C., B.E.A. and associated companies. †Including B.O.A.C. charters.

Table V.—*Revenue Statistics for British Air Lines**

(Financial years, April 1–March 31)

Item	B.O.A.C. 1950–51	B.O.A.C. 1949–50	B.E.A. 1950–51	B.E.A. 1949–50
Operating revenue	£24,252,115	£19,530,584	£8,998,821	£6,884,935
Operating expense	27,564,071	26,102,495	9,796,079	8,104,285
Operating deficit	3,311,956	6,571,911	797,258	1,219,350
Nonoperating expense . . .	1,253,472	1,219,976	182,009	144,244
Total deficit	4,565,428	7,791,887	979,267	1,363,594

*Figures exclude profit or loss on disposal of assets and redemption of stock.

Aviation, Military.

United States Air Force.—During the year 1951 the U.S. air force made considerable progress toward the goal of attaining, by the end of fiscal year 1952, a modernized 95-wing air force with the necessary supporting units. In November an acceleration of this expansion appeared in prospect when Pres. Harry S. Truman and the national security council approved recommendations of the joint chiefs of staff that an air force of 143 wings (including 126 combat wings) be achieved during 1954.

Approximately 150,000 individuals ordered into active military service from the reserve forces were absorbed into the air force with a minimum of indoctrination and training. In October the air force announced a revised, long-range program for the training and recall of reserve forces. The new program provided for technical training of air force reserve personnel by civilian schools under government contract and the complete integration of the reserve organization, its administration, training and supply, with the regular establishment.

The number of air force R.O.T.C. units was increased from 125 to 187. The training program at air force bases for foreign military personnel under the Mutual Defense Assistance program was greatly expanded. The air defense command assisted in recruiting and training approximately 112,225 civilian volunteer members of the ground observers corps, an adjunct of the Aircraft Warning and Control system (radar screen to detect approaching enemy aircraft) the near completion of which was announced in Oct. 1951.

The installations structure of the air force was re-evaluated in the light of defense and training needs. The increase in personnel required additional and expanded facilities, especially of bases for training. Many World War II bases in the continental United States were not properly located for air defense operations or for strategic counterattack. Construction of new bases, rather than the reactivation of former bases, was necessary in only a few cases, but many facilities had to be modernized at existing bases. Bases in Greenland, England, France and elsewhere were activated or were under construction to support the forces of the North Atlantic Treaty organization.

Procurement of aircraft was programmed to meet operational requirements in Korea and throughout the world and to anticipate future requirements. Contracts for production of the Canberra, the British-designed jet bomber (the first jet aircraft to fly the Atlantic nonstop without refuelling), as a night intruder aircraft (the B-57A) were let in March, and announcement was made of the commencement of ground tests on the B-60, a swept-wing, all-jet version of the B-36 bomber. The B-52, a new all-jet, long-range strategic bomber, was ordered into production. There was a step-up in production of the F-89 (Scorpion) twin-engine, all-weather night fighter and the B-47 Stratojet, a six-jet medium bomber.

The year saw development in such fields as air transport, the convertiplane, jet engines, guided missiles, swept-wing aircraft and rocket-assist take-off. Announcement was made in February of a contract for the development of the first nuclear propulsion unit for aircraft, and in September a contract was let for the building of the first atomic-powered airframe. (*See* also Atomic Energy.)

The Air Pictorial service was established in March to handle all photographic activities of the air force except combat photography. On Sept. 19 President Truman signed the Air Force Organization act of 1951 (public law 150), the first detailed organizational legislation affecting the air force, and an act that established by law the three major commands of the air force.

The 1st pilotless bomber squadron (light) was activated on Oct. 1 at the U.S.A.F. missile test centre, Cocoa, Fla. This unit, equipped with the B-61 pilotless bomber (the Matador), was the first unit of its kind in the air force.

Increased attention was given to the recruitment of women in the air force, with a new personnel goal of 48,000 set. In March the first woman physician to be commissioned in the air force medical service was sworn in as a captain.

While support of the United Nations forces in Korea was given priority in air force operations during the year, increased support was given Gen. Dwight D. Eisenhower's North Atlantic Treaty organization (NATO) force. In May the 3rd air division (formerly an independent command with headquarters in England) became the 3rd air force and was made a part of the United States air forces in Europe (U.S.A.F.E.) under Lieut. Gen. Lauris Norstad, who also commanded the central European components of the U.S. and Allied air power assigned to Supreme Headquarters Allied Powers in Europe (SHAPE).

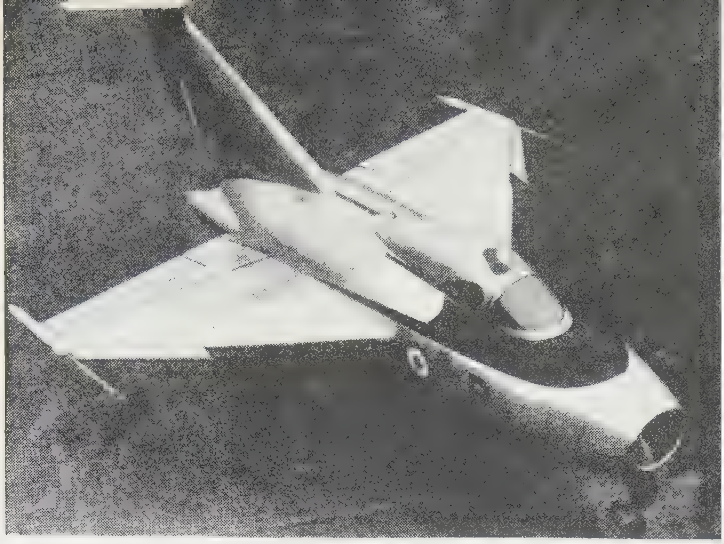
In mid-January six B-36s flown from Carswell air force base, Tex., via Limestone, Me., to Lakenheath, Eng., and nonstop from England to Texas on a routine training mission, were the first B-36s to appear in Europe. On May 7 a small number of air force personnel arrived in Iceland to help strengthen the defenses of that country. The 433rd troop carrier wing, an Ohio air reserve unit activated in Oct. 1950 and flying C-119s, became the first air force combat unit to be permanently assigned in Europe since World War II and the first United States air unit specifically assigned to NATO. It arrived at Rhein-Main air base on July 29. The first unit of the 81st fighter interceptor wing, a squadron of F-86s, arrived in England in August, the first foreign air unit to become an integral part of the United Kingdom's air defense. The 126th bomb wing (B-26), a former air national guard wing with units from Illinois and Missouri, activated in April, was transferred to France, to be based at Bordeaux-Merignac aerodrome, the first U.S. combat force based in France since World War II.

Problems relating to the tactical support of ground forces were investigated during Exercise "Southern Pine," held in August in North Carolina. This joint manoeuvre involving both army and air force personnel (including W.A.F.) was concerned with establishing and holding an air head. The exercise involved participation by the 9th air force and major elements of the 18th air force, and gave operational training to two army divisions about to be transferred to Europe. In October the air force participated with the army and navy in Exercise "Desert Rock," atomic warfare training in connection with tests of nuclear weapons at Frenchman's Flat, Nev.

In Korea, aircraft under the operational control of the far east air forces flew a total of 336,063 sorties through Nov. 27, 1951. During the same time, 354 aircraft of all types were lost to enemy fire.

The U.S. far east air force flew approximately 615 sorties daily in support of ground action—most of them against ground targets from below 500 ft. altitude in the face of heavy automatic weapons fire. U.S. heavy bombers dropped tons of propaganda leaflets over enemy territory, and night bombing attacks increased steadily. Radar aiming techniques were improved to where the night attacks attained accuracy comparable to visual aiming methods. Particularly successful were the employment of B-26s against rolling stock and vehicles, and the B-29 strikes against Communist airfields. From August to mid-December, Operation "Strangle" exploited the dependence of the Chinese upon supplies from China and the U.S.S.R. U.S. air attacks destroyed great quantities of Communist equipment: 67,850 vehicles, 1,236 locomotives, 23,500 railroad cars and 1,820 tanks were destroyed or damaged. The Communists suffered an estimated 138,388 casualties caused directly by air action.

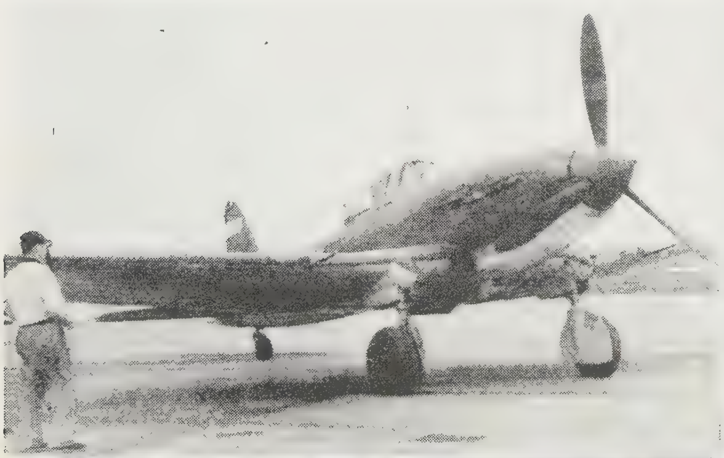
The air force F-80 (Shooting Star), the faster F-84 (Thunderjet) and the still faster F-86 (Sabre jet) performed well against

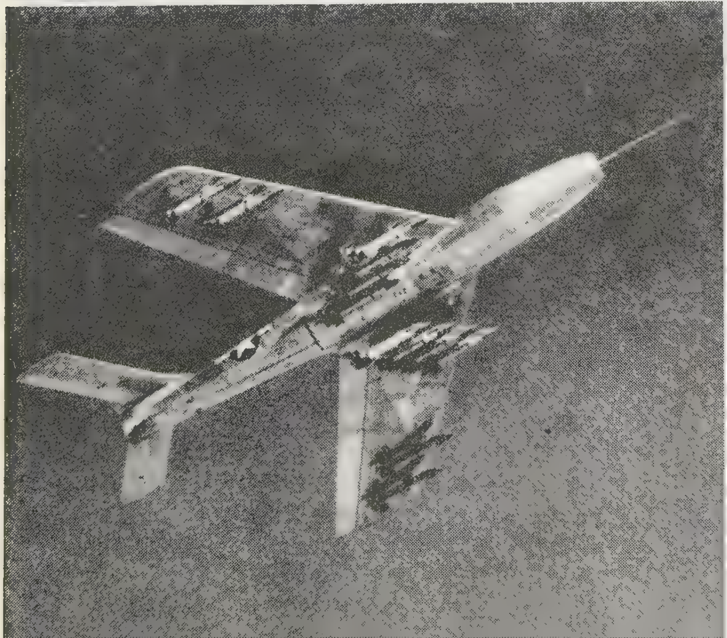


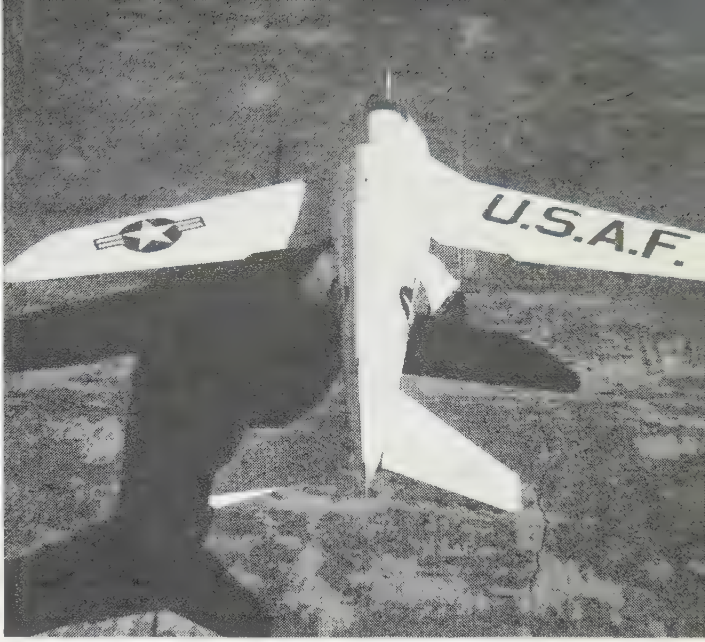
Above: FAIREY F.D. 1, British tailless jet plane with swept-back wings, being readied for its first flight tests in March 1951

Right: NORD 2501, French plane equipped for the transport of vehicles, passengers, casualties and parachute troops

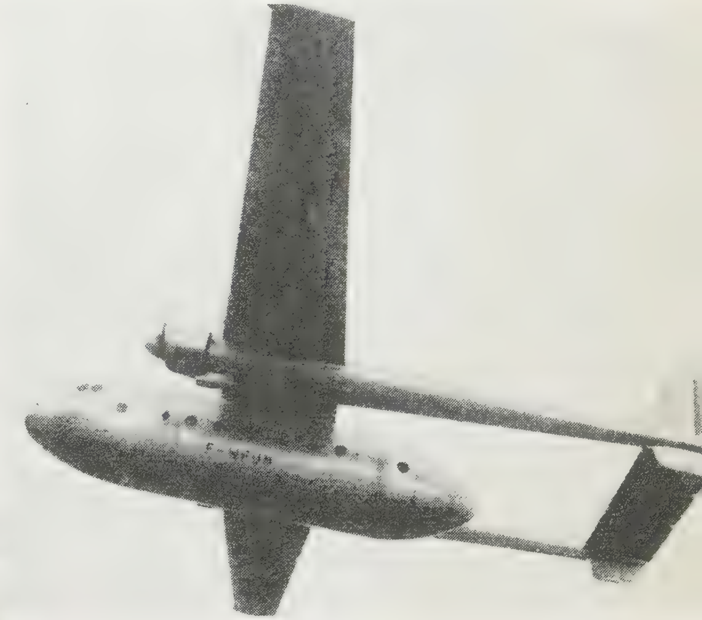
Below: SOVIET-BUILT IL-10, a heavily armoured ground-support and reconnaissance plane captured in Korea, under flight evaluation tests at a U.S. air force base in 1951





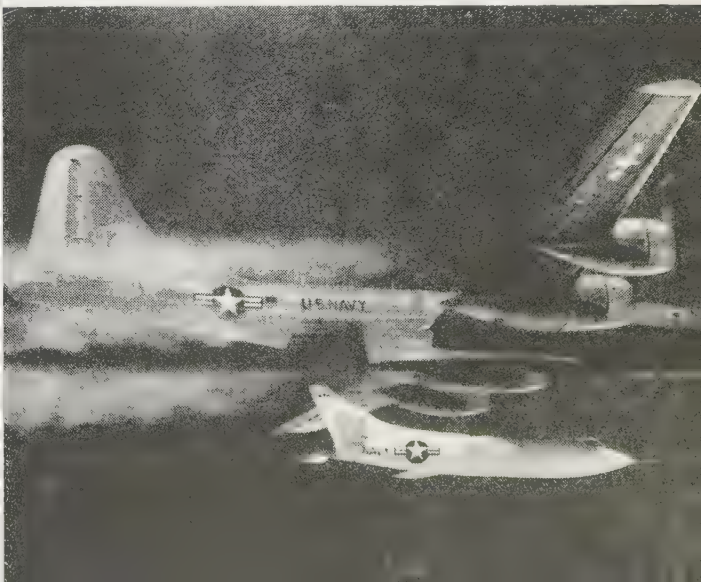


Above: THE BELL X-5, which made its appearance in 1951 as the first plane with variable wing sweepback. The wings, shown here in forward position, could be swept farther back to obtain greater speeds



Lower left: REPUBLIC YF-96A Thunderjet, 1951 addition to the U.S.A.F. team of jet fighters and ground-support planes

Below: DOUGLAS D-558-2 SKYROCKET (bottom) being launched from a B-29. An experimental rocket-powered plane, it set world records in June 1951 for speed (1,300 m.p.h.) and altitude (70,000 ft.)



the soviet-built MIG-15, an aircraft comparable in performance to the U.S. F-86, employed by the Communist forces, but a careful assessment of combat air action in Korea indicated that the real superiority of United Nations air forces over Communist air forces was in fire-control equipment and in the training and skill of U.N. pilots.

From Nov. 1, 1950, when the MIG-15 first made its appearance, through Nov. 28, 1951, the day of the provisional cease-fire, the U.S.A.F. lost 26 jet aircraft to enemy air-to-air action. During the same period it destroyed 152 Communist jets and probably destroyed 51 more—all MIG-15s.

At the beginning of the year, the air force had 560,000 personnel and 58 wings. As of Oct. 31, 1951, the air force had 88 wings and its personnel strength was approximately 840,000, of whom less than 8% were officers. Women numbered approximately 12,000 of the aggregate. The 95-wing air force had a personnel goal of 1,061,000.

Casualty statistics as of Nov. 23, 1951, indicated a total of 305 deaths, and 539 still missing in action, during the 16 months of the Korean war. (*See* also ATOMIC ENERGY.) (H. S. VG.)

United States Navy.—Naval aviation continued throughout the year to support United Nations forces in Korea. A fast carrier force generally including three carriers operated in the Sea of Japan; a support force composed of light and escort carriers with marine squadrons aboard operated from the Yellow sea; marine corps aviation units, including two all-weather squadrons, operated from land bases under the U.N. far east air forces; and patrol squadrons with both land and seaplane types operated from Japan and Okinawa and from tenders in the Pescadores Islands.

The combat operations of naval aviation forces were all in support of the ground campaign and therefore varied with the ground situation. In January, when United Nations forces were deploying to defensive positions below the 38th parallel, emphasis was on support of troops at the battle line. When red forces were stopped and United Nations forces began their slow but steady advance northward, naval and marine aircraft shifted the weight of their attack to interdiction. By scheduling alternate replenishment periods for individual ships, continuous air operations were conducted with only a few days in port each month for rest and recreation. Fast carrier aircraft attacked targets over the entire peninsula, but their main effort was in the east and northeast sectors. By attacks on enemy supply arteries in these areas, carrier aircraft reduced enemy movement and made it increasingly difficult for the enemy to support troops committed to battle.

In terms of World War II experience, the total naval aviation force was small, but its achievement in some respects surpassed the efforts of that conflict. The sortie rate, for example, was higher, the combat employment of carriers was on a more continuous basis, and the ordnance expenditure not only exceeded the per flight delivery but force expenditure rate was also higher. For the first time, naval aircraft continuously supported a large army in an extended campaign over a relatively large land mass.

From the opening of hostilities in June 1950 through Oct. 1951, naval and marine aviation forces flew more than 110,000 sorties in the combat theatre. In addition to defensive missions, reconnaissance patrols and a small percentage of noncombat flights, 69,200 sorties were offensive in purpose. In close air support alone, 34,800 sorties put aircraft over the battle line for 33,300 hours in which time they made 229,700 bombing, rocket and strafing runs on specified targets. U.S. naval and marine aircraft contributed approximately one-third of U.N. combat sorties in Korea.

These combat operations required logistic support. In the immediate area, the at-sea replenishment group furnished aircraft, fuel, ammunition and other supplies to ships of the carrier forces. Shore bases in Korea, Japan and on Okinawa supported patrol and land-based marine squadron operations and housed maintenance and service units.

Facilities at Yokosuka and Sasebo provided replenishment and repair services to the ships in port.

The requirements of Korean operations gave impetus to development programs and caused an expansion of the entire naval establishment. Since June 1950, 42 squadrons of the organized reserve had been recalled to active duty. During 1951 the number of aircraft in operating status increased by 500, officers and men in the aeronautical organization rose to 137,000 and the flight training program was enlarged to produce 1,800 pilots per year. The reactivation of aviation ships brought the number of operating carriers to 27, of which 3 were "Midway"-class, 9 "Essex"-class, 5 light and 10 escort types. A contract for the construction of a 59,900-ton flush deck carrier was let in July. For mobile support, two aviation supply and four aviation repair ships were also reactivated.

Helicopter research indicated the possibility of adapting jet engines to this type of craft. Their first use would be in a cargo unloading model, which was already in construction. Tests of guided missile launching from ships were continued. Air-to-air types were also readied for operational evaluation. An experimental aircraft, the Douglas Skyrocket, in breaking all existing speed and altitude records, furnished additional data in high-speed research. The XF4D, a delta-wing carrier jet fighter designed for high-altitude interception, passed its initial flight test. The tactical adaptation of new equipment to anti-submarine warfare and other naval combat functions was under continuous study, particularly in operations co-ordinating air, surface and subsurface forces. (*See* also NAVIES OF THE WORLD.)

(J. H. C.)

U.S.S.R.—Reliable production figures were still entirely lacking in 1951. Guesses as to annual output ranged from 5,000 to 15,000 and for available combat aircraft, up to 20,000. But no one outside the Kremlin really knew. Comfortable theories had been advanced to the effect that although soviet technical skill remained as good as that of any other country, capability to organize production in quantity was still lacking. This was an unfounded and unsafe assumption, however. Many capable German production people disappeared into the U.S.S.R. in 1945—men with a first-hand knowledge of turning out aircraft under the most adverse conditions in wartime. It would be unlikely that the experience they gained would be overlooked by U.S.S.R. planners. Such assistance, coupled with the fact that Russian aircraft manufacturing plants were neither destroyed during World War II nor shut down afterward should give pause to any facile discounting of soviet production potential. Large aircraft, engine and accessory manufacturing centres probably had been built deep in the central Asiatic regions, but their exact location and their production rates were not known.

Information on soviet aircraft, apart from observations made during the Korean war, came largely from reports during annual aircraft parades over Moscow, and from scattered sightings of new planes over the Russian-held zones of western Europe. It was, therefore, fragmentary and had always to be recognized as somewhat out of date when published.

Such observations, also, yielded information only on the general performance. They told nothing of what was inside the shell—what engines were used, or what kind of armament or radio gear was carried. For example, although the existence of the so-called MIG-15 had been reported for at least five years, it was not until one was shot down in Korea in the summer of 1951 that its power plant was identified with any certainty.

It became known that the Russians had combined the best of British and German jet engine practice into efficient designs of their own. They had not been blind copyists, but had made improvements in line with modern design, metallurgical and production techniques. There was no reason to believe that Russian jet engines in use or under development in 1951 were inferior in any way to those on test beds in other parts of the world.

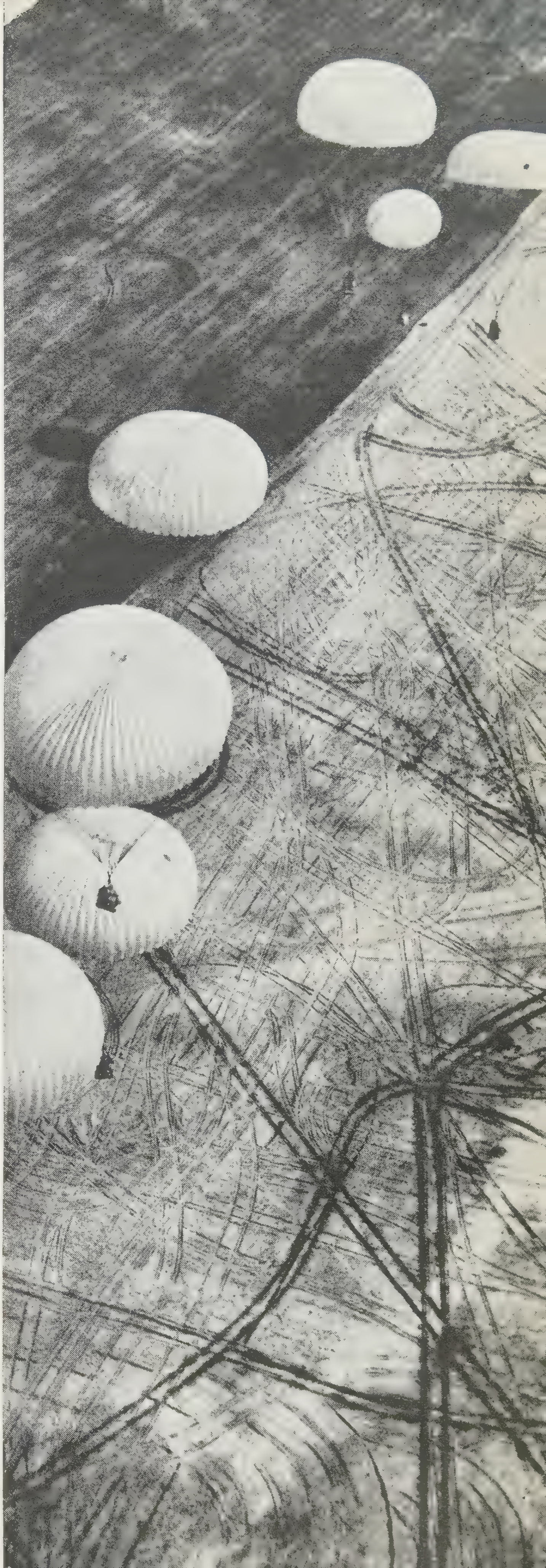
The same could be said of armament. Although the experience of the Korean war had indicated that the larger (37 mm.) calibre, slower-firing aircraft cannon fitted in the MIG's were not as effective for air-to-air jet combat as the U.S. smaller-calibre, higher-firing-rate guns, that lesson had not been lost on the Russians. Meanwhile, the larger cannon were known to be excellent for ground support tactics. The soviets had long been proponents of aircraft rocket ordnance. Their wing-carried rockets were highly developed during World War II, and with the aid of German rocket experts it seemed probable that this form of ordnance had not been neglected. Whether or not they had developed anything new in proximity-type fusing was speculative, but the operating principles of this useful device were so universally well known that its use by the Russians was a practical certainty.

The greatest probable soviet weakness in 1951 lay in the area of application of electronic devices. A modern military aeroplane is little more than an aerodynamically shaped housing around a maze of electronic-actuated control, navigating, gun-aiming and gun-firing gadgets. As speeds and general performance of aircraft go up, the human pilot must rely more and more on "quick-thinking" vacuum tubes and electronic circuits to do his work effectively. U.S. aircraft and missile designers had a vast reservoir of radio technology and a tremendous electronic equipment manufacturing capacity at their beck and call—an asset that seemed almost entirely lacking to the Russians.

Few new aircraft types were identified during 1951. There were rumours of a new swept-wing fighter (tentatively designated as a MIG-17) seen both in Korea and in western Europe, which evidently outperformed the five-year-old MIG-15. Also a tailless type, probably a development of a German Heinkel fighter of 1945, was reported flying in the vicinity of Moscow. Delta-wing designs for very high speeds were well along in German experimental plants before the end of World War II, and it is certain that soviet designers were exploring the possibilities of this type as supersonic interceptor fighters, as were Great Britain and the United States. Power plants for such machines would undoubtedly consist of combinations of rocket motors and ramjets.

In the bomber field no startling developments came to light in 1951. There were rumours of a large long-range intercontinental type similar to the U.S. B-36, but no confirmation from sightings or other sources. Meanwhile the TU-71, a soviet adaptation of the B-29, continued to be the basic heavy bomber. These machines could carry an atomic bomb on one-way missions to many key cities of the United States.

More detailed information on the configuration and characteristics of the TU-10 medium twin-jet bomber came to light during 1951. This machine carried a crew of three. It could be adapted to a wide range of tactical and training uses with easy modifications of its armament and equipment. It was thoroughly modern in design and construction. Its two jet power plants, believed to be 6,000-lb.-thrust soviet versions of the British Rolls-Royce Nene engine, gave the TU-10 a probable top speed of about 580 m.p.h.



PARACHUTE DROP of seven 2,500-lb. bundles calculated to supply a U.S. battalion for a day

From the standpoint of aircraft design and production, none of the soviet satellite states was thought to be active in 1951. Certain research centres outside the U.S.S.R. (*e.g.*, the rocket and guided missile testing station at Peenemunde, Ger.) were being used, but under soviet control. There were apparently scattered manufacturing plants building Russian-designed aircraft in the soviet zone of Germany and in eastern Europe, but, as was illustrated by the capture of a U.S.A.F. C-47 transport in Hungary, and by the experience in air fighting in Korea, the Soviet Union's satellites were being supplied with Russian aircraft probably flown by Russian military pilots.

Great Britain and the Commonwealth.—Although British aircraft production fell to a low ebb in the five years following World War II, research and development programs, particularly in the field of high-speed jet aircraft, were maintained at reasonable levels and in 1951 were beginning to bear fruit in the form of fast fighter and bomber prototypes.

Prototypes of Great Britain's first four-engined jet bombers were flown in public at the Farnborough show in September. The Vickers Valiant was a swept-wing machine powered with four Rolls-Royce Avon jet engines completely housed in the wing root. The Short brothers SA/4 was a large monoplane with a pair of Avon engines, mounted one above the other and fitted into a single nacelle mounted on each wing.

The word "prototype" is significant because the important new British aircraft were for the most part just that. Production in quantity was still several years away. Meanwhile, the old post-World War II standbys, the Vickers Vampires and Venoms and the Gloucester Meteors, continued to form the backbone of the R.A.F. fighter command. These jet fighters were also being produced for several nations, including France, Belgium, the Netherlands and the Scandinavian countries.

During 1951 Armstrong Whitworth put a new two-place twin-jet night fighter into production, the MF-11. A development from the Gloucester Meteor, it was fitted with Rolls-Royce Derwent engines. It was said to be very fast and capable of a variety of missions at night and in foul weather.

On the bomber side, the English Electric Canberra in the medium twin-jet category went into limited production and the first of the jet bomber squadrons using these machines was put into commission by the R.A.F. The Canberra was also licensed for production in the U.S. by the Glenn L. Martin company of Baltimore, Md.

HELICOPTER AMBULANCE just after landing a wounded U.S. soldier in Japan for emergency treatment in 1951. Front-line use of helicopters became increasingly important during the year, not only for medical evacuation but for the landing of troops and equipment and for reconnaissance work

For the royal navy production types included the Hawker Fury jet fighter, the Vickers Swift swept-wing jet fighter, the Westland Wyvern torpedo carrier and the Fairey Gannet, a turboprop anti-submarine aircraft. The jet-powered Saunders-Roe seaplane fighter Saro-SR/A1 was subjected to extensive testing in 1951 but was not yet in production.

The first of the Saunders-Roe Princess-class flying boats of 140 tons gross weight was being readied for flight tests at the end of 1951. Three of these large eight-engined flying boats were under construction. Originally intended for commercial use, it was believed they would be diverted to the military for long-range transport of troops. A larger Duchess class was in design stages.

Most interesting of the British types flown during 1951 was a group of research aircraft intended for the study of flight at supersonic speeds. None of these machines had any immediate military value but they forecast the trends in combat designs. Three, the Fairey FD-1, the Avro 707 and the Boulton Paul P-111, were of the so-called delta-wing configuration, resembling somewhat the paper darts made by schoolboys. (The U.S. and probably the U.S.S.R. were also working on research machines of the same type.)

During 1951 British jet engine development continued at a high level. No new types were announced but work progressed toward the attainment of high thrust and greater reliability. A number of engines that were considered experimental in 1950 were put into production in 1951; for example, the Rolls-Royce Avon was now specified for two R.A.F. fighters and two bombers, and plans for putting it into production in at least seven factories in England were being pushed at the end of 1951. The latest Derwent (the Mark 8) was also high on the Rolls-Royce production schedule.

De Havilland's Goblin and Ghost fighter engines were being widely used. The latest Goblin 35 had a rated sea-level thrust of 3,500 lb., the larger Ghost (5,000 lb. sea-level thrust) was fitted in a number of current R.A.F. and R.N. fighters, and the M-50 model powered the de Havilland Comet transport.

The Armstrong Siddeley Sapphire, with more than 7,500 lb. sea-level thrust, was one of the largest British jets. During 1951 the Wright-Aeronautical corporation of Wood-Ridge, N.J., was licensed to build this engine in the U.S.

In the so-called turboprop field (a conventional gas turbine driving a conventional propeller), two engines added considerable military significance in 1951, particularly for the R.N. The first was the Armstrong Siddeley Double Mamba fitted in the Fairey Gannet. It consisted of two Mamba turboprop engines mounted side by side, connected to a common gearbox and driving two separate four-bladed propellers on coaxial shafts. The other was the Armstrong Siddeley Python used in the Westland Wyvern torpedo carrier. This engine was rated at more than 3,500 shaft h.p. plus 11,000 lb. direct thrust at sea level.

Although active development on all types of piston engines had ceased in Great Britain, a number of older models were still in production for propeller-driven bombers and trainers. Among them, Rolls-Royce Merlins and Griffons were of Battle of Britain fame. One innovation was revealed by Napier in the form of a compound engine consisting of a piston engine with direct connected exhaust-driven turbine, but its application was as yet unannounced. It was rated at 3,000 shaft h.p. plus 320-lb. thrust.

In addition to the conventional types mentioned above, a great deal of work was known to be going forward in Great

Britain on rocket engines, both for supersonic aircraft and for guided missiles. The only public announcement in this field, however, concerned the Armstrong Siddeley Snarler, a 2,000-lb.-thrust liquid-fuel rocket unit which was demonstrated as an assisted take-off device on the Hawker P-1040 experimental jet fighter.

The commonwealth countries contributed little to British air power in 1951. Canada was in the lead with a two-place, long-range, twin-jet all-weather fighter, the Avro CF-100 Canuck. The power plant was to be the Canadian-built Avro Orenda jet engine. The prototype was flown in 1950, and limited production began in 1951. Canadair Ltd. of Montreal (a subsidiary of the U.S.-owned Electric Boat company) began quantity production on the North American (U.S.) Sabre jet fighter during the year.

In Australia, activities were limited to the development of jet-powered target drones, expendable radio-controlled aircraft for gunnery practice. It was known also that test flying had been initiated in the rocket testing ground at Woomera in South Australia. Several British guided missile manufacturers started test programs at Woomera.

Other Countries.—It was significant that tabulations of the air strength of the North Atlantic organization countries in 1951 showed that practically all the fighting squadrons that could be put into action immediately were made up of aircraft of British or U.S. origin. The sole exception was Sweden, which listed a couple of jet fighters of Swedish design and construction. France, once the top air power of the world, with an extensive manufacturing industry, had nothing to offer but a scattering of prototypes of only average capability for military use.

Below, listed in alphabetical order by country, are notes on the status of military aviation in areas of any significance in the world air power picture of 1951.

Argentina.—Argentina was the only country in South America where any military aircraft of modern design had been built, probably because of the presence of certain former French and German designers such as Kurt Tank and Amelio Dewoitine. The former was responsible for a high-performance, single-seat, swept-wing fighter, the I.Ae.33 Pulqúi II, powered with a British Rolls-Royce Nene jet engine. Dewoitine designed the I.Ae.27 Pulqúi I, also a Nene-powered jet fighter of less advanced type. This work was conducted at the Instituto Aerotecnico at Córdoba, a government-owned establishment. It was said to be the largest aircraft manufacturing plant in South America with a reported employment of more than 6,000 people.

Denmark.—This country was reported planning a 15,000-man air force by 1954, but had to rely on other countries to supply the necessary aircraft. During 1951 a certain amount of underground airbase construction was rumored.

France.—The 19th *Salon de l'Aéronautique* held in Paris in the summer of 1951 revealed that the five-year rearmament plan for the French air force introduced by the secretary of state for air André Maroselli in 1947 was progressing, but slowly. On the civil side, a number of transport, cargo and general utility types turned up, but the results for the military were disappointing. The only production was in British de Havilland Vampire, Mark 5s with British engines, and in Dassault MD-450 Ouragans. The latter was a strictly French design of excellent performance. It was powered with Hispano-built Nene engines. A later Dassault jet fighter, the Mystere, was flown in prototype and was reported to show great promise, from the standpoints of both performance and production. First models of the Mystere were flown with British-designed, French-built Rolls-Royce Nene and Tay engines, but production machines were expected to be fitted with a French jet engine, the Atar, designed and built by Gnome-Rhône of Paris. At least three other jet fighter prototypes were tested during 1951, but their performance and production programs were still unknown. Two twin-jet fighter bombers of advanced design, the Société Nationale de Constructions Aéronautiques de Sud-Ouest 4000 and the S.N.C.A. de Sud-Est Grognard I, were test flown, but would probably not figure in production programs for some time.

French aeronautical research and development remained under the direction of the Office National d'Etudes et des Recherches Aéronautiques (O.N.E.R.A.), with technical headquarters at Châtillon and principal test stations at Chalais-Meudon and at Modane in the French Alps. At the latter, large supersonic wind tunnels had been installed and were scheduled to go into operation late in 1951. The French aircraft industry was still suffering from the physical disruption of the German occupation and the political disruption engendered by partial nationalization. Several years more would probably be required before satisfactory solutions of either of these problems could be found.

Italy.—The Italian aircraft industry, almost totally destroyed during World War II, showed signs of revival in 1951. A few light transports and sport types had been built, with only one design of military significance, the Fiat two-seat jet fighter, G-80. A single-seat version was also reported. The G-80 was the work of G. Gabrielli, a well-known Fiat designer.

Sweden.—Sweden's air force probably ranked as the fourth most powerful in the world in 1951, topped only by those of the United States, Great Britain and the U.S.S.R. It was reported to include more than 50 combat squadrons, with a high proportion of jets. The program called for an all-jet fighter force within two years. Although both U.S. and British aircraft were now used, an increasing number of Swedish-designed and built machines were coming off production lines. The J-29 was the current production model. It was a single-seat jet fighter of excellent performance powered with a Swedish-built Rolls-Royce Nene engine. A later model, probably the J-1001, was reported in production, but details were lacking. It was significant that Sweden in 1951 was the only country (outside the U.S.S.R.) where large aircraft manufacturing and servicing plants had been put underground. (*See* also AIRCRAFT MANUFACTURE; ATOMIC ENERGY; AVIATION, CIVIL; CIVIL AERONAUTICS ADMINISTRATION; JET PROPULSION; KOREAN WAR; MUNITIONS OF WAR.) (S. P. J.)

Avocados: *see* FRUIT.

Azores, The: *see* PORTUGAL.

Bacteriology.

In the unceasing effort to conquer disease, recent events had promised new weapons and a new methodology in the field of medical microbiology. One new agent isolated, Protaptin, was an antibiotic produced by a bacterium trained specifically for the task of destroying the bacillus of tuberculosis. The antibiotic was obtained by cultivating a bacterium of the genus *Proteus* in a meat broth containing dead tubercle bacilli. By gradually eliminating the meat,

U.S. PUBLIC HEALTH technicians sampling air 20 ft. above street level for a bacteria count, as part of 1951 defense work against possible bacteriological warfare. Detection equipment included a new waferlike filter permitting bacteria to be identified within 15 hrs.

the bacterium became adapted to a diet exclusively of tuberculosis organisms, and produced a substance capable of destroying virulent tubercle bacilli, yet which was harmless to experimental animals. Years elapsed before the pure antibiotic was successfully isolated, and by the close of the year 1951 it was believed that the ultimate value of this drug might soon be demonstrated when its performance in clinical trials was evaluated. Perhaps a greater import might be ascribed, however, to the illustration of a new method which, it was thought, would immeasurably increase the scope of microbiology, namely, growing "killer" microbes selected and adapted for a role of antagonist to a specific pathogen.

Another instance of the therapeutic value of bacterial metabolic products was the usage of streptokinase and streptodornase to treat postpneumonic empyema. These two substances, which destroy fibrin and desoxyribose nucleoprotein respectively, are produced by streptococci. They had been tried in some clinical cases with good results. Although streptokinase and streptodornase are not bacteriostatic or bactericidal per se, they remove the barrier between humoral and cellular elements and allow the body's defenders, such as phagocytes, to contact and destroy the pathogens previously protected by pus and exudates. In a like manner, concurrent use of antibiotics is enhanced since the obstructive film of exudate is dissolved, permitting intimate contact between microorganism and antibiotic.

Constant improvements in existing therapeuticals are necessary to increase efficacy, or even to maintain usefulness of the drug as more and more drug-fast and antibiotic-resistant strains develop. The ability of penicillin to penetrate scar tissue and to exterminate the organisms protected by it was increased by the addition of iodine to the antibiotic. This product was reported to have penetrated scar tissue in the lung in cases involving lung abscess, chronic bronchitis and other chronic lung conditions where penicillin had normally been ineffective.

Botulism from Wounds.—Botulism, most deadly of the food-borne intoxications, was reported to have occurred as the result of wounds. Two patients, one a 13-yr.-old boy with a minor gunshot wound, the other a victim of a handsaw cut, died with symptoms of botulism. These deaths reopened the question of the pathogenicity of *Clostridium botulinum*, which had long been credited with being capable of intoxication only *per os*.

Coxsackie Virus.—In 1947 a virus isolated during a polio epidemic in Coxsackie, N.Y., was found to be the aetiological agent for a disease symptomatically similar to but milder than poliomyelitis. The agent, named the Coxsackie virus, was thought to be the vector of a disease which occurred in Europe about 1870 and was called epidemic muscular rheumatism. Sporadic outbreaks of epidemics having much in common with the Coxsackie epidemic had been reported in medical literature but speculation on this virus reached a new high with the Fannin county, Tex., epidemic which involved more than 8,000 cases. Whether the virus involved was identical to the Coxsackie virus originally isolated in 1947 was one source of conjecture; another even more startling development was the fact that the disease resembled poliomyelitis and that only one case of true poliomyelitis was reported from Fannin county, a far lower incidence than normal for that section. Research on both of these facets of the disease was continuing.

Positive proof of the identity of the Coxsackie virus was offered by the scientists who investigated an outbreak of 50 cases in Hoquiam, Wash., and isolated group B Coxsackie virus from stool specimens of patients. Increased frequency of identification of viruses helped to reveal a rapidly growing incidence of Coxsackie virus epidemics.

Poliomyelitis.—There was much evidence that certain predisposing factors might increase the incidence of certain types of poliomyelitis or the severity of poliomyelitis attacks. Evidence of an increased incidence of bulbar poliomyelitis following tonsillectomy had been presented and refuted on numerous occasions with the prevailing consensus being that tonsillectomies during the epidemic poliomyelitis season should be avoided.

Observations were made in Australia, England and Wales that inoculation of children with pertussis vaccine, diphtheria toxoid or penicillin was followed by a greater occurrence of paralytic poliomyelitis than was warranted by normal incidence rates, and that the paralysis was associated with the site of injection to an inordinately high degree. An obvious causal relationship was presumed and data to establish facts collected. Animal experimentation in mice injected intraperitoneally with pertussis vaccine alone or with diphtheria toxoid showed a significant decrease in the incubation period before the onset of paralysis as compared with controls. Editorially, the *Journal of the American Medical Association* discussed the clinical reports but withheld judgment until more data had been received, the while adjuring clinicians to postpone immunization with pertussis vaccine and diphtheria toxoid until after poliomyelitis outbreaks had subsided.

Basic research on poliomyelitis continued to offer more clues to the cryptic source of poliomyelitis and the often attendant paralysis. An investigation of the cockroach as an experimental vector of viruses indicated that the cockroach, *Periplaneta americana*, excreted infective amounts of Coxsackie virus for a 15-day period and that faeces from the roaches fed poliomyelitis virus resulted in the death of monkeys to which they were transferred.

Bacteria Boost Oil Production.—Bacterial inoculation of exhausted oil wells was reported to increase the flow of petroleum. From the cores of Louisiana oil wells, in Pacific ocean mud taken from 6,000 ft. deep and from the waters of the Chicago Drainage canal a microorganism was isolated which has the power to get oil from rock. *Desulfovibrio hydrocarbonoclasticus* is capable of breaking down heavy hydrocarbons into lighter ones, producing acids which dissolve rock in oil-bearing strata and generating carbon dioxide gas which increases the flow of oil by exerting pressure. Research in progress during 1951 was designed to find out how to make petroleum by microbial action.

Bacteria versus Atomic Energy.—Milk and meat irradiated by 24 or 40 hr. of exposure to X-ray and gamma rays from radioactive cobalt 60 were observed to remain unchanged after three weeks of storage in plastic bags at room temperature. Bacteriological analysis of the milk revealed it to be sterile. No trace of radioactivity remained in these foodstuffs. The possibility of food preservation as a by-product of the atomic pile thus presented itself, subject to further experimentation and analysis. (M. V. N.)

Badminton.

Joseph Alston of San Diego, Calif., dethroned Martin Mendez, a fellow townsman, as national ruler in the annual tournament of the United States Badminton association, played at Dallas, Tex., March 29–31, 1951. The Pacific coast stars met in the final round for the third time in a row and Alston, after twice bowing in hard-fought matches, routed the defending titleholder in straight games by 15–5, 15–5.

Ethel Marshall of Buffalo, N.Y., continued her domination of the women's ranks and won her fifth consecutive national title by defeating Thelma Scovil of Long Beach, Calif., 11–8, 11–6, in a contest between left-handers.

Alston, Wynn Rogers of Arcadia, Calif., and Mrs. Loma Smith of Pasadena, Calif., each figured in the winning of two national championships. After his victory in the singles, Alston paired with Rogers to capture the men's doubles title while Rogers and Mrs. Smith carried off the mixed doubles prize. Mrs. Smith had paired with Dottie Hann of Manhattan Beach, Calif., earlier in the tourney to take the women's doubles championship.

Howard Holman of Fresno, Calif., and Fred Fullin of Norwalk, Conn., who were seeded second, scored a surprise in the veterans' doubles by halting C. Raynor Hutchinson and Wayne Schell of Boston, Mass., 15–8, 2–15, 15–12, to win top honours in their division. (T. V. H.)

Bahamas.

This British colony consists of an archipelago of 21 inhabited and about 680 uninhabited islands off the coast of Florida. Area: 4,375 sq.mi. Pop.: (1950 est.) 79,000. Capital: Nassau, on New Providence Island. Governor in 1951: Maj. Gen. R. A. R. Neville.

History.—Butlin's vacation village at West End, Grand Bahamas, remained closed throughout 1951. No decision was reached as to its future, but negotiations with a group of U.S. financiers continued. Doubts were expressed as to the agricultural prospects of the Colonial Development corporation's large-scale project started in 1950. However, as a result of successful negotiations in 1950 about 4,000 agricultural workers were employed in the United States, and thanks to this and the building boom there was practically no unemployment on New Providence.

In an attempt to broaden the basis of the economy an Industries Encouragement act was passed offering substantial attractions to companies established under it. Any such company was permitted to bring in plant and equipment free of duty; neither plant nor industry would be subject to taxation other than the existing real-property tax for the first ten years; all duty paid on raw materials would be refunded on the exportation of the finished product; and there would be complete freedom to bring key workers.

Construction of guided missile stations in the Bahamas long-range proving ground proceeded satisfactorily.

Education.—Schools (1950): government and aided 124 (attendance 13,356), denominational 46 (3,591), private 7 (334). Higher education was provided at five schools in Nassau and there was a technical school and a teachers' training college at Oakes field.

Finance and Trade.—Currency: pound sterling; United States dollars also generally accepted. Budget (1950 actual): revenue £1,579,748; expenditure £1,658,741. Foreign trade (1950): imports £6,150,200; exports £904,671. The tourist trade remained the basis of the economy: tourists (1950–51 winter season) 37,500. (Jo. A. Hn.)

Balearic Islands: *see* Spain.
Balkan States: *see* Albania; Bulgaria; Greece; Rumania; Turkey; Yugoslavia.
Ballet: *see* Dance: *Ballet.*
Baltic States: *see* Estonia; Latvia; Lithuania.

Baltimore.

Baltimore is the metropolis of Maryland and had a population of 949,708 in 1950. The land area of the city is 78.72 sq.mi.; the water area, 13.21 sq.mi. Mayor in 1951: Thomas D'Alesandro, Jr., Democrat.

Budget appropriations for 1952 were $166,657,113.38; for 1951, $141,236,789.76. The city tax rate for 1952 was $2.74 per $100 of assessed valuation and the rate for 1951 was $2.62. The taxable basis for 1952 was $2,600,466,616 and for 1951 it was $2,441,210,616. The gross funded debt, as of Nov. 30, 1951, was $219,370,700; the sinking funds amounted to $36,726,802.64, leaving a net debt on that date of $182,643,897.36, not including accrued income. The percentage of net debt to the taxable basis (excluding self-supporting indebtedness) was 4.74% for the year 1951.

The net enrolment on Oct. 31, 1951, in the public schools of the city was 81,321 white students and 43,873 Negro students; and, in addition, 12,605 white and 4,936 Negro students were enrolled in adult education classes. William H. Lemmel had been superintendent of the Baltimore city schools from July 1946. The public schools of Baltimore are a separate and distinct unit and are not under the jurisdiction of the state department of education.

Ranking as the second United States port in foreign-trade tonnage, the combined exports and imports at the port of Baltimore during the year 1950 amounted to 15,058,935 tons, compared with 17,001,355 tons for the previous year. Domestic coastwise and intercoastal shipments and receipts amounted to 9,243,191 tons for the year 1950. Total foreign-trade tonnage for the first seven months of 1951 came to 12,427,700 tons, or an increase of 46.8% over the January-July period of 1950.

Manufacturing activity in the Baltimore metropolitan area during 1951 continued the upward trend which began around the middle of 1950. During the first ten months of 1951 manufacturing employment averaged approximately 190,110 workers, an increase of 22,680 or 13.6% from the similar period in the previous year. The leading industry groups based upon the volume of employment included primary metal industries, blast furnaces and steelworks, food and kindred products, aircraft, apparel, fabricated metal products, machinery, electrical equipment, shipbuilding and repair, chemicals, automobiles, tin cans and tinware, beverages, printing and publishing. Total nonagricultural employment in the Baltimore metropolitan area, exclusive of self-employed, domestic servants and unpaid family workers, in the January-October period of 1951 averaged about 516,900, an increase of more than 35,300 or 7.3% over the first ten months of 1950. (H. E. F.)

Bananas: *see* Fruit.

Banking.

The most important development in banking in the United States during 1951 was the return to a more flexible monetary policy, freed from the limitation of supporting prices of government securities and keeping interest rates generally from rising. In March, the federal reserve system permitted long-term government bonds to sell below par, and in December substantial support was withdrawn from the short-term market. With the market free to reflect the balance between supply of and demand for funds, interest rates rose substantially during the year. The prime commercial loan rate rose from $1\frac{3}{4}$% in January to $2\frac{1}{2}$% in May and to 3% by December. The yield on long-term government taxable bonds increased from 2.39% in January to 2.74% as the year closed, while the yield on Aaa corporate bonds rose from 2.66% to 3.03%.

In accordance with the provisions of the Defense Production Act of 1950 and a related executive order, a program for voluntary credit restraint was prepared, including a statement of principles, and with the approval of the attorney general, on March 9 the board of governors of the federal reserve system addressed a request to all financing institutions in the United States to follow the program. Under the leadership of the national voluntary credit restraint committee headed by federal reserve board governor Oliver S. Powell, numerous regional and group committees were established. Commercial banks, life insurance companies, property insurance companies, investment banking firms, savings and loan associations and mutual savings banks joined in the program. Six bulletins were issued by the national committee, setting forth general principles to guide participants in meeting demands for inventory loans, business capital expenditure financing, state and local government borrowing, certain types of real estate credit, borrowing by foreigners and borrowing on unlisted securities. In a majority of cases financing institutions themselves took the initiative in approving or denying financing requests on the basis of the principles of the program and interpretations of specific credit areas.

New peaks were reached by the end of the year in total loans and investments of all commercial banks, at $133,411,000,000; in total loans, $58,300,000,000; in total commercial and industrial loans, about $26,600,000,000; and in holdings of state and local government and other securities, $13,200,000,000. Commercial bank holdings of the government securities declined slightly during the year to $61,900,000,000.

Total loans and investments of all commercial banks rose $6,700,000,000 during the year, somewhat more than in the preceding year. The expanding volume of defense production, changing consumer and business expectations as to inflation, and the impact of credit restraint and materials shortages, however, altered the pattern of credit expansion in several ways. The increase in commercial and industrial loans at all commercial banks during 1951 was about $4,700,000,000, almost the same as in the year before. A new series covering changes by industry and purpose in commercial and industrial loans at a large sample of weekly reporting member banks indicated that from April through December loans for defense and defense-supporting purposes comprised about half of the total increase in business loans classified. Loans of other kinds such as consumer and real estate loans, rose about $1,300,000,000 during the year, substantially less than the increase of $4,400,000,000 in 1950. As a result of this lesser increase, total loans of all commercial banks rose about $6,000,000,000 or 12% in 1951, as compared with a jump of $9,200,000,000 or 21% the year before.

On June 30, 1951, national banks, which numbered almost 5,000, held $86,589,000,000 of total deposits. State banks, which numbered about 9,200, had total deposits of $64,900,000,000.

The volume of bank debits at the banks in 333 reporting centres reached another record high level in 1951. In contrast to the sharp upward spiral following the outbreak of hostilities in Korea, however, the annual rate of turnover of demand deposits in both New York city and other leading centres showed virtually no change during the year as a whole.

Total consumer credit outstanding increased during the year by about $300,000,000, in sharp contrast to the rapid rise of $3,300,000,000 the year before. Automobile instalment sales credit declined slightly, and other instalment sales credit went down about $500,000,000. The net increase in the total was the result of moderate increases in instalment loans, charge accounts and single-payment loans.

Little change was shown in the gold stock over the year as a whole. The decline in the gold stock which had been under way since the fall of 1949 was brought to an end in May. During the third quarter, net gold imports made their reappearance, reflecting a sharp increase in the surplus of exports.

The year saw the first increase in money in circulation since the rapid wartime growth which ended in 1946. After an increase of $1,400,000,000 during the year, money in circulation stood at an all-time high of $29,403,000,000 on December 26.

During 1951 as a whole the gross federal debt increased by about $2,800,000,000 to $259,500,000,000 on December 31, 1951. There was a net shift of somewhat more than $10,000,000,000 from marketable issues to nonmarketable issues. Treasury bills outstanding rose by about $4,500,000,000; federal reserve holdings declined to very low levels, commercial banks showed some increase and holdings of business corporations went up substantially. Certificates and notes rose $2,900,000,000. Marketable treasury bonds declined by about $17,000,000,000, reflecting some exchange offerings into shorter issues but chiefly the exchange offering of long-term nonmarketable 2¾% treasury investment bonds for the marketable 2½% bonds maturing in June and December 1972. Another unusual debt operation during the year was the subsequent exchange by the federal reserve system of $1,500,000,000 of its holdings of the nonmarketable 2¾% treasury investment bonds for 1½% marketable five-year treasury notes. Redemptions of savings bonds exceeded sales during each month and by a total of $1,700,000,000 for the year as a whole, despite the marked increase in individual savings. Special issues, held by government trust funds and corporations, rose during the year by $2,200,000,000. The Jan. 1952 budget message of the president forecast an increase in the total public debt to $274,922,000,000, or just under the public debt limit, by June 30, 1953, as a result of estimated budget deficits of $8,200,000,000 in fiscal year 1952 and $14,446,000,000 in fiscal year 1953. (*See* also Debt, National.)

Corporate offerings for new money from Jan. through Nov. 1951 totalled $5,672,000,000, as compared with $4,000,000,000 in 1950, $4,606,000,000 in 1949 and $5,929,000,000 in 1948. New money offerings of manufacturing concerns were more than three times the 1950 level, reflecting heavy expansion for defense. About three-fourths of total corporate securities offered for cash in 1951 were bonds, and private placement of bonds accounted for more than half of the year's bond offerings.

New state and municipal financing in 1951 was about $3,200,000,000, less than the all-time record of $3,700,000,000 set in 1950 but more than in any other year. In spite of materials shortages and tax resistance by voters, at the end of the year an extremely large volume of state and local bonds was under consideration. (*See* also Business Review; Consumer Credit; Export-Import Bank of Washington; Federal Reserve System; Gold; International Bank for Reconstruction and Development.) (J. K. L.)

Mutual Savings Banks.—The combined assets of the mutual savings banks of the United States were $22,892,025,460 on July 1, 1951, a gain of $598,936,265 or 2.69% for the year. Deposits were $20,399,573,434, a gain of $460,260,489 or 2.31% for the year. On July 1, 1950, assets of these banks were $22,293,089,195, deposits $19,939,312,945, the respective increases during the year ended on July 1, 1950, being $1,180,947,148 or 5.59% and $991,292,834 or 5.23%. On July 1, 1951, the combined surplus of the banks was $2,323,270,025 or 11.39% of deposits compared with $2,209,947,477 or 11.08% of deposits for 1950. There was a decrease of 123,258 or 0.63% in the number of accounts during the year ended July 1, 1951. On that date there were 19,408,115 accounts. On July 1, 1950, there were 19,531,373.

For the year ended July 1, 1951, dividends credited to mutual savings accounts averaged 2.05% and hence constituted the major part of the 2.31% increase in deposits during the year.

On Dec. 3, 1951, there were in operation 529 mutual savings banks with 229 branches. Of the existing 229 branches, 17 were established during 1951.

The major changes in asset distribution from July 1, 1950, to July 1, 1951, were similar to those of prior years, that is, a decrease in amount and per cent of U.S. government securities and an increase in real estate mortgage loans, in large part insured by the Federal Housing administration (FHA) and the Veterans administration (VA) under federal statutory provision. The combined assets of all mutual savings banks on July 1, 1951, were invested as follows: U.S. government securities 44.65%, other securities 10.92%, real-estate mortgage loans 38.94%, and other assets 5.49%. The ratios on July 1, 1950, were: U.S. government securities 51.91%, other securities 10.91%, real estate mortgage loans 31.82%, and other assets 5.36%. At the close of the calendar year 1950 62.6% of the real estate mortgage loans held by all mutual savings banks combined were conventional or purchase money mortgages, 19.7% were FHA insured and 17.7% were VA insured.

The federal income tax-exempt status of mutual savings banks was removed by congress in Oct. 1951 by passage of the Revenue Act of 1951. Net income after expenses and dividends and after specified allowances for reserves was made subject to the corporation tax beginning with fiscal years after Jan. 1, 1952.

Savings Bank Life Insurance.—The combined amount of savings bank life insurance in force at the end of Oct. 1951 in the states of Connecticut, Massachusetts and New York was $622,516,234 representing 594,949 individual policies. The amount in force and policies represented classified by states were: Connecticut 16,886 policies for $16,459,769 in force; Massachusetts 443,819 policies for $418,294,767 in force; and New York 134,244 policies for $187,761,698 in force. In these three states there were 261 savings banks selling life insurance. Of these 83 were issuing banks and 178 were agency banks.

British Trustee Savings Banks.—As of Nov. 20, 1950, the combined funds of trustee savings banks in Great Britain exceeded £1,016,000,000. The comparative financial positions of the banks as between Nov. 20, 1949, and Nov. 20, 1950, were as follows:

	1950 £	1949 £
Cash balances due to depositors:		
Ordinary department	793,736,478	744,353,918
Special investment department	115,179,318	112,462,984
Government stock and bonds held for depositors (nominal value)	87,757,196	85,340,233
Combined surplus funds	19,354,147	18,468,139
Total funds	1,016,027,139	960,625,274

On Nov. 20, 1950, there were 84 banks with 1,151 branches in operation in the British Isles (England, Scotland, Wales and Northern Ireland). The total number of accounts of the three classes, ordinary, special investment and stock, was 7,174,752 as compared with 6,787,726 on Nov. 20, 1949. (HE. BR.)

Great Britain and Commonwealth.—The dislocation of the world prices structure, stemming in the first place from the violent movements in the main commodity markets after the opening of the war in Korea, dominated the banking scene in Great Britain, the Commonwealth, Europe and the middle east throughout 1951.

In Great Britain the impact on the banking structure of the rise in the prices of imported goods was cushioned during a large part of the year by the emergence of a substantial deficit in the country's external payments. The fact that imports were running far ahead of exports meant that the flow of sterling to the government exceeded the amount of sterling the government was required to transfer to the public in respect of the conversion of the foreign exchange proceeds of exports. The surplus accruing to the government from this source enabled it to deal with the tendency for budget receipts to fall short of outgoings and still retain considerable sums for reducing its indebtedness to the banking system. The effect of this was to apply a downward pressure on bank deposits and bring about a considerable net reduction in bank holdings of assets directly or indirectly concerned with lending to the government—call money, bills discounted and treasury deposit receipts. At the end of October the net deposits (*i.e.*, published deposits after deducting the duplicating item "balances in course of collection") of the London clearing banks, which together accounted for about 95% of all commercial bank resources in Great Britain were actually slightly lower than a year before. In accordance with official wishes, the banks made a general increase in rates of interest for almost all forms of business, including overdrafts, during the year.

Through the early months of the year, Australian deposits rose steeply, the total for the trading banks moving up to the record level of £A1,300,000,000 in April, as compared with £A1,000,000,000 a year before. Later in the year the relapse in the prices of important Australian commodities, assisted by a swing in the external payments from a position of surplus to deficit, exerted a downward pressure on the volume of money. At the end of August, the trading banks deposits at £A1,200,000,000 were only about £A200,000,000 higher on the year. Two of the largest trading banks—the Union Bank of Australia and the Bank of Australasia—merged to become the second largest Australian bank and the largest New Zealand bank under the title Australia and New Zealand bank.

Eleven London Clearing Banks
(£ million)

	Oct. 1949	Oct. 1950	Oct. 1951
Deposits	6,050	6,204	6,204
Net Deposits	5,868	6,006	5,981
Cash	499	509	514
Call money	556	557	579
Bill holdings	1,162	1,414	1,340
Treasury deposit receipts	744	496	177
Investments	1,517	1,505	1,555
Advances	1,466	1,598	1,897
Acceptances, etc.	261	346	481

In Canada, the government took steps early in the year to counter inflationary stresses generated by the rise in the world prices level. At the end of September, the deposits of the chartered banks were slightly lower than a year earlier. The total of advances to the public at $2,900,000,000 was about $650,000,000 higher but only $50,000,000 above the March figure. (C. H. G. T.)

Bankruptcy: *see* SECURITIES AND EXCHANGE COMMISSION.

Baptist Church. Two world events gave Baptists concern in 1951—the conflict in Korea and Pres. Harry S. Truman's nomination of an ambassador to the Vatican.

The former raised the question of missions in China, where all mission property was brought under control of the Communist government in 1951 and funds were frozen. But though most Baptist missionaries withdrew from Communist China, Christian work continued successfully under native leadership. The University of Shanghai enrolled 1,641 students; the religious program was not curtailed, elective courses in religion remaining in the curriculum.

United States Baptists, loyal to their historic principle of religious freedom, strongly objected to the president's nomination of the ambassador. Churches were urged to "reaffirm their historic traditional belief in the freedom of men everywhere and the ideal of the separation of church and state."

Whereas during World War II Protestants in Japan had been compelled to unite in forming the Church of Christ, in 1951 those requirements having been withdrawn, Baptists returned to their sectarian organizations. The Southern Baptist Convention of America reported 110 missionaries in Japan, with new school and church buildings being erected and rapid progress being made in evangelical and educational enterprises.

The Commonwealth and Empire Baptist congress, attended by hundreds of delegates, was held in London, Eng., June 4–9, 1951. Eight thousand Baptist churches with 4,000,000 members were recorded within the commonwealth. The Baptist Missionary society was supporting 400 missionaries in five fields with an annual budget of $840,000.

According to the *Baptist Times,* London, the first convention of German Baptists in the soviet-occupied zone of Germany was held in Berlin, June 12–25, 1951, with 418 delegates present. There were 200 Baptist churches with 35,200 members in this zone and 10 churches with 5,400 members in the west sector of Berlin. An official representative from the soviet-occupied zone brought greetings to the convention.

The *Canadian Baptist* stated that in 1951 Baptists, the largest non-Orthodox creed in the Soviet Union, had about 400,000 members, 3,000,000 adherents and about 3,000 churches, and that the Moscow Baptist church had 4,000 members. Three hundred and fifty people applied for membership in this church during 1951, and 150 were baptized.

Baptist statistics for Italy in 1951 listed 60 churches with more than 100 mission stations, 5,000 members in 12,000 families and a seminary at Rivoli-Turin with 20 students.

The Southern Baptist Theological seminary, Louisville, Ky., in 1951, for the first time in its 92 years, opened its doors to academically qualified Negro students. (*See* also CHURCH MEMBERSHIP.) (R. E. E. H.)

Barbados.

This British colony is the most easterly of the Caribbean islands. Area: 166 sq.mi. Pop.: (Dec. 1950 est.) 211,682. Capital and chief port, Bridgetown (pop. 1948, 13,345). Language: English. Religion: Christian (*c.* 70% Anglican). Governor in 1951: Sir Alfred Savage.

History.—An act to encourage the establishment and development of new industries, the Pioneer Industries (Encouragement) act, came into operation in 1951. It granted important measures of relief from customs duties and income tax to anyone establishing a factory for a new industry. Another act, which it was hoped might lead to even larger sugar crops than that of 1951, dealt with the control of underground water supplies. A third provided for increased levies on sugar and fancy molasses for the industry's labour welfare fund. The first elections under full adult franchise were held at the end of the year. It was doubtful, however, if the political campaign seriously distracted the attention of Barbadians from the exploits of the West Indian cricket team in Australia under the captaincy of a Barbadian, John Goddard.

Education.—Pupils in elementary schools (1950) 30,080; secondary 2,838. Expenditure: B.W.I. $1,906,328.

Finance and Trade.—Currency: British Caribbean or British West Indian dollar, set at 4.8 to the pound and valued at 58.33 cents U.S. Budget (1951–52 est.): revenue B.W.I. $10,576,000; expenditure B.W.I. $10,425,000 excluding development. Foreign trade (1950): imports B.W.I. $38,726,132; exports (including re-exports) B.W.I. $27,643,000. Principal exports: sugar, fancy molasses, rum. Sugar crop (1951), 187,663 tons. (P. H.–My.)

Barkley, Alben William

(1877–   ), vice-president of the United States, was born on a farm in Graves county, Ky., on Nov. 24, and attended Marvin college, Clinton, Ky., Emory college, Oxford, Ga., and the University of Virginia law school in Charlottesville, Va. He was elected prosecuting attorney of McCracken county, Ky., in 1905 and was judge of McCracken county court, 1909–13. He was elected to the U.S. house of representatives in 1912 and after 14 years there was elected to the U.S. senate. He was keynote speaker at the 1936 Democratic national convention, permanent chairman of the 1940 convention, and delivered the speech nominating Franklin D. Roosevelt for a fourth term at the 1944 convention.

Throughout much of World War II he was senate majority leader, and as such shepherded numerous wartime and emergency acts through that body. In 1946 when the Republicans gained control, he became senate minority leader. He was keynote speaker again at the 1948 party convention in Philadelphia, and there was nominated for the vice-presidency, being elected with Pres. Harry S. Truman and taking office in 1949.

In July 1951 President Truman addressed identical letters to Barkley and to House Speaker Sam Rayburn requesting action by congress to end the state of war between the United States and Germany. He explained that the U.S.S.R. had "actively prevented" a peace treaty, but at least this action by the U.S. would eliminate the stigma of the word "enemy" in dealings with Germany. On Sept. 23 Barkley told a Washington, D.C., conference of Jewish leaders that a strong state of Israel was "essential to all the democracies."

In November he and Mrs. Barkley made a visit to Japan and the Korean war front, his explanation being that he had the time to go and the president did not.

Barley.

The U.S. barley crop of 1951 was a small one of 254,668,000 bu., 16% less than the 303,533,000 bu. of 1950; the average for 1940–49 was 306,523,000 bu. Acreage harvested (9,391,000 ac.) was 16% less than in 1950; the yield of 27.1 bu. per acre was the third highest on record, but about the same as in 1950. North Dakota, with a production of 51,336,000 bu., replaced California (42,360,000 bu.) as the leading state, and Minnesota was third with 38,555,000 bu. The average price for the season to farmers was estimated at $1.24 per bushel as compared with $1.18 in 1950; late in the year prices were substantially higher than the estimated season average. An announced official production goal for 1952 called for at least 290,000,000 bu. of barley from 12,865,000 planted acres. The support price was announced at not less than $1.22 per bushel.

The world barley crop of 1951 was estimated at 2,600,000,000 bu., as compared with 2,435,000,000 bu. in 1950 and a prewar average of 2,365,000,000 bu. The acreage of 117,550,000 exceeded slightly that of 1950 and prewar. (J. K. R.)

Barley Production of the Principal Producing Countries

(In thousands of bushels)

Country	1951	1950	Average, 1935–39
U.S.S.R.	...	325,000	425,000
Canada	257,051	171,393	88,882
United States	254,668	303,533	238,622
Turkey	110,000	94,020	96,129
India	105,650	100,470	90,253
Japan	100,000	78,000	73,113
Spain	81,500	78,000	97,059
United Kingdom	80,700	79,850	36,596
Denmark	79,000	74,180	52,881
Western Germany	78,000	67,600	79,000
France	76,560	72,200	53,004
French Morocco	68,500	50,000	53,275

Baseball.

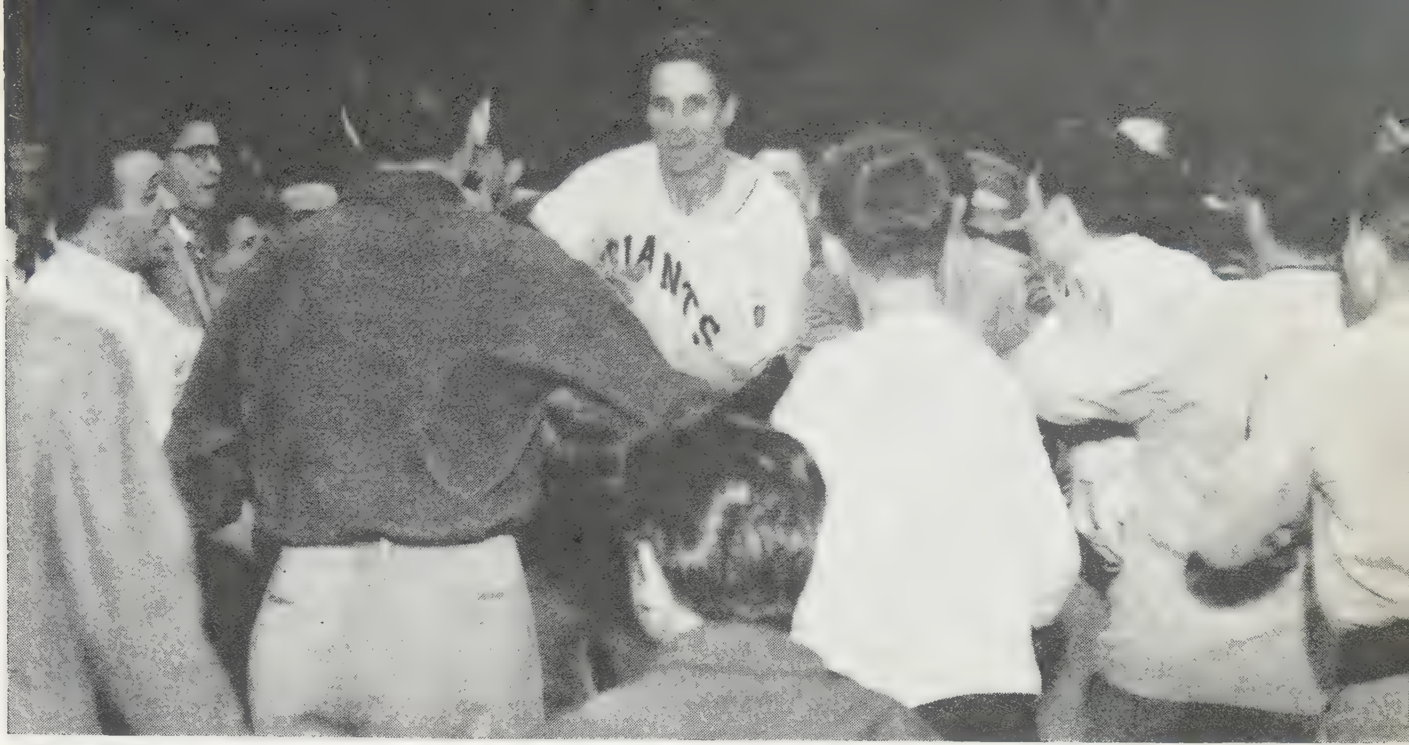
The year 1951 marked the 75th birthday of the National league and the 50th anniversaries of both the American league and the National association, the latter being the governing body of the minor leagues.

There were a few changes among the top executives of the game. One affected the highest post in the business—that of the commissioner. Another change saw a new president of the National league for the first time since 1934, a change necessitated by the elevation of Ford C. Frick to the commissionership. Another switch involved the ownership of the St. Louis American league club which was purchased by a syndicate headed by Bill Veeck.

Ford C. Frick, who was elected commissioner of baseball, was the third man to hold the office since it was started in the 1920s. He succeeded Albert B. Chandler, who had been chosen for the post in 1945, after the death of the first commissioner, Kenesaw M. Landis. Frick was elected to a term of seven years at an annual salary of $65,000.

As his successor at the helm of the National league, Warren C. Giles, who had been serving as president and general manager of the Cincinnati Reds, was elected.

There were five new managers in the major leagues when the season got under way. Jimmy Dykes, for 12 years (1934–46) manager of the Chicago White Sox, took over the reins of the Philadelphia Athletics, succeeding Connie Mack, the only other manager the Athletics had had in their 50-year existence. Al Lopez, for years one of the game's top catchers, was given the assignment in Cleveland, after having managed Indianapolis in the American association for three years. He succeeded Lou Boudreau, who was signed by the Boston Red Sox as a shortstop. The other freshman pilot in the American league was another former catcher, Paul Richards, who had managed the Seattle Rainiers of the Pacific Coast league in 1950. He was named to handle the Chicago White Sox, following Jack Onslow



BOBBY THOMSON of the New York Giants being carried from the field on the shoulders of admiring fans after his three-run homer won the National league pennant for the Giants Oct. 3, 1951

and John (Red) Corriden, who had divided the chore during 1950.

In the National league, Charles (Chuck) Dressen moved up from the Oakland Oaks of the Pacific Coast league to take over the helm of the Brooklyn Dodgers, following Burt Shotton in the post. Marty Marion, a veteran National league infielder who was known as "Mister Shortstop," made his managerial debut with the St. Louis Cardinals.

There were further shifts in the senior circuit as the season progressed. Boston Braves' skipper Billy Southworth resigned and Tommy Holmes was named the new manager. Later in the season Frank Frisch, one-time manager of the St. Louis Cardinals (1933–38) and the Pittsburgh Pirates (1940–46), was relieved of his command with the Chicago Cubs where he had taken over early in 1949. The Cubs replaced him with an active player, Phil Cavarretta, who had been with the team since 1934.

Managerial heads continued to roll after the season closed. Boudreau, who finished a nine-year tenure at the helm of the Cleveland club at the close of the 1950 season, replaced Steve O'Neill as manager of the Boston Red Sox. Rogers Hornsby, one of the greatest right-handed hitters in the game's history, returned to the major leagues as pilot of the St. Louis Browns. He replaced James (Zach) Taylor, who had been the Browns' manager since 1948. Marty Marion's contract with the Cardinals was not renewed, and, after much negotiation, the Cardinals traded pitcher Max Lanier and outfielder Chuck Diering to the New York Giants for second baseman Eddie Stanky, who was immediately named manager.

The famous "Yankee Clipper," Joe DiMaggio, announced that he was retiring from the game. Thus ended the career of one of the most brilliant players. DiMaggio was a star from the time he joined the Yankees in 1936 as a rookie after three years with the San Francisco Seals of the Pacific Coast league. In 13 years of play (he spent three seasons in the army) DiMaggio's outstanding performances included: a record streak of 56 consecutive games in which he batted safely; playing in more world series games than any other player in history; playing on nine world championship teams, also a record; and leading the league in batting (1939, 1940), home runs (1937, 1948) and runs batted in (1941, 1948). In 1939, 1941 and 1947 he was chosen the American league's most valuable player.

Important legislation enacted by organized baseball during the year was the creation of a standard that must be met by any group of clubs wishing to become a major league, and the setting up of a new minor league classification.

The minor leagues are grouped into six different classifications: AAA, AA, A, B, C and D. However, voted into existence was a new division to be known as the "open classification." In order for a league to be classified in this open group, it must, among other things, remove all salary limits, show an average annual attendance of 2,250,000 or more over a five-year period, have an aggregate population of 10,000,000 and a combined park capacity of at least 120,000. The benefits of the open classification include the right of a player to waive, if he so desires, his chance to be drafted into the major leagues, and an increase in the sale price of those players drafted from $10,000 to $15,000.

The Major League Executive council also recommended the standards that would have to be met by any group desiring to be a major league. Included was the fact that it was not necessary for the group making application to be an organized league, but could be any group of eight clubs which could meet the requirements. Among those requirements were an aggregate population of 15,000,000 in the eight cities, 25,000 capacity in any single park, an average paid attendance of 3,500,000 over a three-year period next preceding the application, a balanced schedule of at least 154 games, adoption of the major league minimum salary ($5,000 per year) and no maximum and the adoption of the players' pension plan or a comparable one.

There were several important trades during 1951. Just before the June 15 trading deadline the Chicago Cubs and the Brooklyn Dodgers engaged in an eight-player swap which sent outfielder Andy Pafko, infielder Wayne Terwilliger, pitcher Johnny Schmitz and catcher Al Walker to Brooklyn in exchange for outfielder Gene Hermanski, infielder Eddie Miksis, pitcher Joe Hatten and catcher Bruce Edwards. In another deal the Pittsburgh Pirates sent outfielder Wally Westlake and pitcher Cliff Chambers (who pitched a no-hitter earlier in the year) to the St. Louis Cardinals in exchange for pitcher Howie Pollet, catcher Joe Garagiola, outfielder Bill Howerton, infielder Dick Cole and pitcher Ted Wilks.

Two more big swaps were made after the close of the season. In one the St. Louis Browns traded catcher Sherman Lollar, infielder Tommy Upton and pitcher Al Widmar to the Chicago White Sox for pitcher Dick Littlefield, catcher Gus Niarhos, infielders Gordon Goldsberry and Joe DeMaestri and a highly touted rookie outfielder, Jim Rivera.

The other deal was made in the National league when the Cincinnati Reds sent pitcher Howie Fox, catcher Forrest Burgess and infielder Connie Ryan to the Philadelphia Phillies in exchange for pitcher Niles Jordan, catcher Andy Seminick, infielder Eddie Pellagrini and outfielder-first baseman Dick Sisler.

The New York Giants and the Chicago White Sox were both beneficiaries of early season deals. The coincidence went further in that each club acquired a young Negro outfielder who was destined to be a strong contender for "rookie-of-the-year" honours in his league. After he had appeared in eight games with Cleveland, the White Sox secured Orestes Minoso, an outfielder-third baseman with amazing speed, who finished the year as the American league's second-highest batter and leading base stealer. The Giants, needing another outfielder, brought up 19-year-old Willie Mays from their Minneapolis farm, where he had started the season sensationally and was batting .477. He became the regular centre fielder and his standout defensive play, 20 home runs and .274 batting average contributed heavily to the pennant-winning cause.

The Yankees scored a double triumph among their personnel when young third baseman Gil McDougald was voted the American league's "rookie of the year." Another laurel-winner for the Yankees was their catcher, Lawrence (Yogi) Berra, who was named the American league's most valuable player.

Mays won the freshman award in the National league and the most valuable player selection was another receiver, Brooklyn's Roy Campanella. The Dodger catcher had an outstanding year both behind the plate and at bat, hitting 33 home runs, driving in 108 and batting .325. These selections were made by the Baseball Writers' Association of America.

Records.—It was not much of a year from a record-making standpoint, most of the new major league marks being merely additions to former records held by the same team or player. The individual leagues, however, saw several new circuit records set.

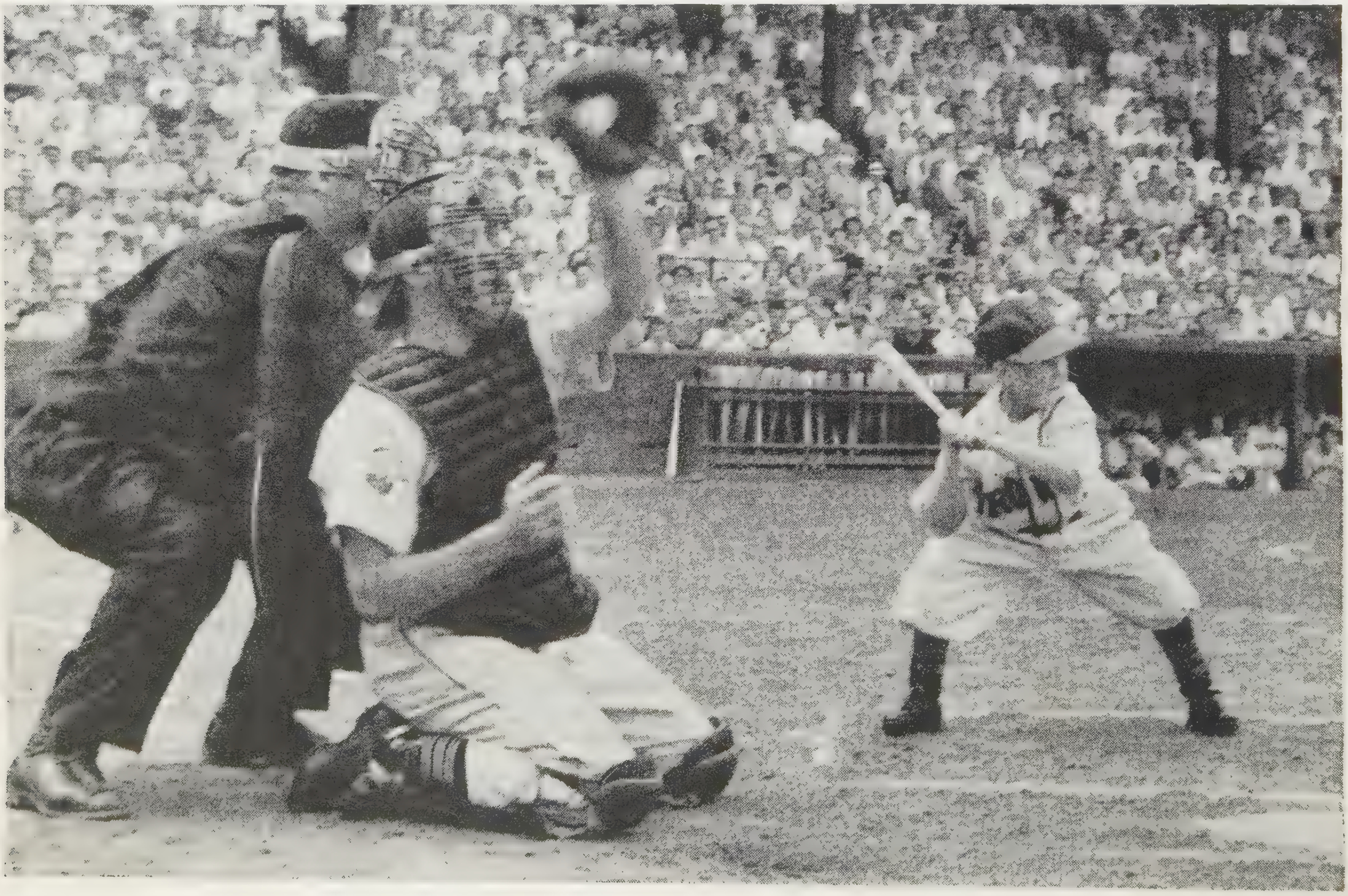
In the American league, major league records were tied by: Gil McDougald, by batting in six runs in one inning; Al Rosen, Cleveland third baseman, who hit four bases-filled home runs during the year; Tommy Byrne, St. Louis pitcher, who walked 16 men in one game; Bobby Feller, Cleveland's great hurler, who brought his lifetime total of no-hit games to three; and Allie Reynolds, Yankee right-hander, who pitched two no-hitters during the season.

League marks were set by: Alfonso (Chico) Carrasquel, Chicago shortstop, who handled 297 consecutive chances without an error; the Chicago White Sox and Boston Red Sox, by playing a 19-inning night game; the Red Sox and New York Yankees, who took 3 hr. and 30 min. to play a nine-inning game; and by the Yankees and Detroit Tigers, who used a total of 39 players in one game.

In the National loop, major league records were tied by among others: Stan Musial, when, for the fifth time, he led the circuit in three-base hits; Willard Marshall, Boston outfielder, who, in 126 games, did not make an error; and by the Pittsburgh Pirates, who left 18 men on base in one game.

Outstanding league marks were created by: first baseman Gil Hodges and second baseman Jackie Robinson, both of the Dodgers, who set new double-play records for their positions, the former with 171 and the latter with 137; all clubs, when the league mark for double plays was broken by the 1951 number, 1,337; and by the perennial rivals, the Brooklyn Dodgers and the New York Giants, who, in one game, allowed a total of 24

EDDIE GAEDEL, 3-ft. 7-in. midget, pinch-hitting to draw a walk for the St. Louis Browns, who were in last place in the American league in Aug. 1951. A subsequent ruling banned midgets from American league games



bases on balls.

In the National league only one no-hit game was pitched, that by Cliff Chambers, then with Pittsburgh, over Boston on May 6. In the other circuit three such games were pitched. Allie Reynolds did it twice, once against Cleveland, and again on Sept. 28 against Boston in a game that assured the Yanks of at least a tie for the pennant. Bobby Feller tossed the other against Detroit.

Major League Races.—The chase for the championship in the National league was one of the most thrilling in history. The Brooklyn Dodgers got off to an early lead, which, by mid-August, had become a 13-game advantage over the remainder of the field. The New York Giants, on the other hand, fared badly as the season got under way, suffering an 11-game losing streak. But Manager Leo Durocher pulled his team together and they started in pursuit of their high-flying interborough rivals. As the season drew to a close the New York club was victorious in 38 of its final 45 games, a blistering pace that enabled the Giants to come into the morning of the next to the last day of the season in a deadlock for first place. Both Brooklyn and New York won their two remaining games, the Dodgers their finale in a 14-inning thriller in Philadelphia, and, for the second time in the 75-yr. history of the circuit (the first was in 1946), two teams finished the campaign in a dead heat. As a result it was necessary to play a two-out-of-three play-off series.

The first game of the play-off was held in Brooklyn's Ebbets field and the Giants won, 3–1, behind right-hander Jim Hearn. The second game was played at the Giants' home park, the Polo Grounds, and this time the Dodgers routed the home club, 10–0, the winning pitcher being rookie Clem Labine.

And so the success of both clubs hinged on the outcome of one game. It was also played in the Polo Grounds and was tied 1–1 at the end of seven innings. In the eighth inning the Dodgers scored three times and led 4–1 when the Giants batted in the last inning. They had scored a run and had two men on base with only one out when Bobby Thomson, Giant third baseman, hit one of Ralph Branca's pitches into the left field stands to make the Giants National league champions for the first time since 1937.

Meanwhile the American league race was over. The Yankees clinched the flag with two days remaining on the schedule. However, it had been a pretty tight race until the final week when the Cleveland Indians and Boston Red Sox collapsed. It was the Yankees' 18th American league flag since 1921 and the 3rd in the three-year tenure of Manager Charles (Casey) Stengel.

Individual Performances.—Stan (The Man) Musial, St. Louis Cardinals' outfielder, led the National league in batting for the fifth time in his career (1943, 1946, 1948, 1950, 1951) with a mark of .355. American league batting honours went to the first baseman of the Philadelphia Athletics, Ferris Fain, who set the pace with a .344 average.

It was one of the biggest years in modern times in the matter of 20-game-winning pitchers with no fewer than 13 big league moundsmen reaching that figure. The National league had seven such hurlers: Sal Maglie and Larry Jansen of the Giants, with 23 each; Preacher Roe of Brooklyn (22); Warren Spahn of the Boston Braves (22); Robin Roberts of the Phillies (21); Don Newcombe of the Dodgers (20); and Murry Dickson of the Pittsburgh Pirates (20). In the American league there were six pitchers in the charmed circle: Bob Feller of the Cleveland Indians (22); Ed Lopat and Vic Raschi of the Yankees, each with 21; and Early Wynn and Mike Garcia of the Indians and Ned Garver of the Browns with 20 apiece. Most outstanding of these totals was that of Garver, who won for the Browns 20 of their 52 victories during the season.

Home-run honours again went to Ralph Kiner, the powerful Pittsburgh outfielder. His 1951 total was 42. In the American league the leading home-run producer was Philadelphia outfielder Gus Zernial, who blasted out 33 round-trippers. Monford (Monte) Irvin of the New York Giants, who played both first base and left field, batted in the most runs in the National league with 121, while Zernial was also the leader in that department in the American loop with 129.

All Star Game.—By using the same weapon that had so often caused their downfall in the midsummer classic—the home run—the National league defeated the American league, 8–3, before 52,075 in Detroit's Briggs stadium. Stan Musial, Ralph Kiner, Bob Elliott of the Boston Braves and Brooklyn's Gil Hodges hit four-baggers for the winners and Vic Wertz and George Kell, both of the Detroit team, hit homers for the losers. New York's Sal Maglie was the winning pitcher, and Eddie Lopat of the Yankees was the loser. It was the sixth National league victory in 18 games and their second in a row.

World Series.—For the sixth time in baseball history the New York Giants and the New York Yankees met in the world series. The Yankees defeated their intercity rivals four games to two, to bring them their 14th world championship since 1923 and their 3rd in the last three years.

The series opened in Yankee stadium on Oct. 4, with 65,673 fans on hand. Manager Casey Stengel nominated his ace, Allie Reynolds, to do the Yankees' pitching, and Leo Durocher's nominee was a surprise choice—left-hander Dave Koslo. It was expected by many that 23-game winner Larry Jansen would be the Giant's choice, but Koslo pitched and won, defeating the Yankees 5–1.

Jansen was Durocher's choice for the second game, opposing Eddie Lopat, and the Yankees tied the series at one game each by winning 3–1. After scoring in the first inning on two bunts and a pop fly single, the Yankees scored again on Joe Collins' home run in the second inning, and Lopat drove home the final tally with a single in the eighth.

The series then moved to the Polo Grounds and the Giants moved back into the lead when they won the third game, 6–2. Vic Raschi was the starter for the Yankees and Jim Hearn for the Giants. The game was a close one, the Giants leading 1–0 until the fifth inning when they added five more runs, featured by Carroll (Whitey) Lockman's three-run homer.

The following day (Sunday) the game was postponed because of rain, and the Yankees evidently profited from the rest, for they came back to win the next three games and the series. On Monday they won by the identical score by which they had been beaten on Saturday, 6–2. Reynolds was the winner over the Giants' ace, Sal Maglie. The outstanding blow of the game was Joe DiMaggio's two-run homer, the last of his illustrious career.

The Yankees made it three games to two when they won the fifth game 13–1, the biggest margin of victory in a series game in 15 years. Gil McDougald, the rookie third baseman of the Yankees, became the third man in world series history to hit a home run with the bases loaded when he hit one of Larry Jansen's pitches out of the park in the third inning.

The final game was played back at Yankee stadium and it was a victory for the A.L. forces, 4–3. The Giants went into the first half of the ninth trailing 4–1, but, with two out, they had one man on second and two runs in. Sal Yvars, utility catcher, was called upon to pinch-hit and he hit a sinking line drive to right field on which Hank Bauer made a sensational sliding catch to bring the title to the Yankees.

The six games attracted a total of 341,977, and receipts totalled $1,633,457.47. Of this amount the players' pool was $560,562.37, which provided each Yankee a winning share of

$6,446.09 and each Giant a loser's cut of $4,951.03.

Attendance.—While the turnstile count was off generally, the Chicago White Sox enjoyed a fine year at the gate, drawing a total of 1,328,234. This was 344,831 over their previous high of 983,403, set in 1946. While some of the other clubs showed a slight improvement, in Detroit the Tigers played to about 800,000 fewer customers in 1951 than they had in 1950.

The New York Yankees were again the number one gate attraction, although they failed to draw 2,000,000 for the first time in six years. Their total was 1,950,107.

Following are the 1951 attendance figures compared with those of 1950:

American League

Club	1951	1950	Change
New York	1,950,107	2,081,380	—131,273
Cleveland	1,704,984	1,727,464	— 22,480
Chicago	1,328,234	781,330	+546,904
Boston	1,312,282	1,344,080	— 31,798
Detroit	1,132,641	1,951,474	—818,833
Washington	695,167	699,697	— 4,530
Philadelphia	465,469	309,805	+155,664
St. Louis	293,790	247,131	+ 46,659

National League

Club	1951	1950	Change
Brooklyn*	1,282,628	1,185,896	+ 96,732
New York*	1,059,539	1,008,878	+ 50,661
St. Louis	1,013,429	1,093,411	— 79,982
Pittsburgh	980,590	1,166,267	—185,677
Philadelphia	937,658	1,217,035	—279,377
Chicago	894,415	1,165,944	—271,529
Cincinnati	588,268	538,794	+ 49,474
Boston	487,475	944,391	—456,916

*Brooklyn and New York figures do not include the play-off. The one game at Ebbets field drew 30,707 and the two games at the Polo Grounds drew a total of 72,929.

Hall of Fame.—Two new members were elected to baseball's Hall of Fame at Cooperstown, N.Y. Both won their fame as home-run hitters. Jimmy Foxx, a first baseman who spent most of his years with the Philadelphia Athletics and Boston Red Sox and one of the most powerful right-handed hitters in the game's history, was one. The other was Mel Ott, right fielder of the New York Giants and later the club's manager.

Final Major League Standings, 1951

National League				American League			
Club	Won	Lost	Pct.	Club	Won	Lost	Pct.
New York	98	59	.624	New York	98	56	.636
Brooklyn	97	60	.618	Cleveland	93	61	.604
St. Louis	81	73	.526	Boston	87	67	.565
Boston	76	78	.494	Chicago	81	73	.526
Philadelphia	73	81	.474	Detroit	73	81	.474
Cincinnati	68	86	.442	Philadelphia	70	84	.455
Pittsburgh	64	90	.416	Washington	62	92	.403
Chicago	62	92	.403	St. Louis	52	102	.338

Final Minor 1951 Winners

Class	League	Pennant Winner	Play-off Winner
AAA	American association	Milwaukee (Wis.)	Milwaukee
	International	Montreal (Que.)	Montreal
	Pacific Coast	Seattle (Wash.)	
AA	Southern association	Little Rock (Ark.)	Birmingham (Ala.)
	Texas	Houston (Tex.)	Houston
A	Central	Dayton (O.)	(no play-offs)
	Eastern	Wilkes-Barre (Pa.)	Scranton (Pa.)
	South Atlantic	Montgomery (Ala.)	Montgomery
	Western	Omaha (Neb.)	Sioux City (Ia.)
B	Big State	Gainesville (Tex.)	Gainesville
	Carolina	Durham (N.C.)	Winston-Salem (N.C.)
	Florida International	Tampa (Fla.)	St. Petersburg (Fla.)
	Gulf Coast	Corpus Christi (Tex.)	Brownsville (Tex.)
	Inter-State	Hagerstown (Md.)	Wilmington (Del.)
	Piedmont	Norfolk (Va.)	Norfolk
	Three-I	Terre Haute (Ind.)	Quincy (Ill.)
	Tri-State	Charlotte (N.C.)	Spartanburg (S.C.)
	Western International	Spokane (Wash.)	(no play-offs)
C	*Border	Kingston (N.Y.)	(no play-offs)
	California	Santa Barbara (Cal.)	Santa Barbara
	Canadian-American	Oneonta (N.Y.)	Oneonta
	Cotton States	Monroe (La.)	Natchez (Miss.)
	Evangeline	Thibodaux (La.)	Hammond (La.)
	Longhorn	San Angelo (Tex.)	Odessa (Tex.)
	Middle Atlantic	Niagara Falls (N.Y.)	Niagara Falls
	Northern	Eau Claire (Wis.)	Grand Forks (N.D.)
	Pioneer	Salt Lake City (Utah)	Great Falls (Mont.)
	Provincial	Sherbrooke (Que.)	Sherbrooke
	Southwest International	Mexicali (Mex.)	Mexicali
	Western association	Topeka (Kan.)	(no play-offs)
	West Texas-New Mexico	Abilene (Tex.)	Abilene
D	Alabama-Florida	Headland (Ala.)	Dothan (Ala.)
	Appalachian	Kingsport (Tenn.)	Kingsport
	Coastal Plain	Kinston (N.C.)	New Bern (N.C.)
	Far West	Klamath Falls (Ore.)	Klamath Falls
	Florida State	DeLand (Fla.)	DeLand
	Georgia-Alabama	LaGrange (Ga.)	(no play-offs)
	Georgia-Florida	Valdosta (Ga.)	Waycross (Ga.)
	Georgia State	Jessup (Ga.)	Douglas (Ga.)
	K-O-M	Ponca City (Okla.)	Carthage (Mo.)
	Kitty	Fulton (Ky.)	Fulton
	Mississippi-Ohio Valley	Paris (Ill.)	Danville (Ill.)
	Mountain States	Hazard (Ky.)	Hazard
	North Carolina State	High Point–Thomasville (N.C.)	High Point–Thomasville
	Ohio-Indiana	Marion (O.)	Marion
	Pony	Olean (N.Y.)	Hornell (N.Y.)
	Sooner State	Ardmore (Okla.)	McAlester (Okla.)
	Virginia	Colonial Heights–Petersburg (Va.)	Elizabeth City (Va.)
	Western Carolina	Morganton (N.C.)	Shelby (N.C.)
	Wisconsin State	Sheboygan (Wis.)	(no play-offs)

*Did not finish season.

The Minor Leagues.—Fifty minor leagues started the 1951 season, and all but one finished. The lone failure was that of the class C Border league, a six-team circuit located in northern New York state and Ontario, Can. Milwaukee of the American association defeated Montreal, of the International league, in the little world series, four games to two. In the Dixie series, the Birmingham Barons (Southern) defeated the Houston Buffaloes (Texas). (F. C. Fr.)

Basketball.

Despite the scandal of "fixed" contests that broke early in the season to shock the sports world as no other exposure had since the infamous "Black Sox" baseball series, the court game lost little of its popular appeal during 1951.

Kentucky, ranked first in the nation in the Associated Press poll and generally conceded top position, captured the National Collegiate Athletic association championship. The Wildcats won the crown by defeating Kansas State, 68–58, in the final play-off at Minneapolis, Minn., as Bill Spivey led their attack with 22 points. Illinois took third-place honours by conquering Oklahome A. and M., 61–46. Kansas State reached the title round by upsetting the Oklahoma Aggies, 68–44, in the Western play-offs at Kansas City, Mo. Kentucky had earned the right to play at Minneapolis by eliminating Illinois, Big Ten champion, 76–74, in the Eastern play-off final before 16,425 persons in New York city's Madison Square Garden. A field goal by Shelby Linville in the closing 17 sec. won for Kentucky. Spivey's 28 points made him the high scorer.

Illinois had furnished a surprise earlier in the sectional play-offs by halting undefeated Columbia, 79–71. The Lions had won 22 straight games during their regular season to extend

POLICE STATION in New York city during the booking of persons charged on Feb. 18, 1951, with bribery in the "fixing" of college basketball games. Two of the players are at left front, a detective at centre front their string through 31 contests and give Columbia its first perfect campaign in history and the Eastern Intercollegiate (Ivy) league championship.

Brigham Young came through on top in the National Invitation tourney at Madison Square Garden, routing Dayton, 62–43, in the final battle.

Although winning the N.C.A.A. crown, Kentucky was shorn of laurels it had worn for seven consecutive campaigns when it lost to Vanderbilt, 61–57, in the Southeastern conference tournament, although the Wildcats again took the title during the regular conference season.

The West routed the East, 75–59, in the sixth annual All-Star contest at Madison Square Garden on March 31. Oregon State furnished a surprise by stopping Bradley, 75–45, in the final of the Hawaiian Invitation tourney. St. Francis of Brooklyn, N.Y., annexed the National Catholic Invitation competition by defeating Seattle, 93–79, at Albany, N.Y. Hamline university of St. Paul, Minn., gained the national intercollegiate crown for the third time when it toppled James Millikin university, 69–61.

North Carolina State beat Duke, 67–63, for its fifth straight victory in the Southern conference tourney. Texas A. and M. advanced to the Western N.C.A.A. play-offs by conquering Texas in a three-game series after the Southwest conference race had ended in a tie among Texas, the Aggies and Texas Christian. Washington won on the Pacific coast and the Oklahoma Aggies triumphed in the Missouri valley. Kansas State paced the Big Seven, Brigham Young the Skyline Six conference and Arizona the Border conference. American university was king of the Mason-Dixon group.

The U.S.S.R. captured the European championship, defeating Czechoslovakia, 45–44, in the concluding game of the tourney. The unbeaten Russians reached the title round by halting Bulgaria, 72–54, while the Czechs advanced by subduing France, 59–50.

The men's national Amateur Athletic union title was taken by the Stewart Chevrolets of San Francisco, Calif., and the women's laurels were annexed by the Hanes Hosiery team of Winston-Salem, N.C.

Professional basketball showed a drop in attendance although the long season did not end until April 21 when the Rochester Royals defeated the New York Knickerbockers, 79–75, in the seventh contest of the final play-off series for the National Basketball association title. (T. V. H.)

Basutoland: *see* British South African Protectorates.

Baudouin I

(1930–), king of the Belgians, was born at Stuyvenberg castle, near Brussels, on Sept. 7, elder son of King Leopold III and Queen Astrid. Just before he was five he lost his mother in a motor accident and was almost ten when Belgium was invaded by the Germans. He accompanied his father during his internment in Germany (June 1944–May 1945) and his subsequent voluntary exile in Switzerland. He was for the most part privately educated but during his father's stay at Pregny, near Geneva (1945–50), he attended a state college at Geneva. As prince royal he acted as head of the state from Aug. 1950, when his father delegated to him the exercise of the royal prerogatives, until Leopold's abdication on July 16, 1951. He took the oath as King Baudouin I before both houses of parliament and the officers of state on July 17. Leopold was allowed to retain the courtesy title of King Leopold.

Bauxite: *see* Mineral and Metal Production and Prices.
Bechuanaland Protectorate: *see* British South African Protectorates.

Beef: *see* Meat.
Beer: *see* Brewing and Beer.

Belgian Colonial Empire.

The Belgian colonial empire consists of the colony of the Congo in central Africa and the adjacent trust territories of Ruanda and Urundi administered with the Congo. Total area: about 925,094 sq.mi. Total pop. (1951 est.): 14,929,200. Areas, populations, capital towns, status and governors of the separate territories are given in the table.

Belgian Colonial Empire

Country	Area (In sq.mi.)	Population (1951 est.)	Capital	Status	Governor
Belgian Congo	904,974	11,132,500 (incl. 59,157 Europeans)	Léopoldville	Colony	Eugène Jungers, governor general
Ruanda	20,120	3,796,700 (incl. 2,805 Europeans)	Nianza	Sultanates, trust territories	
Urundi			Kitega		

History.—In 1951 the forces in the Belgian Congo amounted to 10,000 native troops. One unit was stationed at Kamina, the new Belgian military base in the Lualaba province, where small Belgian forces were directing the construction of barracks, munition and fuel dumps and an airfield. Belgian airborne troops and commandos were expected to be established there by 1952.

Exports from the Belgian Congo and from the trust territories Ruanda and Urundi during the first nine months of 1951 amounted to 14,205,200,000 fr. against 9,190,300,000 fr. during the corresponding period in 1950. About 46% of the exports went to Belgium, whereas the homeland provided 40% of the imports of the colony.

For the fulfilment of the ten-year plan for the development of natural resources $160,000,000 was invested in 1951, through a loan by E.C.A. and the floating of a loan of 60,000,000 Swiss francs, the latter being used for the payment of Swiss electrical equipment. The government published a similar ten-year plan for Ruanda and Urundi.

An agreement was signed with Great Britain in April for the construction of a deepwater berth at Dar-es-Salaam where the Belgian Congo already enjoyed special port facilities. At the end of the year a transport crisis caused by accumulation of goods developed at key points of traffic in the Congo. The licence system for imports and exports had to be revised to give priority to essential goods. (*See* also International Bank for Reconstruction and Development.) (M. Ss.)

Finance.—Budget: Belgian Congo (1950 est.) revenue 4,032,200,000 fr., expenditure 4,008,900,000 fr.; (1951 est.) revenue 5,125,500,000 fr., expenditure 4,959,100,000 fr. Ruanda and Urundi (1950 est.) revenue 276,600,000 fr., expenditure 325,200,000 fr.; (1951 est.) revenue 321,300,000 fr., expenditure 363,900,000 fr. Monetary unit: Congolese franc, nominally an independent currency, actually at par with the Belgian franc and with an exchange rate (Sept. 1951) of 50.50 fr. to the U.S. dollar.

Foreign Trade.—Belgian Congo and Ruanda and Urundi (1950): imports 9,559,000,000 fr., exports 13,595,000,000 fr.

Transport and Communications.—(Belgian Congo and Ruanda and Urundi). Roads (1949): 111,971 km. Railways (1949): 4,756 km. Waterways (1948): 25,412 km., including 12,284 km. for barges of 40 gross tons. Licensed motor vehicles (Belgian Congo only, Dec. 1950): cars 11,500, commercial 12,000.

Principal Products.—Belgian Congo and Ruanda and Urundi (1950, metric tons if not otherwise stated): copper, metal 193,917; tin, metal 14,792; cobalt 5,070; cotton 47,000; coffee 31,400; gum copal (exports) 12,476; gold (fine ounces) 339,000; silver (fine ounces) 4,469,000; (1949, metric tons if not otherwise stated): manganese ore 12,247; tungsten 169; cadmium 25; zinc, concentrates 109,263; coal 152,370; palm oil (exports) 121,766; palm kernels (exports) 80,034; maize 17,271; timber (exports) 71,313; diamonds (carats) 9,884,000.

Films of 1951.—*Giants and Dwarfs* (Films of the Nations Distributors, Inc.).

Belgian Congo: *see* Belgian Colonial Empire.

Belgium.

A kingdom in western Europe, Belgium is bounded southwest by France, north by the Netherlands and east by Germany and Luxembourg. Area (including some Ger-

LEOPOLD III signing abdication papers ending his 17-year reign as king of the Belgians on July 16, 1951. His son, Baudouin I (right), was formally proclaimed king on July 17

man frontier localities annexed on April 15, 1949): 11,782.5 sq.mi. Pop.: (1947 census) 8,512,195; (Dec. 1950 est.) 8,654,000. Languages (1930): Flemish (Dutch) 42.92%, French 37.56%, German 0.85%, Flemish and French 12.92%, German and French 0.83%. Religion: mainly Roman Catholic. Chief towns (pop., 1948 est.; first figure including suburbs, second figure commune only): Brussels (cap., 1,296,687; 185,112); Antwerp (chief port, 794,280; 266,636); Liège (573,176; 156,664); Charleroi (445,229; 26,262); Ghent (442,792; 166,797); Namur (215,069; 31,637); Bruges (200,850; 52,984). Ruler: King Baudouin I (*q.v.*); prime minister: Joseph Pholien.

History.—A long period of constitutional dispute ended in Belgium when, on July 17, 1951, Prince Baudouin took the oath in parliament and became the fifth king of the Belgians. After King Leopold's return to the country on July 22, 1950, disorders had occurred and the king was persuaded to transfer his royal powers to the heir to the throne, who, on Aug. 11, 1950, took the oath and became the prince royal, pending his accession to the throne on Sept. 7, 1951, when he would be 21. However, in June 1951 King Leopold suggested to the prime minister and to the presidents of the Christian Social, Socialist and Liberal parties to advance the accession to the throne because, in his opinion, calm and unity were sufficiently restored. On July 16, in the throne room of the royal palace in Brussels, King Leopold signed the abdication act.

Political.—Pholien tendered the government's resignation after the accession ceremony but King Baudouin asked him to remain in office. The government issued from the Christian Social party, retained a majority of four in the house of representatives and of seven in the senate. The government party itself was an amalgamation of Roman Catholic peasants, workers, middle classes, industrialists and landowners. Changes in the government had been forecast because of controversies on economic and labour policies, but King Baudouin's decision made an end to the speculations, and Pholien had declared that only an adverse vote in parliament would force him to reconstruct his cabinet or to resign. For months contrary influences within his own party were brought to bear upon the prime minister. The house of representatives reassembled on Nov. 6 to question the government. At the end of the debate a vote of confidence was passed but Pholien felt compelled to enter into negotiations for the appointment of a minister for co-ordination of economic policy. The prospect of a political crisis resulting in dissolution of parliament, and of new elections which might destroy its small majority, kept the Christian Social government in the saddle.

Economic and Financial.—The Korean war and rearmament in western Europe caused appreciable changes. The index of industrial production (1936–38 = 100) stood at 148.6 in Nov. 1951 compared with 122 in Jan. 1950. In May ended the period of increased imports, mainly of raw materials, whereas in October exports reached the record figure of 12,474,000,000 fr. (about $250,000,000). The monthly average of exports in 1949 was 6,649,000,000 fr. (about $133,000,000). The increase of the cost of living since Sept. 1949 was estimated at 9% compared with 30% in France and 23% in the Netherlands. In the European Payments union (E.P.U.) Belgium became the biggest creditor nation. At the end of September there was a credit overdraft of more than $80,000,000 and in October the government introduced a series of measures to stop speculative imports of capital from countries of the E.P.U. Imports of goods from the dollar area were restricted to promote purchases in the E.P.U. area. On the other hand, exports to E.P.U. countries were discouraged by blocking 5% of the proceeds.

International.—Co-operation between the Netherlands and the Belgo-Luxembourg Economic union continued, but the formal beginning of the Benelux Economic union underwent delay because of the Netherlands' balance of trade deficit. At the end of the year the three governments were examining the draft of a convention introducing economic union with some temporary restrictions. In March the Belgian delegates initialled the provisional convention on the Schuman plan for pooling the coal and steel resources of western Europe. Provisions were included in the convention to avert any closing down of Belgian coal mines during the first five years, but misgivings remained. Moreover, the question was raised whether the submission to a supranational authority, not responsible to the Belgian parliament, was in accordance with the constitution.

Defense.—In March parliament passed the bill extending military service from one to two years. The strength of the Belgian forces increased from 72,000 in 1950 to 110,000 in 1951. In 1952 the figure was expected to be 130,000 and 163,000 in 1954.

Construction began on 26 British camps in the area between Lierre, Herentals and Turnhout for the supply of British forces in Germany. In January the prince royal signed a decree placing the Belgian fighting forces at the disposal of the North Atlantic Treaty organization. The decree established a precedent because, by virtue of the constitution, the head of state is the commander in chief of the Belgian forces. At the time of the North Atlantic council meeting in Rome (November) the question of a European army came in the forefront. The Belgian government considered such an army desirable provided that it should increase the strength of Atlantic defense, encourage European unity and integrate western Germany into a western defense community, but many objections were raised as to the powers of the higher authority governing the European army and the amalgamation of Belgian and other troops at the risk of separating Walloon and Flemish soldiers to the detriment of Belgian unity. (*See* also EUROPEAN RECOVERY PROGRAM; EUROPEAN UNION; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEvelopment; North Atlantic Treaty Organization.)

(M. H. St.)

Education.—Schools (Dec. 31, 1949): elementary: infant 4,050, pupils 289,791; primary 8,714, pupils 768,283; adult 370, pupils 5,863; secondary: state lower-grade 97, pupils 43,772; higher grade 157, pupils 46,729; Catholic 463, pupils 66,633; teachers' colleges: infant 39, students 1,582; elementary 81, students 8,814; secondary 38, students 1,304; universities (1949–50): 4, students 16,425.

Finance and Banking.—Budget: (1951) revenue 73,400,000,000 fr., expenditure 68,300,000,000 fr.; (1952 est.) revenue 70,500,000,000 fr., expenditure 70,500,000,000 fr. National debt (Aug. 1951): 246,970,000,000 fr. Currency circulation (July 1951): 94,600,000,000 fr. Gold and foreign exchange (Aug. 1951): U.S. $935,000,000. Bank deposits (June 1951): 64,700,000,000 fr. Monetary unit: Belgian franc with an exchange rate (Sept. 1951) of 50.50 fr. to the U.S. dollar.

Foreign Trade.—(Belgo-Luxembourg Economic union, 1950): imports 97,500,000,000 fr.; exports 82,572,000,000 fr. Main sources of imports: U.S. 16%; France 11%; the Netherlands 10%; U.K. 8%. Main destinations of exports: the Netherlands 22%; France 9%; U.K. 8%; U.S. 8%. Main imports: machinery and vehicles 14%; raw wool and cotton 13%; grains 6%; coal, petroleum and products 6%. Main exports: iron, steel and manufactures 19%; thread and fabrics 15%; nonferrous metals and manufactures 11%; machinery and vehicles 9%.

Transport and Communications.—Roads (1949): 6,648 mi. Licensed motor vehicles (Dec. 1950): cars 273,599; commercial 144,566. Railways (1950): 3,128 mi.; passenger-miles 4,377,000,000; freight ton-miles 3,393,000,000. Shipping (July 1950): merchant vessels of 100 gross tons and over 222; total tonnage 481,656. Navigable waterways 969 mi. Air transport (1950): passenger-miles 146,000,000; cargo ton-miles 5,257,000. Telephones (Dec. 1949): subscribers 471,705. Radio receiving sets (1949): 1,374,400.

Agriculture.—Main crops (metric tons, 1950): wheat 547,000; barley 260,000; oats 503,000; rye 238,000; potatoes 2,309,000; sugar, raw value 445,000; linseed 12,000; rapeseed 3,000. Livestock (Jan. 1951): cattle 2,020,000; sheep 116,000; pigs 1,234,000; horses 247,000; goats 55,000; poultry 16,500,000. Dairy production (1950): butter 73,000 metric tons; milk 3,452,000,000 l. Meat production (1950): 318,000 metric tons. Fisheries (1949): total catch 68,300 metric tons.

Industry.—Industrial establishments (Jan. 1948): 248,128; persons employed 1,000,010. Fuel and power (1950): coal 27,300,000 metric tons; manufactured gas 1,446,000,000 cu.m.; electricity 8,484,000,000 kw.hr. Raw materials (metric tons, 1950): pig iron 3,696,000; steel ingots and castings 3,768,000; copper smelter 137,000; lead 62,000; zinc 177,000; tin 10,400; aluminum 1,900. Manufactured goods (metric tons, 1950): cement 3,552,000; woven cotton fabrics 74,000; cotton yarn 98,000; wool yarn 40,000; rayon filament yarn 9,800; paper and cardboard 301,200.

Bibliography.—J. K. Miller, *Belgian Foreign Policy Between Two Wars, 1919–1940* (1951).

Films of 1951.—*Handicrafts of Belgium* (Almanac Films, Inc.); *The Brussels Ommegang* (Films of the Nations Distributors, Inc.).

Benefactions: *see* Donations and Bequests.
Benelux: *see* Belgium; European Union; Netherlands.

Benton, William

(1900–), U.S. senator and publisher, was born on April 1 in Minneapolis, Minn. He was graduated from Yale university in 1921. In 1929, in partnership with Chester Bowles, he founded the advertising agency of Benton and Bowles.

Benton retired from the agency in 1936, and in 1937 became vice-president of The University of Chicago, on a part-time basis. At his instance the university acquired Encyclopædia Britannica, Inc., in 1943. He financed the company, became chairman of its board and shared its ownership with the university. He launched the company into the classroom motion-picture field and served as chairman of Encyclopædia Britannica Films Inc. During this period, in collaboration with Paul Hoffman, he helped to found the Committee for Economic Development, and he was active in inter-American affairs.

Benton was appointed U.S. assistant secretary of state by Pres. Harry S. Truman on Aug. 31, 1945, and served until Sept. 30, 1947. He developed the country's first peacetime program of international information and educational exchange and took responsibility for U.S. participation in the United Nations Educational, Scientific and Cultural organization.

In Dec. 1949 Benton was appointed U.S. senator from Connecticut to succeed Raymond E. Baldwin, resigned; in the Connecticut election of Nov. 7, 1950, he was returned to the senate for two more years. His first two years in the senate were marked by his campaign in behalf of a "Marshall Plan of Ideas," by his vigorous espousal of the Hoover commission recommendations on government reorganization and by his activities on behalf of small business. In 1951 he secured the adoption of the "Benton amendment" to the Mutual Security act, which instructs the administrator of that program to oppose cartels and Communist-dominated unions abroad; made proposals to strengthen anticorruption laws; and introduced a resolution calling for expulsion of Sen. Joseph McCarthy of Wisconsin, following criticism by a senate committee of McCarthy's role in the 1950 Maryland campaign. This resolution was under committee study at the year's end. (*See* also Radio.)

Benzene: *see* Chemistry.
Bequests, Philanthropic: *see* Donations and Bequests.

Berlin.

Capital of the German reich from 1871 to 1945, Berlin was still by 1951 the largest city of Germany. Area: 343.6 sq.mi. Pop.: (1939 census) 4,321,500; (1946 census) 3,180,300, or 26.4% less. From June 6, 1945, to June 24, 1948, Berlin was administered by an inter-Allied government authority (in Russian, *Kommandatura*) consisting of the commandants of the four sectors of Berlin. After June 24, 1948, when the soviet commandant proclaimed the dissolution of the *Kommandatura*, Berlin was in fact divided into two opposing administrations. By Dec. 31, 1951, the three western sectors (pop., *c.* 2,500,000) were under the authority of the three following Allied commandants: Great Britain, Maj. Gen. C. F. C. Coleman; United States, Brig. Gen. Lemuel Mathewson; France, Gen. Pierre Carolet. In the soviet sector (pop., *c.* 900,000) the civil administrator was Serghey Dienghin, with A. F. Susin as deputy. There were also two rival German city governments and two lord mayors; Ernst Reuter was *Oberbürgermeister* appointed by a city assembly elected by the population of the three western sectors; Friedrich Ebert was provisional *Ober-*

WEST BERLIN POLICE using a hose on young Communists after an attempted propaganda invasion of the U.S. zone by delegates to the soviet-sponsored world youth festival in Aug. 1951

bürgermeister of the soviet sector appointed by a meeting summoned by the Sozialistische Einheitspartei Deutschlands.

History.—By the end of 1951 west Berlin was still not included as the 12th *Land* in the Federal Republic of Germany, but it had 19 nonvoting deputies in the Bonn parliament, instead of 8. The extra 11, chosen according to party strength, were: 4 Socialists, 4 Free Democrats and 3 Christian Democrats. Ernst Reuter was re-elected *Oberbürgermeister* by 77 out of 125 votes on Jan. 18, even though his party, the Socialist, did not have the absolute majority.

Attempts by soviet and eastern German authorities to "needle" west Berlin, particularly to upset its normal trade communications with the west, continued. Interference with interzonal waterways traffic was settled on May 4, and holding up of mail to and from western Germany on Sept. 6. The sudden introduction of an excessive *Autobahn* tax for western German and west Berlin transport using the special international highway between Berlin and Helmstedt (British zone) lasted three weeks (Sept. 1–21); then the tax was considerably reduced.

In February soviet authorities took over West Staaken, a small village on the outskirts of the British sector. Though technically belonging to the soviet zone since 1945, it had been included in the administration of Berlin-Spandau. Eastern German police seized in October the hamlet of Steinstücken, 1 mi. beyond Zehlendorf and administratively under that suburb. When the U.S. commandant protested, the soviet authorities ordered their police to withdraw.

West Berlin's main problem was still economic. At the end of November the number of unemployed was 265,000, and more than 25% of these were between the ages of 14 and 30 years, thus constituting a great social problem. Industrial production, as compared with that at the end of the blockade (May 1949), had almost trebled by the summer of 1951, but the production index still lagged far behind that of western Germany. It was still only 50% of that for 1936, whereas for western Germany it was 35% above. West Berlin was well equipped to meet the demands for electrical goods of all sorts, precision and optical instruments, pharmaceutical products, etc. About 75% of the 1951 exports went to European countries and the rest overseas.

Investments for creating employment amounted to 706,900,000 DM. in 1949–50, and to 953,000,000 DM. in 1950–51; 166,900,000 DM. and 273,000,000 DM., respectively, were from foreign sources. Budget deficits under the abnormal conditions prevailing were the rule. The German Federal Republic promised at the end of October an additional 550,000,000 DM. monthly from the *Notopfer Berlin* funds to help to tide over these difficulties. On Sept. 28 Reuter outlined a seven-point program of the Berlin senate which included political incorporation of west Berlin in the federal republic, greater financial credits for industry, building schemes, security of unhindered traffic to and from the city and other matters.

In addition to the usual unemployed, the escape to the western sectors of the city of about 3,000 refugees monthly from the soviet zone was a serious strain on resources. Though only about 25% of these were accepted as genuine political victims, nevertheless these had to be fed and housed until transferred to western Germany.

Despite its difficulties, west Berlin had done much to clean and improve its general appearance. Great improvements were noticeable in the streets and parks, and many international exhibitions were organized, particularly the September Festival of Music and Drama, which rivalled many of those of prewar days. An exhibition of a different sort was that of German industry (Oct. 6–21).

An outstanding U.S. gift, announced on July 17, was that of $1,309,500 from the Ford foundation to the Free University of Berlin for building a central library and a students' dining hall. (By 1951 this university had 2,000 students.)

East Berlin moved very slowly, with little of importance to record. The 1951 youth festival brought together about 1,500,000 members of the Free German Youth (Freie Deutsche Jugend). Most of them were from Communist-controlled areas, but about 11,500 crossed from the western zones of Germany. Unlike the 1950 festival, which was intended to demonstrate the strength of the movement among the youth, the 1951 festival was taken up with a program of sport and entertainment. But propaganda was not forgotten. Despite the efforts of the *Volkspolizei*, thousands of the members crossed over into west Berlin where they were welcomed by the people and carried back home views of the free world.

The east Berlin city council did little to improve the drab, shabby appearance of most of the city under its administration. The only exception was its principal street, Unter den Linden. There, the soviet embassy (completed after two years' work) stood out as a modern but much overdone structure. The former Lustgarten, renamed Marx-Engels square, was more than ever like a miniature Red square. In political, economic and cultural policies, east Berlin followed unquestioningly the line laid down by the eastern German Communist government. As the split in the city continued, it was surprising that in so many services which the eastern and western sectors shared in common (*e.g.*, transport) conditions were so near normal. (J. E. Wi.)

Bermuda.

Bermuda is a British colony of about 300 small islands 580 mi. E. of Cape Hatteras, N.C. Area: 21 sq.mi. Pop. (1950 census): 37,254. Chief towns: Hamilton (cap., *c.* 3,500); St. George (*c.* 1,300). Governor in 1951: Lieut. Gen. Sir Alexander Hood.

History.—The royal naval dockyard closed on March 31, 1951, as expected, although Bermuda remained the base of the American and West Indian squadron. No definite plan materialized for the solution of the problems caused by the closing of the dockyard. A commission which investigated the growth of population and illegitimacy recommended that steps be taken at once to restrict population growth. Plans for developing a commercial tuna fishing industry centred on Bermuda were discussed at the Bermuda Oceanic Fisheries conference.

Education.—Schools (1949): aided 27 (attendance 5,701); attendance at private schools, 1,251.

Finance and Trade.—Currency: Bermuda pound (at par with sterling). Budget (1950): revenue £2,009,463; expenditure £1,969,022. Foreign trade (1950): imports £8,208,376; exports £962,646. Principal exports were cut flowers. The economy of the colony rested on the tourist trade. Tourists: (1950) 71,260, including 61,654 from the United States; (first eight months of 1951) 73,000. (Jo. A. Hn.)

Beryllium: *see* Mineral and Metal Production and Prices.
Best Sellers: *see* Book Publishing.

Betting and Gambling.

Two groups—the senate crime investigating committee in the United States and the Royal Commission on Betting, Lotteries and Gaming in Great Britain—devoted many months of 1950–51 to the gambling problem, and each was ready with a report in 1951.

The senate crime investigating committee, headed by Sen. Estes Kefauver of Tennessee, estimated that illegal gambling in the United States totalled $20,000,000,000 annually. It recommended legislation that would ban interstate transmission of racing information and other sporting odds and results, and also proposed that the bureau of internal revenue compel gamblers to keep detailed records of winnings and losses, and forbid them to deduct losses and business expenses from their income taxes.

However, the Federal Communications commission would not undertake to police such dissemination of information, and some legislators maintained that to cut off racing news service, for example, constituted an abridgment of freedom of the press.

There was some support for legalization of gambling, but prosecutors opposed such legalization, their opinion being that it might reduce corruption at the police and ward politician level but that it would force a rise in corruption at higher levels.

The legislation resulting from the investigation in the U.S. required gamblers, on or before Nov. 30, 1951, to register with their district collector of internal revenue, to pay a tax prorated at $50 per year, and thereafter to collect and remit as tax 10% of their gross receipts. On Dec. 4 the internal revenue bureau announced that 7,706 individuals in the United States had registered as gamblers. This figure might be compared with an estimated 15,000 bookmakers in New York city alone.

At the end of the year, U.S. gamblers were "lying low." Their opinion seemed to be that the country was momentarily heady with reform emotionalism, but would get over it, and that they would survive it as they had survived other antigambling crusades.

The sale of "scratch sheets" lessened by 40% to 90% in most large cities. The arrest of bookmakers decreased by more than 80%.

In the drive against gambling, racing received the greatest attention because at least some betting on horse races was legal in a majority of the states. Racing men, however, contend that as much or more money was bet on baseball, basketball, football and elections.

A Gallup poll showed that 57% of the population of the U.S. gambled, however mildly, and that their preference in gambling (in order) was bingo or raffles, cards, punchboards, sporting contests, slot machines, horse racing, sweepstakes, elections and the numbers game.

A similar survey in Great Britain showed that 80% of the adult population gambled. (M. Ber.)

Great Britain.—The commission held 25 meetings for hearing oral evidence and 17 meetings for discussion, and they heard evidence from 141 witnesses.

The commission stated as a principle that: "It is the concern of the state that gambling, like other indulgences such as the drinking of alcoholic liquor, should be kept within reasonable bounds, but this does not imply that there is anything inherently wrong in it." And in support of the commission's suggestion that the state should control gambling as it does drinking, while making no attempt at prohibition, its proposal that betting shops for off-the-course cash bets should be allowed under licence and strict police control, seemed to be a moderate encouragement to gambling rather than a deterrent. But this proposal was favoured by every witness with practical experience of the enforcement of present laws, only the bookmakers' associations and the churches' committee, in unusual alliance, being opposed to it.

On football pools the commission proposed that any one prize "must not exceed a specified amount." It did not specify a particular sum, but said, "We think that the limit should not be higher than £20,000, but that it would not be reasonable to make it less than £10,000." The commission would prohibit abbreviated permutations, and recommended that any commission, expenses, or other amount (taxation) charged by the promoter against the gross stakes must be charged against the total stakes in each pool in the proportion which the total stakes in that pool bear to the gross stakes. The total amount paid to winners in any pool must be equal to the total stakes in that pool, less any amount deducted in accordance with the preceding recommendation, and they may not be supplemented from any other source.

The commission made proposals about amusement arcades, dog racing, lotteries and competitions and totalizator betting. It was, however, on the publication of information relating to gambling that the commission's proposals were of importance. It found that the net expenditures on gambling was approximately £70,000,000 a year, a figure far less than that given by the churches' committee. "Figures of the total stakes in all forms of gambling must give a wholly misleading picture of the importance of expenditure on gambling as a whole." In comparison with the amounts spent on tobacco, drink or entertainment the total amount spent on gambling was about 8% of the total personal expenditure. The commission stated that the total number of persons employed full time or working on their own appeared to be 47,000 and the number of part-time employees about 30,000. (H. C. La.)

Public Expenditure on the Principal Forms of Betting in Great Britain

(In millions)

	1951	1950	1949
Totalizator at race courses.	£25.5*	£25.5*	£25.8*
Totalizator at dog tracks	68 †	70.4‡	85.6‡
Pools (all forms)	54 †	52.3†	64 †

Sources: *Race Course Betting Control board. †Customs and excise annual report. ‡Home office.

Bevan, Aneurin

(1897–). British politician, was born at Tredegar, Monm., Eng. He was educated at Serhowy elementary school. The son of a miner, he started work as a collier's helper at 13, was chairman of a miner's lodge before he was 19 and in 1921 led unemployed miners seeking help from the Poor law authorities. After studying at the Central Labour college, London, he threw himself into local politics, first as a member of the Tredegar urban district council and, in 1928, as a county councillor.

He was elected to the house of commons for Ebbw Vale, Monm., in 1929. Throughout World War II he was a bitter and unrestrained critic of Winston Churchill's coalition government. But he was equally outspoken within his own party and in 1939 was expelled, along with Sir Stafford Cripps, for taking part in the popular front movement; he was readmitted, however, later in the year. Elected to the Labour party executive in 1944, he headed the poll in the elections to the executive every year from 1946.

As minister of health in Clement Attlee's government of 1945, Bevan was responsible for setting up the national health service as well as having charge of the housing program. He became minister of labour and national service in Jan. 1951, but in April resigned from the government, along with Harold Wilson, president of the board of trade, because he disagreed with the scale of rearmament budgeting and with the apportionment of the burden of expenditure among the different social classes; he said, however, that he and his supporters in the house of commons would do nothing to contribute to the defeat of the Labour government.

In the general election of Oct. 25, 1951, Bevan was again returned for Ebbw Vale. (R. Jan.)

Bhutan.

An Indian-protected state on the borders of Tibet. Area: *c.* 18,000 sq.mi. Pop. (1950 est.): 300,000, chiefly Bhotias. Language: a dialect of Tibetan. Religion: mainly Buddhist. Capital: Punakha. Ruler: Maharaja Jigme Wangchuk.

History.—Despite the approach of Chinese troops to the northeastern frontier—they reached Tsona Dzong in August—the year 1951 was uneventful. Implementing promises made at the time of signing the Indo-Bhutan treaty of 1949, the Indian parliament on Aug. 8 passed a bill ceding to Bhutan a strip of territory (32.81 sq.mi.) known as Dewangiri, hitherto included in Assam. The cession had been approved by the Assam legislature on March 27. Bhutan's original claim was for a much larger area but eventually the two parties agreed on the tract selected. This gesture helped to cement the cordial relations existing between the protectorate and India. (E. Hd.)

Bicycling: *see* Cycling.

Billiards. Willie Hoppe in 1951 won his tenth world three-cushion championship since 1936 and his seventh in succession. The 63-yr.-old Hoppe, who captured his first universal title in 1906, showed that he had lost none of his skill by breezing unbeaten through the tournament at Chicago, Ill., with six consecutive victories.

Hoppe's opposition consisted of Joe Chamaco of Mexico City, Art Rubin of Brooklyn, N.Y., and Joe Procita of Los Angeles, Calif., who finished in that order in the 1951 national championship. Chamaco, with a 4–2 record, finished second in the world tourney and the other two had identical 1–5 records.

Willie Mosconi of Haverford, Pa., retained his world pocket-billiard crown, also with six straight triumphs. Mosconi clinched honours by defeating George Chenier, the Canadian champion, and Joe Canton, the newly crowned national titleholder, in his last two contests. The fourth competitor was Irving Crane, the 1950 national champion.

Ed Lee of the New York Athletic club won his tenth national amateur three-cushion crown by turning back Robert Michael, Cleveland (O.) Athletic club, 50–39, in a three-hour 83-inning play-off match.

Larry Gray of the University of Michigan, Ann Arbor, annexed the intercollegiate three-cushion championship and Leroy Kinman of Eastern Kentucky State college, Richmond, won the pocket competition for the third year in a row. Conrado Roa of Michigan was the victor in the straight-rail contest.

Salvatore Attardi of New York city was the 1951 Boys' Clubs of America senior champion and Robert Legg of Princeton, Ind., romped off with the junior laurels. The team title went to the Tompkins Square Building unit of New York city. (P. Br.)

Biochemistry. **Amino Acid Sequence in Insulin.**—The mechanism by which proteins exert their biological action received much attention during 1951. One of the primary goals in this field had been to learn more of the structure of proteins. Work in past years had revealed a great deal of the amino acid composition of proteins and of the size and shape of these large molecules. However, two major problems remaining unsolved were: (1) the sequence of the different amino acids in the peptide chain; and (2) the manner in which the peptide chain is folded and held together to give a specific configuration.

A very notable advance in this field was the publication of the amino acid sequence in the B chain of the protein hormone insulin by F. Sanger and H. Tuppy. Insulin was chosen for this work because it seemed a relatively simple polypeptide to analyze when compared with other proteins. The results indicated that crystalline insulin was a large molecule composed of six to eight identical subunits each having a molecular weight of around 6,000. These subunits were found to consist of two different polypeptide chains (A and B) linked together by two disulphide bonds (-S-S-). These disulphide bonds were broken by gentle oxidation. The two chains were separated from each other by virtue of the fact that chain A is acidic, containing no basic amino acids, while chain B, on the other hand, contains many basic amino acids. Chain B, a polypeptide of 30 amino acids residues, contains only 15 different amino acids. For a structure containing this number of amino acids it can be computed that at least 5 x 10^{27} isomeric sequences can exist.

LIGHT for this picture came entirely from fireflies, luminous insects studied by biochemists investigating chemical, or "cold," light in 1951. Pinpoints in the child's eyes reflected insect flashes from about 75 fireflies in a pickle jar (left) during a two-minute exposure

Sanger and Tuppy identified every bond in the natural occurring polypeptide. Chain B was partially hydrolyzed by a variety of procedures to yield mixtures of di-, tri-, tetra- and even larger peptides. This was done by the use of acid or alkali at room temperature and by a number of proteolytic enzymes including pepsin, chymotrypsin and trypsin. These peptides were separated from each other by such newly developed analytical techniques as filter paper chromatography, ion exchange chromatography, adsorption analysis and ionophoresis. The actual structure of the individual peptides was then determined by means of the reagent 2,4-dinitrofluorobenzene which reacts with the free amino groups to form a stable derivative. The composition of each peptide could thus be determined. Since the different hydrolytic procedures break different bonds in the polypeptide the identification of all the individual peptide structures made it possible to derive the sequence of the amino acids in the B chain. Using Sanger's notation and the standard abbreviations for the amino acids, the complete amino acid sequence in the B chain of insulin is: phe . val . asp . glu . his . leu . cys . gly . ser . his . leu . val . glu . ala . leu . tyr . leu . val . cys . gly . arg . gly . gly . phe . phe . tyr . thr . pro . lys . ala.

Protein Structure.—An important contribution to the theory of protein structure was made by L. Pauling and R. B. Corey. Data from X-ray diffraction analysis was used as a basis to suggest spacial arrangements in which the polypeptide chains in various proteins are organized. According to these workers the α-keratin type of protein structure which is found in fibrous proteins such as unstretched hair, horn and contracted myosin (a protein component of muscle) can be pictured in the following manner. The peptide chain exists in the form of a helix. This structure is held in place by hydrogen bonds which are formed between all the carbonyl groups of the peptide bonds and the NH groups of the peptide bonds three residues away along the chain. This hydrogen bonding extends across nearly a complete turn of the helix and determines the actual configuration of the structure. Pauling calculated that there are 3.7 amino acids per turn of the helix and that the distance between the side chains of adjacent amino acids is 1.72 A. The organization of the polypeptide chains in stretched hair, silk and muscle proteins, or the β-keratin structure, is stated to consist of almost linear chains of the polypeptides in which the hydrogen bonding instead of being between amino acids in the same chain is between adjacent chains. In this extended structure the distance between the side chains of adjacent amino acids in the polypeptide is 3.32 A.

The suggestion was also made that the helical α-keratin type structure is found in nonfibrous or globular proteins. In these proteins the helix itself may be coiled in such a manner that the protein molecules may actually be round.

Carbohydrate and Fat Metabolism.—Investigations in 1951 clearly identified the "active" two carbon (C_2) intermediate which is formed during carbohydrate and fat metabolism. It had been found previously that pyruvate, acetate and the oxidation products of fatty acids are converted to common C_2 fragment which participated in such reactions as the formation of citrate or of acetoacetate. This active C_2 compound is apparently a derivative of coenzyme A. This coenzyme was discovered by F. Lipmann as an essential factor for enzymic acetylation reactions.

The mechanism by which acetate is condensed with oxalacetate to form citrate was not known until 1951. Since at least 50% of the energy in fatty acids is released when acetate is oxidized via the citric acid cycle, the details of the initial condensing step in this cycle were of considerable interest. It was demonstrated that both coenzyme A and adenosine triphosphate (ATP) were necessary to condense acetate and oxalacetate. The energy of the phosphate bonds of adenosine triphosphate is used to activate coenzyme A so that it can react with acetate to form acetyl∽CoA. Acetyl∽CoA in the presence of another enzyme can spontaneously condense with the 4 carbon acid oxaloacetate to form the 6 carbon acid, citrate. Acetyl∽CoA thus seems to be the metabolically active form of the C_2 fragment.

It was also found in the laboratory of S. Ochoa that pyruvate (which is formed from glucose) will also yield acetyl∽CoA. The reaction occurs in the presence of the proper enzymes and such cofactors as coenzyme I, thiamine pyrophosphate, etc., but does not require energy in the form of ATP. The fact that this reaction was shown to be irreversible could account for the fact that fat, although it can break down to yield acetyl∽CoA, cannot be used for the net synthesis of carbohydrate in the animal body. This acetyl∽CoA will then form citrate in the same manner as acetyl∽CoA formed from acetate. Since 80% of the total energy content of glucose is still retained in the pyruvate formed during glycolysis, the importance of these results can be readily appreciated.

Coenzyme A had been isolated from hog liver, moulds and various bacteria. Although this coenzyme had not yet been isolated in pure form, considerable information was available regarding its structure. Three major components were found: (1) pantothenic acid; (2) adenylic acid; and (3) an amine containing sulphur-mercaptoethanolamine. The pantothenic acid is linked to the mercaptoethanolamine by a peptide bond between the β alanine carboxyl group and the amino group, and to the adenylic acid by a phosphate bridge. The probable structure of coenzyme A is:

adenine-ribose-(P)-P-P-pantoyl-β alanine-mercapto-ethanolamine

The acetyl group of acetyl coenzyme A is linked to the sulphhydryl group at the end of the molecule.

It should be noted that pantothenic acid, a member of the vitamin B group, was discovered in 1933 and was found to be an essential dietary factor for animals. The discovery of its function as part of a coenzyme in an important metabolic reaction is a further illustration of the fact that most vitamins function as parts of enzymes or coenzymes.

Nucleic Acids.—Some progress was made in understanding the biological significance and the chemistry of the nucleic acids which occur in all cells. Desoxyribonucleic acid (DNA) was found to be intimately concerned with self-replicating structures such as nuclear genes, viruses and with certain substances known as "transforming principles." The transforming principles cause hereditary changes in microorganisms when added to the growth medium.

With the advent of refined analytical techniques, it was shown that the DNA concentration in a cell is directly proportional to the number of chromosomes; *i.e.*, a sperm cell has only half the amount of DNA as the majority of body cells containing diploid nuclei. In different tissues of the same species the DNA appears to have the same composition. However, in different, but even closely related, species the DNA composition is different. From these and other facts it appeared that DNA might be "the hereditary code-script of living material." (*See* also PHYSIOLOGY.)

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Biography: *see* AMERICAN LITERATURE; BOOK PUBLISHING; ENGLISH LITERATURE; OBITUARIES; and, in their alphabetical positions, biographies of living persons.

Biology: *see* ANTHROPOLOGY; BOTANY; ENDOCRINOLOGY; GENETICS; MARINE BIOLOGY; PHYSIOLOGY; ZOOLOGY.

Birth Control.

During 1951 the Planned Parenthood Federation of America appointed William Vogt, conservationist and ecologist, as its national director. Prime Minister Jawaharlal Nehru of India during the year declared that birth control was essential to the national well-being of his country. His government implemented this policy by requesting assistance from the World Health organization of the United Nations in initiating a population control program. Abraham Stone, federation vice-president, was designated to make a pilot project in India under W.H.O. auspices and Indian government sponsorship. He worked through local health centres, with control groups of illiterates as well as educated Indians who were taught family control methods requiring no artificial appliances.

The third meeting of the International Committee on Planned Parenthood took place in London, Eng., to plan a world conference on planned parenthood. Lady Rama Rau, founder and president of the Indian Family Planning association, invited the committee to hold its meeting in India in 1952 under the association's sponsorship, to facilitate the attendance of far easterners concerned with their countries' pressing population problems.

Awards.—The seventh annual Albert D. and Mary Lasker Foundation Awards in Planned Parenthood went to two authorities on world population problems. They were William Vogt and Guy Irving Burch. Vogt was cited for "his investigations in the field of conservation and his achievement in bringing world population problems home to a vast number of people." Burch, founder and director of the Population Reference bureau, Washington, D.C., and coauthor of *Human Breeding and Survival*, was recognized posthumously because "perhaps more than any other individual he was responsible for today's awareness of the population problem and the need for positive action to resolve it."

Research.—One of the serious gaps in the effort to make planned parenthood available to families everywhere had been the lack of a simple, low-cost contraceptive that could be safely used by illiterate, poverty-stricken mothers in overcrowded parts of the world. In an effort to co-ordinate and promote the research required to discover such a contraceptive, the federation established the Robert L. Dickinson Research memorial in 1951. The memorial, which was sponsoring basic research in the almost unexplored field of human reproduction, was established as the federation's tribute to Dickinson, distinguished medical birth control pioneer. Four research projects were sponsored during the year by Dickinson memorial grants, as approved by the federation's medical committee and the advisory committee of the memorial.

Clinical and laboratory research in contraception and other phases of human fertility were also carried on during the year at the Margaret Sanger Research bureau, New York city.

The Planned Parenthood federation was in 1951 the national agency and clearinghouse for 12 state leagues and 100 local committees. Birth control clinics numbered 517. These services were in 274 public health departments, 48 hospitals and 173 extramural clinics, and there were 22 referral services. Of the 157,174 yearly total of patients visiting birth control clinics in 1950, 143,565 were served in extramural clinics sponsored by federation affiliates. The seven states which included birth control in their public health programs were: Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina and Virginia. The known infertility clinics in the country were 66 of which 13 were under Planned Parenthood federation auspices. (M. Sr.)

Birth Statistics.

After three years of continuous decline from the postwar peak in 1947, the birth rate in the United States rose again in 1951. For the first nine months of that year, the birth rate was 5.1% higher than for the like period of 1950. For the whole of 1950, the number of recorded births was estimated at 3,548,000, and the birth rate at 23.5 per 1,000 population. An allowance for unrecorded births raised the estimate for 1950 to 3,699,000 births, and the rate to 24.5 per 1,000. This was 26.3% above the corresponding rate of 19.4 per 1,000 for 1940. Canada also experienced a rise, 4.6%, in its birth rate from 1950 to 1951, according to provisional data covering the first eight months of both years. For the entire year 1950, Canada, including Newfoundland, recorded 370,578 births, with a rate of 26.8 per 1,000 population.

Contrary to the experience of the United States and Canada, provisional birth records for the urban communities of England and Wales show a 2.3% decline for the first ten months of 1951 from the like period of 1950. Altogether, that country had 691,752 births for all of 1950 and a birth rate of 15.8 per 1,000 population. Thus, England and Wales had been experiencing a steady decline in birth rate since 1947. The European populations of New Zealand and of the Union of South Africa had been undergoing a similar experience, with a 1950 birth rate of 24.6 per 1,000 population for the former country and 25.7 for the latter. The birth rate for 1950 was the lowest since 1947 for Austria, Belgium, Finland, western Germany, Italy, the Netherlands, Norway, Spain, Sweden and Switzerland. High birth rates in 1950 were reported for Costa Rica (46.9 per 1,000), Dominican Republic (47.7), Guatemala (49.0) and Puerto Rico (38.5).

Although the birth rate for the total population of the United States generally tended downward after the peak year 1947, this decline was not shared by the nonwhite population. There was a rise in the nonwhite birth rate from 28.2 per 1,000 in 1947 to 30.3 in 1949, while the white population had a drop from 25.5 to 23.2. The nonwhite birth rate in 1949 was almost one-third greater than the white birth rate. Further differentials in characteristics and trends over the period 1947 to 1949 are shown in the table.

Births per 1,000 U.S. White and Nonwhite Females of Stated Ages and Order of Birth

Age and order of birth	White 1949	White 1948	White 1947	Nonwhite 1949	Nonwhite 1948	Nonwhite 1947
	Births per 1,000 females of stated ages					
10–14	0.4	0.4	0.3	4.4	4.3	4.1
15–19	71.6	70.4	68.6	149.8	144.8	134.2
20–24	190.5	189.5	199.9	226.2	218.2	201.6
25–29	163.6	161.8	176.6	157.4	148.3	137.9
30–34	100.2	101.7	110.2	94.1	89.4	85.8
35–39	51.7	52.5	57.0	60.3	59.2	59.7
40–44	14.3	14.8	15.7	19.3	17.9	17.8
45–49	1.0	1.0	1.1	1.7	1.9	2.0
	Births of stated order per 1,000 females of ages 15–44					
First	36.3	39.7	47.3	33.6	35.3	35.8
Second	32.2	30.8	30.3	29.1	27.6	24.1
Third	16.6	15.4	15.0	19.8	17.9	15.6
Fourth	7.8	7.3	7.2	13.0	11.8	10.8
Fifth	3.9	3.9	3.9	9.0	8.3	7.8
Sixth and seventh	3.7	3.6	3.7	11.2	10.5	10.1
Eighth and over	2.6	2.4	2.5	10.7	10.1	10.0

The drop in the birth rate among white women from 1947 to 1949 was confined to those at ages 20 and over; at ages under 20 years the rate actually rose. For nonwhite women, the rate rose at all ages up to 45 years; only at ages 45 to 49 years, where the rates are very low, was there a decrease. With regard to order at birth, white women showed a downward trend only in the rate for first children. The white rates increased for the second, third and fourth children, while for higher orders they were stationary. In the case of the nonwhites, the rates for first children also declined, but for all higher orders there were increases from 1947 to 1949. Since the trend in the birth rate for first children is so closely associated with that for the marriage rate, it was evident that the postwar decline in the birth rate for the total population was influenced very largely by the fall in the marriage rate from 1946 to 1948.

As a result of the more rapid rise in the birth rate in urban centres than in rural areas from 1940 to 1949, the margin between the two narrowed. Thus, the urban rate per 1,000 women at ages 15 to 44 years, after allowing for under-registration, rose from 67.8 in 1940 to 102.4 in 1949, an increase of 51.0%. For rural areas, the corresponding rise was from 98.7 to 122.8, or by 24.4%. However, the drop from 1947 to 1949 was more rapid in urban than in rural areas, the decreases being 5.3% and 3.7%, respectively. In 1949 the rural rate was 20% higher than the urban rate.

On the whole, the drop in the birth rate from 1947 to 1949 was most rapid in those sections of the country that had the most rapid increases from 1940 to 1947. For example, the New England and middle Atlantic states had increases of 55% from 1940 to 1947, but from 1947 to 1949 the respective decreases were 14.0% and 12.2%. For the country as a whole, the early gain amounted to 44.1% and the subsequent decrease to 7.0%.

The proportion of births attended by a physician in a hospital continued to rise, reaching 86.7% in 1949; 8.1% were attended by a physician not in a hospital; and 5.1% by a midwife or other not specified person. Despite the favourable showing for the country as a whole, the record among the nonwhites, though improving, was still relatively unfavourable. Whereas 91.6% of the white births in 1949 occurred in a hospital, for the nonwhites the figure was only 55.1%. On the other hand, the nonwhites had 29.0% of their births attended by a midwife or other person, compared with 1.4% for white births. However, in some sections of the country, the record for hospitalization of nonwhite births was almost as good as that for white births. For example, in New England the proportion of births attended by a physician in a hospital was 97.7% for the whites and 97.3% for the nonwhites. Likewise, for the Pacific coast states the respective figures were 98.5% and 96.4%. At the other extreme, the 1949 record shows that in the east south central states only 72.8% of the white births and 28.1% of the nonwhite births were attended by a physician in a hospital. A detailed inspection of the record for the proportion of births occurring in a hospital showed particularly low figures for the rural nonwhites in several states; for example Arkansas had only 11.8%, South Carolina 12.4%, Mississippi 13.1%, Georgia 14.2% and Alabama 15.0%.

From a study of birth registration data of the United States, C. A. McMahan (Milbank Memorial fund *Quarterly,* July 1951) concluded that the sex ratio at birth was hardly influenced by the two World Wars. In support of this, he showed that the ratio of males to females at birth tends to decrease with advance in the age of the mother and that among first-born children the proportion of males tends to be higher than in later births. This led to the conclusion that the rise in the ratio of males to females at birth during World War II reflected essentially the larger proportion of births to young mothers at that time.

On the basis of data collected in a survey made in Indianapolis, Ind., L. F. Herrera and C. V. Kiser (Milbank Memorial fund *Quarterly,* July 1951) found that the proportion of couples with planned families did not rise with decreasing health status. They related the poor health of wives and children, in large families, to their high fertility and poverty. (*See* also CENSUS DATA, U.S.; INFANT MORTALITY.) (M. SP.)

Bismuth: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Blind, Education of the.

The expansion in services providing for the education of the blind was great during 1951. A number of new schools for blind children were established in several countries, including three in Egypt (two government and one private), one state school in South Kanara district, India, and a small school in Guayaquil, Ec., largely financed by the local Lions club. In Turkey, responsibility for the education of blind children at the school at Izmir was turned over to the ministry of education by the ministry of health, the existing school at Istanbul was being enlarged and a new school was soon to be opened at Ankara.

An increasing number of foreign students were being received in the United States to gain instruction in techniques for the education of the young blind. In a statistical study concerning the young blind throughout the world, made early in 1951, 17 countries (of 35 reporting) stated that the education of the blind child was compulsory.

In the United States, as of Jan. 1, 1951, there were 5,710 blind pupils registered in 52 residential schools and 985 blind pupils registered in 30 public school classes for the blind. Approximately 8,000 partially visioned children were being educated in 676 sight-saving classes in 241 cities in 37 states, the District of Columbia and Hawaii. The annual congressional appropriation of $125,000 was again made to the American Printing House for the Blind, Louisville, Ky., for the purpose of providing the schools and classes for the blind throughout the country with their braille books and magazines, talking books, large-type books and tangible apparatus. On Jan. 15 a bill was introduced into congress requesting an increase in the authorization for this appropriation to a total of $260,000 annually.

In Canada, education, including the education of blind children, is the responsibility of the ten provincial governments. The five schools existing in 1951 (two government and three private) were supported by public funds or received grants from the provincial governments for their individual pupils.

BLIND OARSMEN on the 1951 crew of the New York Institute for the Education of the Blind training aboard a barge in the Harlem river before their first race against sighted competition

A study of programs for preschool blind children in the United States, made by the American Foundation for the Blind, New York, N.Y., showed that at least 45 schools and agencies for the blind were providing some type of service on behalf of this group of children. A number of schools for the blind conducted two- to three-day regional conferences of classroom teachers of the blind, and on Nov. 19–20 the division for the blind, Library of Congress, Washington, D.C., held a national conference on library service for the blind, including a complete review of the problems incident to manufacturing and circulating books to the blind. Ten universities and colleges or special agencies for the blind conducted special courses in 1951 for the training of teachers and of workers with blind children and adults.

The braille system itself came in for a considerable amount of revaluation and development. The United Nations Educational, Scientific and Cultural organization, following up its 1950 conference on world braille which laid down the principles for internationalizing the braille system to all languages and notations (including mathematics, music and science), initiated two important regional conferences, the first at Beirut, Leb., in February, at which time a uniform system for the extensive region covered by the Perso-Arabic, Indo-Aryan and Dravidian, Sinhalese, Armenian and Malayan languages was worked out, and another in Montevideo, Urug., in November at which uniform systems of braille contractions were formulated for the Spanish and Portuguese-speaking peoples. Through the help of the American Foundation for Overseas Blind, a braille printing plant was set up in Jordan for the publication of books in Arabic braille, and additional equipment was provided for Brazil to enable it to expand its production of Portuguese-language textbooks.

Early in 1951 the United Nations opened within its New York secretariat a section for the rehabilitation of the physically handicapped to which was appointed a social affairs officer for the blind. This section was responsible for promoting and co-ordinating an international program for the physically handicapped, including the blind, in which the United Nations, its technical assistance administration and its specialized agencies were to participate. The U.N. also sponsored an international agreement between member states under which educational, scientific and cultural books and equipment, including apparatus specially manufactured for the blind for these purposes, were exempted from customs duties and other taxes and from currency restrictions, and this agreement had been signed by 24 countries, while 2 had ratified it. Ten states had to ratify the agreement before it became fully effective.

On the nongovernmental level, 1951 saw the creation of the World Council for the Welfare of the Blind, an international organization composed of leading workers for the blind from 19 countries. The council accepted as its education committee an international group of educators named by the International Conference of Workers for the Blind (held at Oxford, Eng., in 1949) as the sponsoring committee of the International Conference on the Education of the Blind to convene at the School for the Blind at Bussum, Amsterdam, Neth., July 25–Aug. 2, 1952. It was the goal of this conference that a means would be provided for ensuring the acceptance of minimum educational standards and the progressive improvement of services for blind children in all participating countries. (F. E. D.)

Blood, Diseases of.

ACTH (corticotropin, derived from the anterior pituitary) and cortisone (an adrenal cortical extract, Compound E), had left their imprint on many phases of medicine since their introduction first into experimental and then clinical use. Although the fundamental mechanisms by which these hormones act upon diverse bodily tissues remained obscure at the close of 1951, in the case of the blood-forming tissues and the blood cells, numerous "yardsticks" enabled evaluation of their activity. Thus, ACTH causes a simultaneous increase in the productivity of the cells of the bone marrow—*i.e.*, the red cells, the polymorphonuclear white cells and the platelets, and a decrease in the productivity or even a destruction of the lymphocytes. This might point to a reciprocal or antagonistic relationship between these two types of cell tissues. A curious effect is on the blood eosinophile which, under the influence of sufficient hormone therapy, disappears completely from the blood. This also occurs under conditions of extreme stress. As pointed out by Hans Selye, various types of stress (excitement, infections, physical injuries of various types) induce a simultaneous rise in the total number of white cells and in the polymorphonuclear cells, a drop in the lymphocytes, and a complete disappearance of the eosinophiles.

The deterrent or inhibitory effect of ACTH on the lymphocytes is associated with an effect on the production of antibodies which become materially reduced. Antibodies, which are usually helpful in fighting disease, are produced by the body in response to infections and at times by other mechanisms. Sometimes antibodies are produced in excess or are actually harmful. One type of abnormal and harmful antibody response occurs with the development of anti-red cell antibody. This development results in injury to the red cell and thus in haemolytic anaemia. The possibility was conceived that ACTH might diminish antibody production and thus stop the haemolytic disease. This actually ensued, with the result that the treatment of one type of haemolytic anaemia, *i.e.* the acquired form, was actually revolutionized. Whereas previously, surgical removal of the spleen (splenectomy) and transfusions were the only modes of therapy available, by 1951 almost all cases showed either a partial or complete response to ACTH or cortisone. This occurs if the acquired haemolytic anaemia is either of unknown cause (idiopathic) or due to some fundamental disease as leukaemia. The abnormal antibody in the blood becomes greatly reduced and this is followed by a simultaneous decrease in the destruction of red cells and an increase in their production. The use of these hormones is without value in the hereditary types of haemolytic anaemia, in which the fundamental fault lies in the red cell structure, and not in an abnormal antibody mechanism.

The effect of ACTH in reducing the activity of lymphoid tissue was utilized in the treatment of certain types of leukaemia, particularly of the acute lymphocytic variety. Unfortunately, although the immediate results were often striking, they were temporary. A cure for leukaemia had not been forthcoming by the close of 1951, although the fact that temporary states of improvement might occur in the acute forms was remarkable in and of itself, and suggested that the problem might not be as hopeless as it seemed. The main hope in leukaemia would seem to be in determining the causative factors, rather than in a hit-or-miss attempt to find a cure.

Since ACTH is to some extent a marrow stimulating agent, it was tried in conditions in which marrow activity is depressed, as in aplastic anaemia. It was also used in thrombocytopenic purpura, a bleeding disorder in which the platelets in the blood are reduced. Some cases of both these conditions showed a favourable response to this form of therapy, but the results were inconstant and only occasional cases were benefited.

Certain diseases are apparently caused by the development of an immune reaction so out of proportion to what is needed that it does more harm than good. Thus, an immune reaction against a certain germ which invades the body is beneficial, but when there is overshooting, harm may ensue. This is seen, for example, in a certain type of bleeding condition known as Henoch-Schönlein purpura, in which the excessive immunologic build-up appears to result in injury to small blood vessels throughout the body, and thus to bleeding into the skin, the joints, the bowel and other tissues. In another form of purpura (black and blue spots, little blood spots or petechiae), called idiopathic thrombocytopenic purpura, the disorder may also be initiated as a reaction of immunity. There, the blood platelets are destroyed by some sort of mechanism which attacks the person's own platelets. This is the mechanism behind the disorder of acquired haemolytic anaemia, where the person acquires an immunity against his own red cells. These are then destroyed by the antibody produced by the tissues and which attacks his own red cells. In other unusual conditions known as periarteritis nodosa and disseminated lupus, a hyperimmune state seems to have been set up with the result that connective tissue throughout the whole body becomes involved. The relationship of these various phenomena of immunity to allergic states and to the steroid hormones mentioned is not quite clear. However, the administration of ACTH and cortisone often resulted in great benefit.

Sickle cell anaemia is a rather rare form of severe anaemia occurring almost exclusively in the Negro. Although it was known to occur in families, its hereditary features had been worked out only recently, thanks largely to the work of J. V. Neel. These studies indicated that the severe and even fatal sickle cell anaemia is an inherited disease which comes about through the mating of two persons, both of whom have a mild, usually unrecognized disorder known as the sickle cell trait. About 10% of all Negroes in the United States (12% to 20% in certain sections of Africa) have the sickle cell trait. These are apparently healthy but when their blood is exposed to an oxygen-free environment, as on a glass slide covered with a cover slip, the previously round red blood cells assume a crescentic or sickled shape.

A person with the sickle cell trait has the sickle cell gene, which is transmitted to his or her children in a Mendelian dominant fashion, *i.e.* one-half of the children will have this genetic abnormality. If, as occasionally happens, two persons both having the sickle cell gene marry, some of their offspring will have two sickle cell genes, *i.e.* they are homozygous. These are the people with sickle cell anaemia, the severe disease. Thus, sickle cell anaemia is transmitted from two parents, both of whom have the relatively unimportant trait.

The cause for the development of sickling in a red cell, which can be seen under one's eyes in a microscope, had long eluded investigators. Linus Pauling, a physical chemist, concluded that the fault must lie in an inherent (molecular) abnormality of the haemoglobin molecule. By using the methods of electrophoresis, he demonstrated that the haemoglobin of sickle cells migrated as a positive ion in an electrophoretic field as contrasted with the negative charge of normal haemoglobin. Individuals with the sickle cell trait were found to have a relatively small quantity (20%–40%) of this abnormal haemoglobin, while the red cell of patients with the severe anaemia contained about 80%–100% of this material.

Later studies showed that the abnormal haemoglobin formed crescentic shaped crystals in concentrated solutions, thus indicating quite clearly that the red cell sickles because of its content of peculiar haemoglobin. Karl Singer showed by other chemical studies that one can distinguish between the following three types of haemoglobin: N or normal, S or sickle cell and F or foetal. His studies indicated that patients with sickle cell anaemia have both S and F haemoglobins in their red cells, whereas those with the trait have S and N haemoglobin. It is possible that F haemoglobin makes up a large proportion of the red cell in a probably related disorder known as Mediterranean anaemia, which is seen in Italians, Greeks, Syrians, Portuguese, etc.

The discovery that the chemical compound haemoglobin may assume different forms and thus be responsible for the production of certain disease states was of fundamental importance, particularly in the study of hereditary anaemias. It was not entirely hypothetical to assume that further studies of the chemical abnormality might well result in an approach to successful treatment.

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Blue Cross: *see* INSURANCE.

Bobsledding. Stanley Benham of Lake Placid, N.Y., and Pat Martin of Massena, N.Y., captured the North American two-man title at Lake Placid, N.Y., Feb. 17, 1951. Starting from the one-mile post on Mt. Van Hoevenberg, the winners made the four runs down in the total time of 5 min. 16.30 sec. to eclipse the former record of 5 min. 18.52 sec. set by a Swiss team in 1949.

The national Amateur Athletic union two-man championship was annexed by Larry McKillip and Henry Stearn of Saranac Lake, N.Y. McKillip piloted the sled home first in the total elapsed time of 5 min. 36.78 sec. The national four-man crown was won by the Lake Placid Sno Birds.

Although highly successful at home, Benham had to be content with second places in the world championships at L'Alpe d'Huez, Fr., Jan. 27–31. The first German teams to compete in a post-war world title event took both the two- and four-man laurels. Andreas Ostler and Lorenz Nieberl, with a winning time of 5 min. 11.94 sec., defeated Benham and Martin; then the German four-man sled piloted by Ostler led home Benham's U.S. team in 2 min. 24.98 sec. for two runs. Riding behind Benham were Martin, Jim Atkinson of Rome, N.Y., and James Sheffield of Lake Placid. (T. V. H.)

Bolivia. Bolivia is a landlocked republic in south central South America. Area: 416,040 sq.mi.; pop. (1950 est.): about 3,990,000. The legal capital is Sucre (est. pop., 1946, 32,000); the actual seat of government is La Paz (est. pop., 301,000). Other major cities (with pop. est.) include Cochabamba (80,000), Oruro (50,000) Potosí (40,000), Santa Cruz (33,000) and Tarija (27,000). Racial distribution is estimated to be 52.34% Indian, 27.5% mestizo, 13.08% white, 0.22% Negro and 6.85% unspecified. Religion is predominantly Roman Catholic. Presidents in 1951: Mamerto Urriolagoitia, until May 16; thereafter, Gen. Hugo Ballivián.

History.—Despite the fact that a presidential election was held in May, Bolivian politics continued during 1951 to be among the most unstable in the western hemisphere. On Feb. 16 outgoing President Urriolagoitia reorganized his cabinet in the hope that a new coalition administration would ensure order at least for the duration of the presidential campaign. Six candidates presented themselves for the presidency: chief among them were Gabriel Gonzálvez, 51, the administration's candidate, and former Finance Minister Víctor Paz Estenssoro, 43, leader of the opposition Nationalist Revolutionary Movement (M.N.R.), which had conducted a bloody despotism in 1943–46. Though a legal contestant for the presidency, Paz Estenssoro was forced to conduct his campaign from his Argentine exile. When he unsuccessfully attempted to return to Bolivia on April 14, widespread rioting occurred, during the course of which La Paz police, on April 15, killed 1 and arrested 81 demonstrators.

The presidential election, held on May 6, served only to heighten political and constitutional tension. According to the country's constitution, a presidential candidate must receive a majority of the popular ballots to be elected, and none of the six candidates polled the required number of votes. Paz Estenssoro, with 45% of the popular vote, received more votes than any other presidential aspirant. The constitution provides that, in the event that no candidate polls a majority of the ballots, congress should choose the new president from among the three candidates with the largest numbers of votes. However, outgoing President Urriolagoitia and his advisers were reluctant to comply with this stipulation for fear that it would deliver the government to Paz Estenssoro and the M.N.R.

Rather than risk a resumption of M.N.R. rule, Urriolagoitia resigned from the presidency on May 16, entrusting the administration to an army junta under the leadership of Gen. Hugo Ballivián. General Ballivián, a 49-year-old Chaco war hero, formed a ten-man military cabinet composed of three generals and seven colonels, and offered assurances that the presidency would be delivered "as soon as possible to him who, by the constitution, has the right to it." The Ballivián regime then proceeded to declare a state of siege, promise that a new presidential election would be held, and arrest a number of opposition leaders. Permission for a group of opposition exiles to return to Bolivia was granted by the Ballivián government on Aug. 24, and on Sept. 3 the administration frustrated a plot to overthrow it.

Irving Florman resigned in September as U.S. ambassador to Bolivia after having held that post for 22 months, and was awarded the Order of the Andean Condor, Bolivia's highest honour. (G. I. B.)

Education.—Bolivia in 1944 had 1,513 rural schools with 110,000 pupils and 1,740 elementary schools with 144,056 pupils. Secondary education was furnished by 55 colleges (27 public and 28 private) with 17,496 students. There were also several training colleges for teachers. There were universities with more than one faculty at Cochabamba, La Paz, Oruro, Potosi and Sucre. Education was scheduled to receive 16% of government expenditures in 1951. In 1951 there were 47 motion-picture theatres (not including those maintained by the tin mining companies) with estimated seating capacity of 32,300.

Finance.—The monetary unit is the boliviano, valued on Nov. 26, 1951, at $0.0165 U.S. currency, official rate; $0.0099, legal free rate; and $0.0048, curb rate. The 1951 budget provided for expenditure of 4,725,126,848 bolivianos and revenue of 3,058,827,765 bolivianos. Revenue estimates were based on a tin price of $1.20 per pound and production of 35,000 tons. Of the estimated expenditures, 19.6% was for national defense and 9.5% for government and immigration. The public debt on Dec. 31, 1949, amounted to 8,272,926,052 bolivianos, of which the foreign debt (including accrued interest) amounted to 5,829,296,000 bolivianos, the internal debt 2,304,799,208 bolivianos and the floating debt 138,830,784 bolivianos. Currency in circulation on Aug. 31, 1951, totalled 3,783,000,000 bolivianos; gold reserves of the Central bank $22,800,000; foreign exchange reserves $22,900,000; dollar exchange in U.S. banks $21,600,000. The cost-of-living index at La Paz stood at 1,040 in April 1951 (1937=100).

Trade and Communications.—Exports in 1950 were $99,000,000; imports were $41,900,000. Leading customers were the U.S. (52%) and the U.K. (41%); leading suppliers, the U.S. (47%), Argentina, Peru and the U.K. Tin accounted for about two-thirds of the exports by value, followed by silver and lead.

Railway lines in operation (1946) totalled 1,546 mi. Several lines were in various stages of construction in 1951, including two from Argentina and Brazil, respectively, to Santa Cruz in the eastern lowlands. The highway system (1949) comprised an estimated 15,420 mi., of which 4,008 mi. were improved. Motor vehicles in 1950 included 3,727 automobiles, 8,391 trucks and 467 buses. There were about 75,000 radio receiving sets in 1950.

Agriculture.—Important crops included maize, barley, wheat, rice and potatoes. In 1948 there were an estimated 3,499,000 cattle, 4,195,000 sheep, 1,910,000 goats and 1,465,000 pigs. The principal exploited forest products were rubber and cinchona bark.

Manufactures.—In 1948 there were 2,305 factories with 25,000 employees. The most important, in terms of value of production, were electricity, textiles and clothing, beverages, foodstuffs and glassware and ceramics.

Mineral Production.—Production in 1950 was reported as follows: tin 31,213 long tons; copper 5,185 short tons; lead 34,396 short tons; zinc 21,572 short tons; silver 6,566,766 fine ounces; antimony 9,679 short tons. Production of crude petroleum fell to about 620,000 bbl. (J. W. Mw.)

Bombing: *see* Aviation, Military; Munitions of War.
Bonaire: *see* Netherlands Antilles.
Bonds: *see* Stocks and Bonds.

Book-Collecting and Book Sales.

The ready market for rare materials continued during 1951, thus following an earlier pattern. Materials of comparatively minor stature brought moderate prices in a slow market. Prices were supported by European collectors who seemingly invested in rare books as a hedge against inflation. There was a noticeable increase in this type of buying as South American, Cuban and Mexican buyers came into the market. An extraordinarily large number of seldom-offered rarities appeared and found ready buyers. Approximately one-third of all entries in *American Book-Prices Current, 1950–1951* were of this type of offering.

The importance of the European buyer was emphasized by Parke-Bernet Galleries, Inc. (New York, N.Y.), which for the first time in auction history exhibited in Paris, London and Geneva books to be sold at auction in New York. Buyers exercised much discriminatory caution and showed none of the fever of the 1920s. The best example was the first edition of Shelley's *Queen Mab* (London, 1813) annotated by the author, which brought $68,000 at the Kern sale (1929), but brought only $8,000 when sold in New York in 1951. The most important sale of the year was the auction in New York of the final portion of the Lucius Wilmerding library which brought $318,864. Among the items sold: Richard de Bury's *Philobiblon* (Cologne, 1473), $10,600; Rabelais's *La Vie . . . Gargantua* (Lyon, 1537), $6,300; the family diary of Michel de Montaigne bought by the French government for $21,000 for presentation to the city of Bordeaux.

The International League of Antiquarian Booksellers met at Brussels, Belg., in September with more than 200 delegates from 12 countries, the largest meeting in the league's history.

A small collection of Audubon paintings and books was discovered in the Sydney, Austr., home of Leonard Audubon, the naturalist's great-grandson. It was sold for the nominal price of $250 to E. G. K. Hallstrom, an Australian manufacturer, on condition that the collection be sent to the United States. It was presented to the National Audubon society, New York. In February the Scribner Book store (New York and London) announced rediscovery and purchase of the Shuckburgh copy of the Gutenberg Bible, two volumes, paper, which had been lost for a century.

Two rare book exhibitions were part of the Festival year in Great Britain: one, at Victoria and Albert museum, represented 500 years of English literature; collectors throughout the world loaned books for the purpose. On a less serious note Marylebone Borough council at Abbey house, Baker street, London, exhibited a collection of books and other memorabilia once "owned" by Sherlock Holmes. In Paris an exhibition of *Le Livre Anglais* attracted the bibliophile.

Under the terms of his will, Sinclair Lewis bequeathed to Yale university his "books, manuscripts, pictures and private papers of every sort." The Edwin J. Beinecke collection of Robert Louis Stevenson, about 5,000 pieces, was also presented to Yale. The E. DeGolyer collection of history of science and technology was deposited in the University of Oklahoma, Norman, as a partial gift. The American library (Paris) was given the extensive collection assembled by Sylvia Beach, Paris publisher of James Joyce's *Ulysses.* The J. Christian Bay collection of midwestern Americana was given to the State Historical Society of Missouri; and the Vilhjalmur Stefansson collection of Arctica, about 55,000 pieces, went to Dartmouth college, Hanover, N.H.

Published during the year were: *XIX Century Fiction: A Bibliographical Record* by Michael Sadleir; *The Tahitian Imprints of the London Missionary Society, 1810–1834* by George L. Harding and Bjarne Kroeplien; *Oklahoma Imprints, 1835–1890* by Lester Hargrett; *Recollections of James Lenox* by Henry Stevens, first published in 1886, now republished by the New York Public library with notes by Victor Hugo Paltsits; *Adventures of a Treasure Hunter* by Charles P. Everitt; *Dictionnaire de bibliographie haitienne* by Max Bissainthe; *Islands of Books* by Lawrence Clark Powell; and, of great significance, *Jahrbuch der Auktionspreise fuer Buecher und Autographen, 1950*, published in Hamburg, Ger., the first such record to be issued since 1940 and reporting the principal auctions in Germany, Austria, the Netherlands and Switzerland. (J. Bk.)

Book Publishing.

During 1951, the number of new books and new editions published in the United States continued to increase, and the total of 11,255 titles was near the record of 11,328 titles published in 1940. There were 233 more titles published in 1951 than in 1950, an increase of 2%. Of the total title production, imports represented 13%, about the same as the 1950 proportion. Fiction, which was 19% of the year's output, showed a net increase of 228 titles over the previous year. Other categories showing large net increases were philology, domestic economy and medicine and hygiene. Largest net decreases were in technical and military books, fine arts, music and general literature.

The five leading publishing houses of the year were Macmillan (506), Doubleday (with Garden City and Permabooks) (332), McGraw-Hill (with Gregg Publishing company and Whittlesey House) (288), Oxford (282) and Harper (with P. B. Hoeber) (262).

Newsstand titles of pocket books issued in 1951 totalled 972, compared with 940 titles in 1950; it was estimated that 231,300,000 copies were sold in 1951, compared with 214,000,000 copies sold in 1950.

"SALUTING THE FLAG in the Mott Street Industrial School, New York, About 1892," an illustration from Marshall B. Davidson's *Life in America*, a two-volume pictorial history of the United States published in 1951

Best Sellers.—Based on trade sales alone, the best-seller list for fiction in 1951 was headed by *From Here to Eternity,* by James Jones. A first novel dealing with army life before Pearl Harbor, it sold 240,000 copies. It was closely followed in sales by *The Caine Mutiny,* by Herman Wouk, a story of the navy in World War II. Third to tenth on the list, in that order, were *Moses,* by Sholem Asch; *The Cardinal,* by Henry Morton Robinson; *A Woman Called Fancy,* by Frank Yerby; *The Cruel Sea,* by Nicholas Monsarrat; *Melville Goodwin, USA,* by John P. Marquand; *Return to Paradise,* by James A. Michener; *The Foundling,* by Francis Cardinal Spellman; and *The Wanderer,* by Mika Waltari. Although two authors, Yerby and Waltari, were represented by other works on the 1950 list, *The Cardinal,* a novel with a religious theme, was the only carry-over.

First on the list of nonfictional best sellers for the year, based on trade sales alone, was *Look Younger, Live Longer,* by Gayelord Hauser. *Betty Crocker's Picture Cook Book* was second. These were followed, respectively, by *Washington Confidential,* by Jack Lait and Lee Mortimer; *Better Homes & Gardens Garden Book; Better Homes & Gardens Handyman's Book; Your Income Tax, 1952,* by J. K. Lasser; *The Sea around Us,* by Rachel L. Carson; *Thorndike-Barnhart Comprehensive Desk Dictionary,* Clarence L. Barnhart, editor; *Pogo,* a comic book for adult readers, by Walt Kelly; and *Kon-Tiki,* by Thor Heyerdahl, which remained on the list for 12 months.

On July 12, 1951, the Federal Trade commission issued a complaint against the book-club policies of a number of publishers. It was alleged that bookstores did not receive privileges available to the book clubs, giving the clubs an unfair competitive advantage which tended to create a monopoly. Hearings on the complaints began in Oct. 1951.

Great Books of the Western World.—Completed in 1951 for publication early in 1952 was an editorial project described as the most ambitious and the most significant of the 20th century. This was the publication of "Great Books of the Western World," incorporating the 443 works by 71 authors from Homer to Sigmund Freud which, the editors considered, best encompassed the learning of western man. This is a 54-volume set, of which 51 volumes are the Great Books themselves; the first volume is a statement, *The Great Conversation,* by Robert Maynard Hutchins, editor, describing the significance of the Great Books movement, and volumes 2 and 3 are a new educational tool and unique type of reference work, the *Syntopicon.* This word, a coined term, means "a collection of topics." Mortimer J. Adler, associate editor of the set, explained that it operated in the field of ideas as a dictionary operates in the field of words or an encyclopaedia in the field of facts. Its 3,000 topics give orderly access to related passages in the Great Books themselves. Encyclopædia Britannica, Inc., published *Great Books of the Western World* in collaboration with The University of

Publication of Books in the U.S.

International classification	1951 New books	1951 New editions	1951 Total	1950 New books	1950 New editions	1950 Total	Net change
Agriculture, gardening	105	45	150	111	41	152	−2
Biography	586	53	639	538	65	603	+36
Business	180	80	260	190	60	250	+10
Domestic economy	186	41	227	150	43	193	+34
Education	229	44	273	209	47	256	+17
Fiction	1,329	806	2,135	1,211	696	1,907	+228
Fine Arts	272	35	307	317	40	357	−50
Games, sports	151	23	174	153	35	188	−14
General literature & criticism	445	86	531	510	81	591	−60
Geography, travel	230	56	286	221	67	288	−2
History	435	88	523	456	60	516	+7
Juvenile	982	90	1,072	907	152	1,059	+13
Law	223	59	282	228	70	298	−16
Medicine, hygiene	336	142	478	312	131	443	+35
Music	80	16	96	88	25	113	−17
Philology	129	61	190	102	46	148	+42
Philosophy, ethics	264	74	338	278	62	340	−2
Poetry, drama	400	87	487	453	78	531	−44
Religion, theology	636	95	731	626	101	727	+4
Science	521	201	722	499	206	705	+17
Sociology, economics	430	76	506	447	68	515	−9
Technical & military books	287	124	411	366	131	497	−86
Miscellaneous	329	108	437	262	83	345	+92
Total	8,765	2,490	11,255	8,634	2,388	11,022	+233

Source: *Publishers' Weekly*, Jan. 19, 1952.

Chicago. (X.)

Great Britain.—During 1951 book publishers in Great Britain produced 18,066 titles, of which 4,938 were reprints and new editions. This total figure, the highest recorded, showed an increase of nearly 1,000 over the 1950 total of 17,072 titles. An increase in output of titles is not viewed by the book trade itself as a reassuring sign unless it is accompanied by a proportionate increase in the total sale of books, nor were publishers altogether reassured by the steadily mounting turnover figures, since progress here might reflect only the increased prices of books made necessary by rising costs.

The principal reasons for the publishers' concern was the shrinkage in their supplies of raw materials, especially of paper, and the rocketing costs of paper, printing and every item of overhead. By economizing in weight of paper, in size of type and in binding, publishers had until 1951 succeeded in holding the production costs of a straightforward book, for example a novel of ordinary length, at little more than double the 1939 figure. In this they had been assisted by the larger editions which an expanding market at home and overseas made possible and consequently the retail prices of books had risen far less than was justified by costs, many books being still only one and a half times their pre-World War II prices. In 1951, however, it became clear that publishers could no longer continue to absorb the large further increases in costs. Moreover, the cost of paper soared by progressive leaps to the point where the advantage of "the long run," which in modern times had always been the book publisher's basic source of profit, was considerably reduced.

To this generally difficult situation, however, there were two ameliorating factors. One was that books, though dearer, had increased in price proportionately less than any other commodity. The other was that the book-buying public bought the books it favoured in quite unprecedented numbers. The amount of trade done by publishers in 1950 had reached the unprecedented figure of £37,158,652 (the pre-World War II average annual total was approximately £10,000,000). During the first six months of 1951 publishers' total sales amounted to more than £18,000,000, an increase by nearly £1,500,000 on the turnover of the corresponding period of 1950. An analysis of publishers' output made by the *Bookseller* showed the average price of books published during the first six months of 1951 to be 12*s.* 9*d.* In the preceding six months, July-Dec. 1950, the average price was 12*s.*3*d.* These statistical averages were based on titles only; many of the books most in demand cost much less than 12*s.* 9*d.* each. (*See* also AMERICAN LITERATURE; ENGLISH LITERATURE; etc.) (E. SE.)

Books: *see* BOOK PUBLISHING; CHILDREN'S BOOKS; LITERARY PRIZES; *see* also under AMERICAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; etc.

Borneo: *see* BRITISH BORNEO.

Boston, The capital of Massachusetts and the tenth largest city in the United States, with a land area of 43.9 sq.mi., had a population of 801,444 by the 1950 federal census, an increase of 30,628 or 4% over 1940.

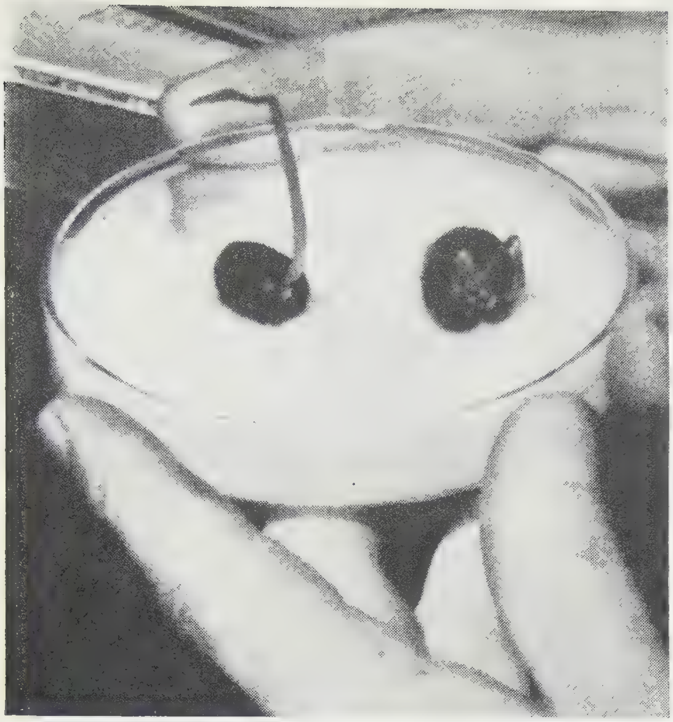
For the first time in the history of the city, a preliminary election was held in 1951 for mayor, city council and school committee. The ballot in this election contained the names of 4 candidates for mayor, 65 for city councillor and 36 for school committee. Mayor John B. Hynes and former Mayor James M. Curley were nominated for mayor, with Hynes running 31,146 votes ahead of his predecessor. On election day Mayor Hynes received 154,201 votes, or 77,851 in excess of his opponent. Sometime prior to the preliminary election, a group of citizens representing all sections of the city organized under the name New Boston committee. Following a survey of the records and views of the candidates for council and school committee, this group endorsed nine candidates for city council and five for school committee. In the final election five of the New Boston committee slate for council were elected and four were elected to the school committee.

The 1951 tax rate was $62.80, a reduction of 20 cents from the previous year, and was based on an assessed valuation (real and personal) of $1,570,760,000, representing an increase of $3,260,000 from the previous year. Budgets of city and county departments totalled $88,758,724.95, an increase of $2,204,480.45 over 1950, whereas the school budget of $26,300,658.37 represented a decrease of $250,327.77 from the year before. The net debt of the city was reduced by $3,000,000, making a total reduction of $4,000,000 in the last two years. (C. J. FX.)

Botany. Among the interesting and important contributions in botanical research during 1951, a great number appeared in the field of plant physiology. An outstanding event was the production of artificial photosynthesis by the combination of extracted biochemical systems. Wolf Vishniac and Severo Ochoa and Daniel I. Arnon obtained fixation of carbon dioxide into organic compounds by coupling the well-known Hill reaction to the "malic" enzyme system through the intermediary of pyridine nucleotides. With this system energy derived from light forces a combination of carbon dioxide and pyruvic acid with the production of malic acid.

Studies on growth-regulating substances occupied the attention of a number of botanists. C. D. Darlington and John McLeish investigated the action of maleic hydrazide on the cell and found that it caused the breakage of chromosomes at mitosis. Unlike X-rays, which only break the euchromatin, maleic hydrazide restricts breaking to the heterochromatin. It also differs from other chromosome-breaking agents in not providing a sticky surface. The authors inserted a word of caution to the effect that this substance should not be too widely used in agriculture until further tests were made because other known chromosome-breaking agents are also carcinogenic. Several other studies on maleic hydrazide were published. E. R. Marshall and O. Smith reported that maleic hydrazide injected directly into potato tuber tissue was a very effective sprout inhibitor. F. M. R. Isenberg and colleagues found that maleic hydrazide sprayed upon onion leaves affected respiration through the partial inactivation or inhibition of dehydrogenases. Much work was also done on paper chromatography, including new techniques and uses and consideration of its early history.

A number of contributions appeared in cytogenetics and related fields. Andre Gillis and L. F. Randolph found that there was a reduction in quadrivalent frequency in autotetraploid maize after ten years, apparently as a result of selection. Their results were significant in suggesting that chromosome pairing may not always be a reliable guide as to whether a plant is an autotetraploid or an allotetraploid. The evidence for the existence of duplicate genes in maize rested on firm footing according to the recent discussion of M. M. Rhoades, but whether such genes reflect an amphidiploid origin of maize could not yet be answered. Contrary to the claims of soviet investigators, L. Sachs showed that intervarietal grafting in the tomato produced no observable influence on leaf shape or fruit colour. R. E. Cleland found races of *Oenothera* with extra, diminutive chromosomes which behave normally at meiosis and have no noticeable phenotypic effects. It appeared that the extra chromosomes arose through fragmentation or as the result of hybridization. Harlan Lewis found supernumerary chromosomes in *Clarkia* which also have no phenotypic effect but which may



SPROUTING LOTUS SEEDS shown by radiocarbon tests to be about 1,000 years old. They were found by archaeologists in Manchuria and successfully germinated by a U.S. plant pathologist in 1951

have been of importance in the establishment of entities with new chromosome numbers. Many taxonomists again turned their attention to natural hybridization, with studies appearing on *Cirsium, Helianthus* and *Liatris.* The recent work in the field of natural hybridization was reviewed by H. G. Baker in *Biological Reviews.*

An important contribution to mycology was the report of the isolation and culture of the rust *Gymnosporangium juniperivirgianae* upon artificial media by H. H. Hotson and V. M. Cutter, Jr. The rusts had long been regarded as strict obligate parasites incapable of culture upon artificial media.

Also of interest was the publication of another report on W. J. Beal's buried seed experiment. In 1879 Beal began an experiment to determine the seed viability of a number of species by placing the seeds in bottles in the soil and digging up the seeds at intervals for determination of the germination capacities. In the 70-year report on these tests, H. T. Darlington found the seeds of three species, *Oenothera biennis, Rumex crispus* and *Verbascum blattaria,* were still viable.

During the year R. N. Colwell announced a new use of radioisotopes for the determination of spore distribution patterns by tagging spores with radioactive phosphorus. He suggested that detailed information as to the distributions of fungus spores, pollen grains of weeds and agricultural dusts and sprays could be secured by such methods. Another series of radiocarbon dates was published by W. F. Libby. Charcoal from Bat cave, N.M., where prehistoric maize had been found was dated as from 5,000 to 7,500 years old. Lotus seeds (from the Manchurian deposit which had produced viable seed) previously suspected to be 50,000 years old proved to be around 1,000 years old. The fibrillar construction of the cilia of a fern spermatozoid was demonstrated by I. Manton and B. Clarke through electron microscope studies.

Among the new uses suggested for plants were two of importance to medicine. B. B. Hiram *et al.* suggested the use of okra as a plasma replacement. The purified aqueous mucilaginous extracts from okra were found to be nontoxic when used as intravenous fluids for laboratory animals and were found to restore circulatory volume and improve cardiac output in dogs. The search for steroids with which to produce cortisone continued with an announcement from Merck and company that extracts from yeast, soybeans and the Mexican yam appeared promising.

A symposium on the origin and distribution of cultivated plants of south Asia was held in Delhi under the auspices of the Indian Society of Genetics and Plant Breeding, with S. C. Harland, Edgar Anderson and A. Müntzing in attendance. The National Research council of the United States in association with a number of botanists established a seed bank of native maize varieties in order to provide a reservoir of genes for the plant breeder. (*See* also Agricultural Research Administration; Genetics; Palaeontology.)

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Arboretums and Botanical Gardens.—Probably the most important incident that happened during the year 1951 as far as the arboretums and botanical gardens of the United States were concerned was the founding of the Saratoga Experimental gardens at Saratoga, Calif. The establishment of such an institution had been a life-long ambition of Ray D. Hartman, one of the leading horticulturists on the Pacific coast and owner of one of the oldest nurseries in western North America, the Leonard Coates nurseries of San Jose, Calif., who initiated the work resulting in this new arboretum.

The site chosen has an elevation of 450 ft. at the base of the Santa Cruz mountains. Maunsell Van Rensselaer, formerly director of the Santa Barbara Botanic garden for 16 years, was chosen as the director, and the garden was officially opened Jan. 1, 1951.

For the next few years, emphasis would be placed on the selection and propagation of the best available strains of shade trees and native shrubs. Experimental studies would be carried on in methods and techniques of propagation of superior plant stock on a large scale. Work in plant breeding was contemplated for the future. The gardens were to be operated on a nonprofit basis and were expected ultimately to be self-sustaining. (*See* also Horticulture.) (D. Wn.)

In Great Britain, after the great influx of seeds from the Himalaya in recent years, 1951 was a year of consolidation in most botanical gardens and many of the collected plants flowered for the first time, particularly those in the genus *Primula.*

J. Macqueen Cowan and H. Davidian of the Edinburgh Botanic garden completed their revision of the large Thomsonii series of the genus *Rhododendron* and this was published in the *Rhododendron Year Book* of the Royal Horticultural society.

At the Royal Horticultural society's gardens at Wisley, Surrey, H. R. Fletcher took up his appointment as director. Fletcher was formerly at the Edinburgh Botanic garden. Many notable plants flowered in the gardens during the year and a number of these were shown in a large group of plants for a woodland garden staged from the gardens at the Chelsea Flower show. The overhaul of the rock garden at Wisley was continued and this part was a notable feature of the garden in 1951. On the scientific side, work continued on the selection and crossing of antirrhinum stocks resistant to rust. In the cytology department, examinations of the genera *Camellia, Viburnum, Lonicera, Narcissus, Nerine* and *Buddleia* were made. The first colchicine-induced tetraploid in rhododendron was also produced at Wisley in *Rhododendron wardii.*

Films of 1951.—*Ferns, Green Vagabonds, Ponds* (Almanac Films, Inc.); *World Garden* (British Information Services). (P. M. Sy.)

Bowles, Chester (1901–), U.S. ambassador to India, was born on April 5 in Springfield, Mass. He attended Choate school and Yale university, graduating in 1924, worked for a year on the *Springfield Republican* and four years in a New York advertising firm. In June 1929, in partnership with William Benton (*q.v.*), he started the advertising firm of Benton and Bowles, Inc., and in 1936 he became chairman of its board of directors.

In June 1942 he was appointed district director of the Office of Price Administration for the state of Connecticut. In July 1943 he became general manager of the OPA in Washington, D.C., and three months later Pres. Franklin D. Roosevelt named him national OPA administrator. In Feb. 1946 Pres. Harry S. Truman made him director of economic stabilization with responsibility for all anti-inflation wage, price and production controls. He resigned from this position in June 1946 and in the fall of that year was an unsuccessful candidate for the Democratic nomination for governor of Connecticut.

In Nov. 1946 Bowles was appointed a U.S. delegate to the first conference of U.N.E.S.C.O. in Paris and in the early spring of 1947 he became international chairman of the United Nations Appeal for Children.

He was elected governor of Connecticut in Nov. 1948. In the two years of his administration he introduced legislation providing for expansion of public education, housing, welfare and child care programs, labour legislation and reorganization of the state government. He was defeated for re-election in 1950 by a narrow margin. On Sept. 12, 1951, Bowles was appointed ambassador to India and Nepal.

He was the author of *Tomorrow Without Fear* and many articles in national publications on economic, domestic and foreign affairs. (R. R. R. B.)

Bowling. Lee Jouglard of Detroit, Mich., with an all-time record of 775 rolled on May 7, 1951, won singles honours in the American Bowling congress championships at St. Paul, Minn. The new titleholder put together games of 242, 255 and 278 to annex the prize in the 58-day competition. Tony Lindeman of Detroit, with 2,005, took the all-events crown, while two other Michigan keglers, Bob Benson and Eddie Marshall of Lansing, carried home the doubles prize with a score of 1,334. The five-man team crown was captured by the C. B. O'Malley quintet of Chicago with a total of 3,070.

Jouglard, named "Bowler of the Year," gained additional glory in the first masters' invitation competition of the A.B.C. held in conjunction with the annual title tourney. The Detroit star clinched the top prize by defeating Joe Wilman of Berwyn, Ill., 662 to 612 in the championship match on June 2.

Ida Simpson of Buffalo, N.Y., took singles laurels in the Women's International Bowling congress tournament at Seattle, Wash., May 17–June 24, with LaVerne Haverley of Los Angeles, Calif., winning the all-events. Esther Cook and Alma Donini of Seattle triumphed in the doubles, and the Hickman Oldsmobile Whirlaways of Indianapolis, Ind., took team honours.

Mrs. Marion Ladewig of Grand Rapids, Mich., the woman "Bowler of the Year," won the women's title for the third straight season in the world match-play championships at Chicago in December. She tallied 159.17 under the Petersen scoring system. Junie McMahon of Chicago led the men with 309.29. Connie Powers of Detroit bettered the tourney mark for both men and women when she rolled games of 234, 247, 247 and 259 for a total of 987.

FILMS OF 1951.—*Bowling Fundamentals* (Carl F. Mahnke Productions). (T. V. H.)

Bowls: *see* LAWN BOWLING.

Boxing. The highlight of the year 1951 in boxing revolved about Sugar Ray Robinson and his world middleweight title. He lost his 160-lb. championship to Randy Turpin, Great Britain's champion, in a 15-round bout in London, July 10, in the most amazing boxing upset in recent years. Turpin startled the sports world when he won an unquestioned decision over Robinson in the London bout.

However, a condition of the London match was that Turpin had to make his first defense of the championship against Robinson. This return was staged at the Polo Grounds, New York city, on Sept. 12 and, before the year's largest crowd and for the year's largest gate receipts, Robinson regained his title by a technical knockout over Turpin in the tenth round of a scheduled 15-round bout. The knockout came with electrifying suddenness. Robinson was having difficulty with Turpin until, in the tenth round, a collision of heads reopened an old cut over Robinson's left eye. Robinson immediately cast aside the caution he had previously exercised and battered his foe into a helpless state.

A crowd of 61,370 viewed the match. The box-office receipts amounted to $767,626. It was estimated that income from motion pictures of the bout exceeded $200,000. Income from theatre television, a development whereby telecasts are blacked out for local home consumption but are shown on screens in theatres engaged for the purpose, where admissions are charged exclusively for the fight telecast, amounted to $25,000. Robinson's 30% of all net receipts amounted to $188,491. Turpin, fighting for 25%, collected $157,075.

The bout was neither telecast nor broadcast over the radio for home consumption. The staggering amount of the receipts, therefore, was accepted as support for the contention that television definitely had made inroads on boxing receipts and on boxing development. From the economic standpoint, the situation was a contradiction. Box-office receipts unquestionably had decreased, as such. However, the income from television and radio had attained great proportions. The best available information was that the International Boxing Club, Inc., which has a virtual monopoly on all important ring bouts in the United States, collected $800,000 from this source. The discouraging influence was found in another direction. Smaller boxing clubs suffered because of the popularity of television as a medium, particularly when the coaxial cable was extended coast to coast. The consequence was that the supply of promising boxers was depleted for want of elementary proving grounds. Attendances dropped to as low as 300 and 400 in some centres. Even in Madison Square Garden, on Sept. 14, only 1,452 onlookers viewed a bout between Eugene Hairston and Jackie Keough, middleweights.

Rivalling the Robinson-Turpin events from the standpoint of surprise element was the seven-round knockout Jersey Joe Walcott scored over Ezzard Charles at Pittsburgh, Pa., July 18, to win the world heavyweight title. This was one of the year's biggest upsets.

Robinson had surrendered his world welterweight title when he knocked out Jake La Motta in 13 rounds at Chicago in February, to win the world middleweight title. This abdication produced an elimination series which ended with Kid Gavilan, Cuba, being recognized in the United States as world welterweight champion. His claim was disputed by European boxing authorities, who recognized Charles Humez, French boxer, as world champion. Johnny Bratton, Chicago, beat Charley Fusari, New Jersey, for Robinson's discarded welterweight title, in a bout waged in Chicago, March 14, and recognized as a championship bout by the National Boxing association. Gavilan beat Bratton in New York city, May 18, to become world welterweight champion, at least in the United States.

SUGAR RAY ROBINSON (arms upraised) shown in ring after he regained the world middleweight title from Randy Turpin of England at the Polo Grounds, N.Y., Sept. 12, 1951. Earlier, in London, Turpin had defeated Robinson in the biggest ring upset of the year

James Carter, New York city, knocked out Ike Williams, Philadelphia, in 14 rounds of a bout in New York, May 25, to become world lightweight champion.

The eclipse of Joe Louis came in October. The 37-year-old former champion, fighting a comeback campaign for another chance at the title he once held, was knocked out in eight spectacular rounds by Rocky Marciano, young Brockton, Mass., heavyweight.

Joey Maxim, Cleveland, O., world light-heavyweight champion, Sandy Saddler, New York, world featherweight champion, Vic Toweel, South Africa, world bantamweight champion, and Dado Marino, Honolulu, T.H., world flyweight champion, all retained their titles. Saddler stopped Willie Pep, former champion, in 9 rounds of a scheduled 15-round bout in New York, to keep his title. However, the bout was marked by such rough, unethical boxing on the part of both that Pep's boxer's licence was revoked and Saddler was suspended following the match. This disciplinary action was taken by Robert K. Christenberry, who became chairman of the New York State Athletic commission following the resignation of Col. Edward P. F. Eagan. The latter's resignation followed the death of Georgie Flores, Brooklyn boxer, after a bout in New York. Christenberry was appointed by Gov. Thomas E. Dewey, with a mandate to "clean up" boxing in New York.

The death of Flores in a New York ring touched off an official probe in that state. Extensive investigations were being conducted by the state's athletic commission as the year ended. Particular interest was being manifested in contracts the International Boxing Club, Inc., held on six ring champions covering "exclusive service." These documents were being investigated on the basis of their possible relation to monopoly in restraint of trade. The department of justice in Washington, D.C., in October launched an independent investigation of the I.B.C. to determine whether the organization was operating in violation of the Sherman antitrust law. With respect to all these investigations the I.B.C., through its president, James D. Norris, Jr., of Chicago, co-operated fully. (J. P. D.)

Great Britain.—During the year the British Boxing Board of Control refused to sanction the introduction of the American "no foul" rule.

The British heavyweight champion, Jack Gardner, won the European championship by outpointing Joe Weidin, Austria, in March, but subsequently lost this title to Hein Ten Hoff, Germany. Two other heavyweights whose progress was watched with interest were Johnny Williams, Rugby, and Ray Wilding, Cheshire.

Don Cockell, London, who shared with Randy Turpin the distinction of being the most improved boxer of 1951, won the European light-heavyweight title by beating Albert Yvel, France, and later successfully defended his British crown by beating Albert Finch, but was beaten by Jimmy Slade (U.S.) in December. In the welterweight division, Eddie Thomas, Wales, won the empire title from Pat Patrick in Johannesburg, U. of S.Af., and then, in the European championship, after beating Michele Palermo, Italy, was defeated by Charles Humez, France. Finally, he forfeited his British title to Wally Thom, Liverpool.

The British lightweight title changed hands when Billy Thompson, the holder, was beaten in the first round by Tommy McGovan. Ronnie Clayton, Blackpool, successfully defended his native flyweight title against the veteran Al Phillips, Aldgate, but lost his empire title to Roy Ankarah, the Negro boxer from the Gold Coast, who made up for lack of style by nonstop aggression and was apparently indifferent to punishment. Peter Keenan, Glasgow, won the bantamweight title when he defeated Danny O'Sullivan and later he added further to his reputation by outpointing the Spaniard Luis Romero to win the European title. The vacant British flyweight title was won by Terry Allen, London, when he outpointed the Scot Vic Herman. (W. B. Dy.)

Boy Scouts: *see* Societies and Associations, U.S.

Bradley, Omar Nelson

(1893–), U.S. army officer, was born on Feb. 12 in Clark, Mo., was graduated from the U.S. Military academy at West Point, N.Y., in 1915 and became a major of infantry in World War I. He was graduated from the Infantry school, Ft. Benning, Ga., in 1925, the Command and General Staff school, Ft. Leavenworth, Kan., in 1929 and the Army War college, Washington, D.C., in 1934. He taught at West Point until 1938, and then had duty on the army general staff in Washington, D.C. During World War II he commanded the 2nd corps in Africa and Sicily, and subsequently all U.S. ground troops for the invasion of Europe. As commander of the 12th army group he supervised more than 1,300,000 combat troops, the largest body of U.S. soldiers ever to serve under a single field commander. By the end of the war he was a full general. From Aug. 15, 1945, to Dec. 1, 1947, he was administrator of veterans' affairs. On Feb. 7, 1948, he succeeded General of the Army Dwight D. Eisenhower as army chief of staff, and on Aug. 16, 1949, became the first permanent chairman of the U.S. joint chiefs of staff.

During 1951 General Bradley opposed the far eastern military policies of General of the Army Douglas MacArthur, charging in testimony before a joint session of the U.S. senate armed services and foreign relations committees that those policies would involve the U.S. in "the wrong war, at the wrong place, at the wrong time and with the wrong enemy." He advocated a counter policy of attrition against the Communist forces in Korea. Regarding military plans in Europe, he expressed the view that the Atlantic bloc would be "better off" with Spain, Greece and Turkey in the alliance. His autobiography, *A Soldier's Story,* appeared in 1951. On July 25 he was reappointed to a second two-year term as chairman of the U.S. joint chiefs of staff, the appointment to become effective Aug. 15.

Brannan, Charles Franklin

(1903–), U.S. secretary of agriculture, was born on Aug. 23 in Denver, Colo., and was graduated from the University of Denver law school in 1929. He practised law in Denver until 1935, when he became assistant regional attorney of the Resettlement administration, and later regional attorney in the solicitor's office of the U.S. department of agriculture. From Nov. 1941 to April 1944 he was regional director of the Farm Security administration for Colorado, Wyoming and Montana. He was named assistant secretary of agriculture in June 1944 and secretary of agriculture in June 1948.

Secretary Brannan was the author of a plan designed to maintain farm incomes and still give the consumer the benefit of prices that would "seek their level," by supporting farm incomes with government subsidies to make up any difference between current market prices and farm incomes scaled to the 1939–48 level. Considerable controversy developed over the plan, which had the support of Pres. Harry S. Truman, but agitation for it died down when the U.S. rearmament program sent farm prices upward again in 1950 and 1951.

Brazil.

A federal republic in eastern and central South America, Brazil is the second largest nation in the western hemisphere. Language: Portuguese; religion: predominantly Roman Catholic with about 1,200,000 Protestants of various denominations. Chief cities: Rio de Janeiro, the capital (1951 est. pop., 2,500,000); São Paulo (2,300,000); Recife (550,000); Salvador (450,000); Pôrto Alegre (425,000); Belo Horizonte (370,000); Fortaleza (290,000); Belém (270,000).

President (from Jan. 31, 1951): Getulio Vargas.

Brazil's area of 3,286,170 sq.mi. is second only to that of Canada in the western hemisphere. The population, according to the census of 1950, was 52,645,479, three-fourths of which was concentrated along a narrow coastal strip.

Area and Population of States and Territories of Brazil

(Estimates published by the Instituto Brasileiro de Geografia e Estatística)

State or territory	Area (sq. mi.)	Pop. (Jan. 1, 1950)	Capital
North			
Acre (terr.)	57,153	116,124	Rio Branco
Amazonas	595,474	530,920	Manaus
Rio Branco (terr.)	97,438	17,623	Boa Vista
Pará	470,752	1,142,846	Belém
Amapá (terr.)	55,489	38,374	Macapá
Guaporé (terr.)	96,986	37,438	Pôrto Velho
Northeast			
Maranhão	133,674	1,600,396	São Luiz
Piauí	94,819	1,064,438	Teresina
Ceará	57,371	2,735,702	Fortaleza
Rio Grande do Norte	20,236	983,572	Natal
Paraíba	21,591	1,730,784	João Pessoa
Pernambuco	38,315	3,430,630	Recife
Alagoas	11,031	1,106,454	Maceió
Fernando de Noronha (terr.)	7	648	....
East			
Sergipe	8,321	650,132	Aracajú
Bahia	204,393	4,900,419	Salvador
Minas Gerais	228,469	7,839,792	Belo Horizonte
(Serra dos Aimorés)*	...	162,062	....
Espírito Santo	17,688	870,987	Vitória
Rio de Janeiro (state)	16,372	2,326,201	Niterói
Distrito Federal	451	2,413,152	Rio de Janeiro
South			
São Paulo	95,459	9,242,610	São Paulo
Paraná	82,741	2,149,509	Curitiba
Santa Catarina	31,118	1,578,159	Florianópolis
Rio Grande do Sul	110,150	4,213,316	Pôrto Alegre
Central-West			
Goiás	225,266	1,234,740	Goiânia
Mato Grosso	485,405	528,451	Cuiabá

*Area in dispute between the states of Minas Gerais and Espírito Santo.

History.—Getulio Vargas, the candidate of the Brazilian Labour party (P.T.B.) backed by a large majority (3,849,040 votes out of a total of 7,898,083 distributed among various candidates), was declared elected by the superior electoral tribunal and inaugurated as president on Jan. 31, 1951. He at once set himself to adopt measures calculated to control inflation and to provide a more adequate supply of essential foodstuffs. The suspicion of some that Vargas would return the country to a dictatorship seemed groundless. Likewise, Communist hopes that the president would refuse to co-operate with the United States were soon dispelled. In fact, in harmony with an agreement signed between the two countries on Dec. 19, 1950, a United States-Brazil joint commission for economic development (under the U.S. Point Four program) was installed in July at Rio de Janeiro. The purpose of the joint commission was to study the economic needs of Brazil and to make recommendations for development and improvement in specific fields, particularly transportation, electric power, food and agriculture and minerals. By the end of the year the first project prepared by the joint commission had formally been presented to the Brazilian government. The importance which the Brazilian administration attached to this program was shown in the legislative measures submitted to the national congress to finance the development projects recommended. An amendment to the new income tax law provided for a 15% surtax, designed to raise Cr$ 10,000,000,000 to finance the program. A second bill called for the establishment of a bank for re-equipment and economic development to handle all funds for the administration of the development projects adopted.

In September the Brazilian minister of finance, Horacio Lafer, visited the United States for consultation with officials of the U.S. government, the Export-Import Bank of Washington and the International Bank for Reconstruction and Development in connection with the new development plans.

INAUGURAL SHOWER of rose petals for Getulio Vargas (seated right), who took office as president of Brazil on Jan. 31, 1951

To assist Brazil in the development of a modern atomic energy research project, the United States government sent to Brazil several outstanding U.S. scientists, including Gordon Dean, chairman of the U.S. Atomic Energy commission. Adm. Alvaro Alberto, president of the Brazilian National Research council, visited the United States and Canada (in September) in connection with Brazilian atomic research projects.

Despite vociferous Communist propaganda against furnishing any military assistance to the U.N. forces in Korea, the Brazilian government sent Gen. Pedro Aurelio de Goes Monteiro, chief of staff of the Brazilian armed forces, to the United States in July to consult with U.N. leaders and U.S. authorities on possible means of co-operation of Brazil with the U.N.

At the invitation of the Brazilian government, the first congress of the Latin union met at Petropolis (Oct. 15–21), with delegates from 26 countries. The purposes of the congress were declared to be to assure support for the principles on which Latin civilization and ways of life and thinking rest; and to encourage spiritual ties and intellectual interchange between the Latin countries. The congress adopted a charter of principles; selected Madrid, Sp., as seat of the second congress (1953); and decided to postpone the adoption of statutes for the Latin union until the Madrid meeting. The question of whether representation would be by government appointment or by delegates from unofficial national committees prevented adoption of the statutes at Petropolis.

Internally, a revolutionary movement broke out in the interior and capital of the northern state of Maranhão (in September), a result of opposition to the inauguration of state Gov. Eugenio de Barros, declared elected by the regional electoral tribunal. Peace was restored by federal forces only after some fighting between partisans of Governor de Barros and his political enemies resulted in a number of casualties and considerable damage to property. (R. d'E.)

Education.—In 1950 there were 60,000 primary schools with 4,500,000 pupils, about 1,500 secondary schools with 300,000 students and about 2,700 vocational, commercial and professional schools with 200,000 students. There were ten universities, of which three were private (Catholic), six state and one federal (University of Brazil at Rio de Janeiro). In 1951 the 1,736 motion-picture theatres had seating capacity of 1,071,560.

Finance.—The monetary unit is the cruzeiro (Cr$), valued at $0.0534 U.S. currency, official rate, during 1951 and at $0.0342, curb rate, on Nov. 30, 1951. Actual government expenditure in 1950 was Cr$ 23,670,000,000; revenue, Cr$ 19,373,000,000. The 1951 budget estimated expenditure at Cr$ 22,800,000,000 and revenue at Cr$ 20,500,000,000; the new government eliminated the deficit by reducing allocations to the SALTE plan and other appropriations. The 1952 budget as approved by congress called for expenditure of Cr$ 25,431,000,000 and revenue of Cr$ 25,537,000,000. On Dec. 31, 1950, the internal floating debt was reported as Cr$ 14,849,110,182; internal funded debt Cr$ 10,439,287,620; external debt £37,700,265 and $110,268,695. Currency in circulation (July 31, 1951) amounted to Cr$ 26,920,000,000; demand deposits (Dec. 31, 1950) Cr$ 44,820,000,000; gold reserves (Oct. 31, 1951) $317,000,000; foreign exchange reserves (Dec. 31, 1950) $724,000,000; dollar exchange in U.S. banks (Sept. 30, 1951) $140,000,000. The cost-of-living index (São Paulo) stood at 481 in July 1951 (1939=100).

Trade.—Exports in 1950 totalled Cr$ 24,910,000,000; imports, Cr$ 20,310,000,000. In the first six months of 1951 exports were Cr$ 15,299,418,000 and imports Cr$ 15,920,906,000. Leading exports in 1950 were coffee (64%), raw cotton (8%), cacao (6%) and pine (2%); leading imports, machinery and vehicles (42%), petroleum and products (12%), wheat and flour (10%) and iron and steel and manufactures (5%). The leading customers were the U.S. (55%), the United Kingdom (8%), Argentina (6%), France (5%) and Belgium (3%); leading suppliers, the U.S. (34%), the United Kingdom (12%), Argentina (10%), Belgium (6%) and France (5%).

Communications.—Railway mileage (1951) was about 23,000; highways, 38,000; common roads, 124,000. On Jan. 1, 1951, there were 238,478 automobiles, 192,023 trucks and 14,220 buses. In 1950 the 21 Brazilian air lines flew 42,500,000 mi. and carried 1,616,420 passengers. According to *Lloyd's Register of Shipping*, the merchant marine had 328 vessels (100 tons and over) aggregating 698,160 gross tons on June 30, 1950. There were three television stations in operation at the end of 1951.

Agriculture.—Coffee production in the 1950–51 season totalled 16,948,000 bags of 132 lb. each. In 1950, 14,834,885 bags were exported, of which 9,746,391 bags went to the U.S., 704,801 bags to France and 587,576 bags to Sweden. Cacao production in 1950–51 was 150,000 short tons; exports in 1950 were 135,250 short tons. Estimated production of other crops in 1950–51 included rice (paddy) 3,300,000 short tons; cotton (ginned) 357,500 tons; sisal 55,000 tons; wheat 570,000 tons; tobacco 118,250 tons; and potatoes 825,000 tons. Refined sugar production in 1950 was 1,541,750 tons. In 1950 about 158,000,000 bunches of bananas and 35,674,000 boxes of citrus fruit were produced.

Livestock (Dec. 31, 1948) included 50,089,000 cattle, 13,804,000 sheep and 23,881,000 pigs. About 5,900,000 head of beef cattle were slaughtered in 1950. Wool production was 20,550 short tons. Rubber production (1950) was 23,922 long tons; carnauba wax exports, 14,063 short tons. In 1950, 16,600 short tons of barbassu kernels and 11,950 tons of barbassu oil were exported.

Manufactures.—Production in 1950 included cement 1,523,352 short tons; pig iron 803,633 tons; steel 859,205 tons; and newsprint 41,731 tons.

Mineral Production.—Production in 1950 included coal 2,185,930 short tons; gold 131,204 troy ounces; and (1949) iron ore 1,931,196 tons. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.) (J. W. Mw.)

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Bread and Bakery Products.

The necessity for more experimental studies of bread and other bakery products became increasingly evident to leaders in the baking industry during World War II, and led to the establishment in a number of countries of modern, well-equipped laboratories. In 1950 the new laboratories of the American Institute of Baking, supported financially by the baking and allied industries of the United States, were opened in Chicago. Two of the projects on which these laboratories were engaged in 1951 were the nature and measurement of staling, and the general nutritive value of bread.

Staleness of bread, it was shown, could best be measured by a laborious process of taste testing with a panel of selected persons. Correlation of this subjective measurement with some of the objective measurements used in the laboratory, such as measures of the firmness and crumbliness of the bread, showed that not all the laboratory methods commonly employed were suitable. An interesting observation reported during 1951 was that canned cake, as contrasted with bread, remains fresh and apparently unchanged for many months, probably because of its low moisture content and a difference in the nature of the starch complexes that are formed in the baking process.

Silvio Crespo and W. B. Bradley reported that commercial bread in the United States contains on the average 404 mg. of calcium in each pound, which means that bread is a nutritionally significant source of this dietary essential. More than one-third of this calcium, or 138 mg., is contributed by skimmed milk solids. The remainder is contributed by the other ingredients, of which the richest sources of calcium are the so-called yeast foods, and some of the mould inhibitors and acidifying salts frequently employed in commercial bread baking.

J. L. Kadavy and G. M. Dack reported that canned bread, made according to U.S. army specifications, is not sterile, but does not permit the growth of bacteria if precautions are exercised in its formulation and processing.

Partially baked rolls, which were perfected in the laboratories of General Mills, Inc., Minneapolis, Minn., became firmly entrenched as consumer items during the year. In these rolls, the baking process is stopped before the crust becomes fully coloured. The consumer stores these rolls until needed and then completes the baking process in the home, thus securing a freshly baked product with a minimum of effort and no baking disappointments. A report by H. W. Loy, Jr., J. F. Haggerty and E. L. Combs indicated that partially baked products should be stored protected from light, in order to avoid the possibility of the loss of riboflavin, an important ingredient of enriched rolls.

The baking industry in the United States observed during 1951 the tenth anniversary of its adoption of the enrichment program, whereby enriched bread is required to meet certain standards of content of thiamin, riboflavin, niacin and iron. As of 1951 there were 26 states which required that all white bread and rolls, as well as family flour, must be enriched. In other states, most of the bread was also enriched.

The U.S. department of commerce issued a report of its census of small businesses, which showed that there were about 20,000 retail bakeshops in the United States. The value of bakery products commercially produced in the United States in 1951 was estimated to be approximately $3,400,000,000. This estimate did not include the value of the products produced by the biscuit, cracker and pretzel segment of the industry. If these were included, the total production in dollar value of products sold would be about $4,000,000,000. (*See* also FLOUR.)

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(F. C. BG.)

Brewing and Beer.

Beer and ale sales in the United States for the fiscal year ending June 30, 1951, totalled 83,246,162 bbl. (of 31 U.S. gallons each), the fourth highest fiscal year on record. The largest sales for a fiscal year were 86,992,795 bbl. in 1948.

Wisconsin was again the leading state, both in production, at 13,647,430 bbl., and taxpaid withdrawals, 12,413,031 bbl. New York was second in both categories and Pennsylvania third.

A National Production authority order reducing usage of cans by brewers was believed to have had a restrictive effect on sales. By the third and fourth quarters of the calendar year 1951, brewers' quotas of cans had been set at 70% of their usage for the corresponding 1950 periods. The same quota was to maintain until Oct. 1, 1952. The effect was felt by many brewers, since 72.7% of all fiscal 1951 withdrawals were in bottles or cans. In the calendar year 1950, beer in cans represented 25% of all packaged sales.

An increase of $1 per barrel in the federal excise tax on beer, bringing the new rate to $9 per barrel, became effective Nov. 1, 1951. In addition, state taxes averaged more than $2 per barrel, and in some cases, local taxes were also applied.

An industry-wide safety contest, sponsored by the United States Brewers foundation and launched during the last half of 1950 to encourage efforts to keep brewing plants accident-free, was repeated in 1951 with satisfactory results. Ten breweries completed the 1950 competition with perfect records of no accidents. The industry as a whole lowered its accident frequency during 1950 by 42% as compared with 1948.

Another highlight was the citation by the military authorities of the United States Brewers foundation's Armed Forces Liaison program, which was aimed at maintaining wholesome conditions surrounding the retail sale of beer at establishments frequented by military personnel.

Beer, as a nonintoxicating beverage, was sold at nearly all post exchanges. Army beer purchases for the men overseas for the first nine months of 1951 amounted to $10,958,354. Beer was purchased out of nonappropriated funds for sale through servicemen's and officers' clubs and post exchanges. Starting Oct. 25, 1950, beer was shipped free to overseas commands by the military sea transport service of the department of defense. Prior to that, army exchange service paid normal freight charges.

Moderation and Enforcement.—Close co-operation among brewers, wholesalers and retailers continued to be an integral part of the industry's self-regulation program which had its inception in 1938. This program, sponsored by the foundation, whose members produce more than 87% of the beer and ale in the U.S., is designed to impress upon industry members, particularly retail licensees, the importance of strict observance of all laws and of maintaining high standards of operation in the public interest.

Industry Economics.—The industry pay roll totalled $332,931,000 in 1950, covering 81,155 employees. The average number of production workers was 58,054 and they drew down $219,445,000 for 117,882,000 man hours. The value added by the manufacturer was reported at $937,463,000, which was slightly more than 1% of the value added by manufacture of all products made in the United States during 1950.

Purchases of agricultural products were estimated at nearly $300,000,000 for the year, mainly for malt, corn products, rice and hops. Purchases of cans, bottles, kegs, labels, transportation and various items of supplies, equipment, machinery and services were in addition to this.

Federal excise taxes, at $8 per barrel, and special taxes on malt beverages for fiscal 1951 totalled $669,470,889, bringing the cumulative total since relegalization (April 7, 1933) to $8,172,163,097. State and local taxes and licence fees in the fiscal year 1951 were estimated at $215,000,000, raising the cumulative figure for that revenue to about $2,730,000,000. Combined public revenue since 1933 thus had passed the $10,900,000,000 mark. (*See* also LIQUORS, ALCOHOLIC.)

(E. V. LH.)

Brewster, (Ralph) Owen

(1888–), U.S. senator, was born on Feb. 22 at Dexter, Me. He graduated from Bowdoin college in 1909 and received his law degree at Harvard university in 1913, after which he practised law at Portland, Me. He was a member of the Maine house of representatives for the terms 1917–19 (resigning in 1918 to enter military service) and 1921–23, state senator from 1923 to 1925 and governor of Maine for two terms (1925–29). Elected to the U.S. house of representatives in 1934 from the third Maine district as a Republican, he opposed a number of New Deal measures, including the packing of the supreme court. He was elected to the U.S. senate in 1940 for the term 1941–47 and was re-elected in 1946 for the term 1947–53. In the senate he continued in opposition to much of the Democratic administration's program.

After the outbreak of the Korean war in 1950, Brewster repeatedly attacked the administration's conduct of the war, and urged that Gen. Douglas MacArthur be given authority to use the atom bomb and (after the Chinese intervention) cross the Manchurian border if necessary. On May 8, 1951, he succeeded to the senate foreign relations committee seat left vacant by the death of Sen. Arthur H. Vandenberg. During the MacArthur hearings, Brewster assailed Secretary of State Dean Acheson's policy in China as full of "deceit" and criticized Pres. Harry S. Truman's removal of MacArthur as ill-advised. On Oct. 18 he was one of three senators on a foreign relations subcommittee who voted against confirmation of Philip C. Jessup as U.S. delegate to the United Nations.

Bridge, Contract: *see* CONTRACT BRIDGE.

Bridges, (Henry) Styles

(1898–), U.S. senator, was born at West Pembroke, Me., on Sept. 9. He graduated in 1918 from the University of Maine and, after teaching at Sanderson academy, Ashfield, Mass., he became a county agricultural agent and a specialist on crops and soils for the University of New Hampshire. In 1934 he was elected governor of New Hampshire for the term 1935–37. In 1936 he was elected Republican senator from New Hampshire for the term 1937–43 and was re-elected for the terms 1943–49 and 1949–55.

In the senate Bridges voted consistently with the Republicans against New Deal measures, excepting the Selective Service act and the various defense and war appropriations. A bitter critic of Secretary of State Dean Acheson and his foreign policy, Bridges was denounced by Pres. Harry S. Truman in 1950 as a Kremlin asset in the cold war. On Jan. 15, 1951, Bridges urged that the U.S. sever relations with the U.S.S.R. In June he criticized conduct of the Korean war as a policy of "kill, kill, kill and hope somebody will be willing to negotiate." On Aug. 19 he, with seven other Republicans of the senate armed services and foreign relations committees, denounced President Truman's dismissal of Gen. Douglas MacArthur as proof that the administration's far eastern policy had been "the most desolate failure in the history of our foreign policy." Primarily an internationalist, however, Bridges disagreed with both former Pres. Herbert Hoover and Sen. Robert A. Taft during the "great debate" on U.S. foreign policy in 1951.

Bridges.

The world's longest spans of the various types built up to 1952 are listed in the table.

United States.—The Delaware Memorial bridge over the Delaware river near Wilmington, Del., completed in 1951, was the world's sixth longest suspension bridge, with a main span of 2,150 ft. The west anchorage foundations required a caisson 95 x 221 ft. in plan, the largest in area ever built. The east anchorage

World's Longest Spans by Type of Bridge

Type	Bridge	Location	Year Completed	Span
Cable Suspension	Golden Gate	San Francisco	1937	4,200 ft.
Transporter Bridge	†Sky Ride	Chicago	1933	1,850
Cantilever	*Quebec	Canada	1917	1,800
Steel Arch	Kill van Kull	New York	1931	1,652
Eyebar Suspension	*Florianópolis	Brazil	1926	1,114
Concrete Arch	Sando	Sweden	1943	866
Continuous Truss	Dubuque	Mississippi river	1943	845
Simple Truss	*Metropolis	Ohio river	1917	720
Continuous Girder	Bonn-Beuel	Rhine river	1949	643
Vertical Lift	*Cape Cod Canal	Massachusetts	1935	544
Wichert Truss	Homestead	Pittsburgh	1937	533½
Swing Span	*Fort Madison	Mississippi river	1927	525
Tubular Girder	*Britannia	Menai straits	1850	460
Timber Span	*McKenzie River	Coburg, Ore.	1926	380
Bascule	*Sault Ste. Marie	Michigan	1914	336
Masonry Arch	Plauen	Saxony	1903	295
Single Leaf Bascule	*16th Street	Chicago	1919	260
Concrete Girder	Villeneuve	Seine river	1939	256

*Railroad bridge. †Not standing.

THROWING A ROPE to guide a truss into place on the Delaware Memorial bridge. Linking Delaware and New Jersey, the bridge had the sixth longest span in the world at its dedication, Aug. 15, 1951

foundation, built in an open cofferdam, also required the largest tremie seal, 99 x 225 x 32 ft. deep, poured in a 7½-day continuous operation. The total cost was $44,000,000.

The Chesapeake Bay bridge, just north of Annapolis, Md., constructed in 1950–52 at a cost of $42,600,000, was 21,286 ft. long, including a 1,600-ft. suspension span, a 780-ft. through cantilever truss and a long series of deck cantilever trusses. The underclearance was 186½ ft. at the suspension span. A novel construction was used for 28 piers, each consisting of four bell-bottomed cylindrical legs joined by diaphragms. These caissons were set on steel H-piles, driven as much as 135 ft. into the bay bottom. Giant pile hammers were required to drive these piles until their tops were under 60 ft. of water. All steelwork was erected without the use of falsework. Truss spans were assembled in an erection dock adjacent to one span and were then floated into position.

Legislation enacted in New Jersey and Pennsylvania in 1951 authorized an $84,000,000 suspension bridge to be built across the Delaware river between Philadelphia, Pa., and Camden, N.J. The new toll structure was to supplement the existing Philadelphia-Camden bridge, on which traffic had reached 23,000,000 vehicles annually, and was to be built under a new Delaware river port authority. Another Delaware river crossing authorized in 1951 by the two states would connect the Pennsylvania turnpike and the New Jersey turnpike between King of Prussia, Pa., and Bordentown, N.J.

The Delaware River Joint Toll Bridge commission completed plans in 1951 for the construction of three more interstate toll bridges over the upper portion of the Delaware river between Pennsylvania and New Jersey. The largest was to be an $8,300,000 span just north of the Delaware water gap at Stroudsburg, Pa.

Plans were authorized in 1951 for a $60,000,000 bridge to carry the New York State Thruway over the Hudson river at Tarrytown, N.Y. A novel feature called for the use of hollow concrete piers for buoyancy to reduce the load on the deep supporting piles. In a total length of five miles, the principal span would be a 1,100-ft. steel girder tied-arch, exceeding existing spans of this type.

The George P. Coleman Memorial bridge over the York river at Yorktown, Va., constructed in 1950–52 at a cost of $8,000,000, was featured by two 500-ft. swing spans in tandem to provide, in combination, a channel of 450-ft. horizontal clearance. One of the caissons, 110 ft. high, was sunk through 80 ft. of water and 70 ft. farther into the river bottom.

Plans made in 1951 for a 10-mi. by-pass expressway through Toledo, O., included a $16,700,000 central bridge section across the Maumee river. Construction was started in 1951 on the $21,000,000 Tampa Bay bridge in Florida.

Work was started in 1951 on the $6,000,000 highway bridge across Bay St. Louis on the Gulf coast of Mississippi.

In Arkansas an improvement district was authorized in 1951 for the construction of a proposed $7,000,000 interstate toll bridge over the Mississippi river at Helena.

The $12,000,000 Penrose avenue bridge across the lower Schuylkill river in south Philadelphia, completed in 1951, had a 680-ft. main span of arched cantilever type.

In Louisiana a survey was authorized in 1951 for a new Mississippi river bridge at New Orleans, estimated to cost $44,000,000.

A large concrete bridge with arch spans of 230, 319 and 230 ft. was built in 1951 to carry the Colorado freeway across the Arroyo Seco at Pasadena, Calif. It was adjacent to the historic concrete arch bridge built in 1913 to carry Colorado street across the same valley. The new bridge, costing $2,377,000, was 1,364 ft. long, on a curve, and had a deck width varying from 93 to 171 ft.

A $2,600,000 bridge was constructed in 1950–51 between Squantum and Long Island in Boston harbour. The 250-ft. centre span was assembled on two barges about four miles away, towed to position and then lowered into place with the ebb tide.

A pedestrian bridge over the Harlem river in New York city, erected in 1951, had a plate-girder lift span of 312 ft.

New U.S. records for plate-girder spans were set by two bridges (1951) on the New Jersey turnpike crossing the Passaic river and the Hackensack river, respectively, with girder spans of 375 ft. (The Bonn-Beuel bridge over the Rhine in Germany, completed in 1949, had a plate-girder span of 643 ft., and the Rhine bridge at Cologne, completed in 1948, had a 605-ft. girder span.)

The first prestressed concrete bridge to be completed in the U.S. (1950) was a highway bridge in Madison county, Tenn., with beam spans of 20 and 30 ft. The bridge was opened to traffic less than two weeks after erection started. A saving of 40% over the conventional design was reported.

The second prestressed bridge, the Walnut Lane bridge in Philadelphia, Pa., was completed early in 1951. The concrete deck was carried on thirteen 160-ft. main span precast girders and fourteen 74-ft. precast girders in the side spans.

California's first prestressed concrete bridge was a 110-ft. span pedestrian crossing over the Arroyo Seco in Los Angeles.

Construction was commenced in 1951 on a new four-track vertical lift bridge for the New York Central railroad to span the Harlem river in New York city. The estimated cost was $10,000,000, and completion was scheduled for 1954. The lift span was to be 340 ft., and would rise to a height of 135 ft. above the water.

A bridge 3,050 ft. long, made up of 25 deck plate-girder spans 122 ft. long, was built over dry land near Whitney, Tex., to carry the Missouri-Kansas-Texas railroad across a future lake to be formed by the Whitney dam and reservoir.

The Illinois Central railroad bridge over the Ohio river at Cairo, Ill., built in 1887–89, was replaced with new and heavier spans in 1951. Each new span was built on special falsework alongside the span it was to replace. It took only 57 min. to roll the old 518-ft. span out of the way, and then the new span was rolled into position.

Canada.—The Duplessis highway bridge over the St. Maurice river at Three Rivers, Que., collapsed suddenly at 3 A.M. on Jan. 31, 1951, with the loss of four lives. Four of the eight continuous girder spans of the western half of the structure dropped into the icy river, when the temperature was −30°. The structure had been completed in 1947 at a cost of $3,000,000. The failure was charged to the use of a poor quality steel tending to brittleness at low temperatures. Similar fractures at identical locations in the spans had been discovered a year earlier and had been repaired.

The Anlaw bridge over the Skeena river, near Hazelton, B.C., replacing a timber suspension bridge of 190-ft. span, was constructed in 1950. The difficult problem of bridging the steep canyon was solved by using a light, temporary Bailey bridge in lieu of falsework.

Brazil.—A combined railway and highway bridge over the São Francisco river between Propriá and Colegio, built in 1951–52 by the National Railway department of Brazil, had a total length of 4,500 ft. The estimated cost was $6,150,000. Thirty-three concrete piers carried ten steel girders of the Wichert type, each continuous over three spans of 120, 164 and 120 ft., and four simple girder spans of 110 ft.

Germany.—The outstanding bridges built in Germany after World War II were four bridges over the Rhine—at Frankenthal, Cologne-Deutz, Bonn-Beuel and Cologne-Muelheim.

The Frankenthal bridge was the only Rhine crossing of the *Autobahn* to be rebuilt up to the close of 1951. The original construction commenced in 1939, but was abandoned in 1941 when the bridge collapsed during erection, with 36 lives lost, shortly before the scheduled completion. This was recorded as the most serious and most mysterious disaster in the history of German bridgebuilding. The bridge was rebuilt in 1950, following the original design. The structure was a continuous plate girder with two spans of 482 and 528 ft., respectively. The bridge was notable for the record dimensions of the plate girders, with a depth of 22 ft., flange width of 4 ft. and flange thickness of 10 in. These were the heaviest plate girders in the world, and their proportions and oversize dimensions proved highly uneconomical.

The Cologne-Deutz (1948) and the Bonn-Beuel (1949) bridges over the Rhine, with continuous plate girder spans of 605 and 643 ft., respectively, established new world records and represented striking new conceptions in long-span continuous girder design. The parabolically shaped bottom flanges formed strong haunches over the inner piers and cut the depth in the centre to a minimum of $\frac{1}{65}$ of the span. This extraordinarily shallow section was made possible by cantilever erection to minimize bending moments at mid-span and by the use of box-girder and T-beam cross-sections, with the steel deck plates and bottom lateral bracing designed to participate as girder flanges. This yielded a highly efficient and economical design.

The rebuilt Cologne-Muelheim suspension bridge, with main span of 1,034 ft., was opened to traffic in Sept. 1951. This was the longest span on the European continent, since the Cologne-Rodenkirchen bridge (1941) of 1,244-ft. span had not been rebuilt. The new bridge was an externally anchored suspension bridge, whereas the old bridge (1929) was self-anchored. The change in anchorage permitted a lighter and shallower stiffening girder to be used, yielding improvement in both economy and appearance. (*See* also ROADS AND HIGHWAYS.) (D. B. S.)

British Borneo.

British-administered territories in Borneo consist of the colonies of North Borneo (including island of Labuan) and Sarawak, and the protected state of Brunei. Areas: North Borneo, 29,417 sq.mi.; Sarawak *c.* 50,000 sq.mi.; Brunei 2,226 sq.mi. Pop.: North Borneo (1950 est.) 350,000, including 67,000 Chinese; Sarawak (1947 census) 546,385 including 691 Europeans and 145,158 Chinese, (1950 est.) 570,000; Brunei (1950 est.) 42,000. Language: various, Malay serving as a lingua franca. Religion: Moslem and pagan. Governors in 1951: North Borneo: Sir Ralph Hone; Sarawak: Anthony F. Abell (also high commissioner for Brunei).

History.—In Sarawak in Feb. 1951 the secessionists agreed to abandon their activities in the face of the Communist threat to Asia, and Clement Attlee, the British prime minister, renewed assurances of the British government's policy of helping the people toward self-government. On May 31 the new sultan of Brunei, Omar Ali Saifuddin, was crowned with full ceremony. In both Sarawak and North Borneo the soaring prices for raw materials ensured another prosperous year. Sarawak proposed to carry out the whole of its £4,500,000 development plan from its oil revenues, and in North Borneo the favourable balance of trade, which had risen from £500,000 in 1949 to £5,000,000 in 1950, continued to improve. A North Borneo development plan was to cost more than £5,000,000, some of which was to be paid for under the Colombo plan. Its progress was, however, much hampered by shortage of materials and labour; the problems concerning the encouragement of immigration had not been solved, though several hundred people had been brought in from the Cocos and Keeling islands. A contingent of Dyaks from North Borneo continued to do valuable service in Malaya in helping the troops to track down bandits in the jungle.

Education.—(1950) Primary school attendance, secondary attendance in parentheses: North Borneo 19,140 (484); Sarawak 41,000 (8); Brunei 4,496.

Finance and Foreign Trade.—Currency: Malayan dollar, valued at 32.67 cents U.S.

	North Borneo	Sarawak	Brunei
	(In millions of Malayan dollars)		
Budget (1951 est.)			
Revenue	17.3*	20.1	26.1
Expenditure	11.2*	19.1	10.9
Imports (1950)	46	52.5†	20.5
Exports (1950)	92	50†	60.3

*Excluding development: revenue $11,400,000; expenditure $18,100,000. †1949.

Principal production figures (1950): North Borneo: rubber 23,900 tons, rice 25,000 tons, copra 32,337 tons; Sarawak: crude oil 56,601 tons, refined petroleum 1,854,615 tons, rubber 55,765 tons, timber (1949) 36,607 tons; Brunei: crude oil 4,051,009 tons, rubber 2,496 tons. (K. G. B.)

British Columbia.

The most westerly of Canada's ten provinces, British Columbia has an area of 366,255 sq.mi., of which 6,976 sq.mi. are water. British Columbia is the third largest province in area and is bounded on the west by the Pacific ocean and the Alaskan panhandle; on the east by the province of Alberta; on the south by the 49th parallel; and on the north by the 60th parallel.

The total population as at June 1, 1950, was estimated to be 1,138,000 (1941 census, 817,861). The 1951 census taken in June showed a population of 1,153,059, an increase of 41% over 1941. The 1941 census indicated 443,394 urban dwellers and 374,467 rural dwellers. Approximately 70% of the population dwelt in the southwestern corner of the province. The chief cities and their preliminary 1951 populations were: Vancouver (340,272), metropolitan Vancouver (524,339); Victoria, the capital (50,774); and New Westminster (28,390).

History.—In the second session of the 22nd parliament of British Columbia, Feb. 20, 1951, to April 18, 1951, the following measures were passed: an act to make provision for the common defense and protection of the public peace, health and security in the event of enemy action or civil disaster; an amendment to the Coal and Petroleum Products Control Board act, providing for the repeal of the price-setting powers of this board; an act authorizing the borrowing of $12,000,000 to be used in the purchase or building of public buildings and equipment; an act authorizing the borrowing of $5,000,000 to be used in the construction of schools; an amendment to the Public Utilities act providing for a three-member milk board instead of a one-member board; an act validating the incorporation of the corporation of the District of Central Saanich.

Hospital insurance premiums were raised $9 bringing a single person's contributions to $30 from $21, and a married person's premiums to $42 from $33. In addition a coinsurance policy was introduced; the maximum payment in any one year would be $35 per single person or per family unit. In April A. D. Turnbull announced social allowances were to be increased $5 per month per single person, $10 for a unit of two persons and $1 for each additional person.

The Aluminum Company of Canada started construction of its vast development in British Columbia in the Kemano-Kitimat area. In its initial program it was expected the plant would have an annual capacity of 80,100,000 tons. The $27,000,000 pulp plant of the Columbia Cellulose company 9 mi. S. of Prince Rupert was formally opened on June 12. The B.C. Power commission's 33,000-h.p. development at Whatshan lake was officially opened on June 25 by Premier Byron Johnson.

A special session of the legislature was held Oct. 25–Oct. 27 to deal with matters pertaining to old age pensions. Enabling legislation was passed allowing the province to enter into agreement with the federal government to take advantage of the Federal Old Age Assistance act and the Federal Blind Persons Allowance act.

Members of the provincial executive council, or cabinet, and their portfolios at the close of 1951 were: B. I. Johnson, premier and president of the council; G. S. Wismer, attorney general; E. T. Kenney, lands and forests; H. Anscomb, finance; H. R. Bowman, agriculture; R. C. MacDonald, mines and municipal affairs; E. C. Carson, public works; L. H. Eyres, railways, trade and industry and fisheries; J. H. Cates, labour; W. T. Straith, education and provincial secretary; A. D. Turnbull, health and welfare.

Education.—During the school year ending June 30, 1950, 164,212 students were enrolled, in the elementary (104,095), elementary-senior-junior high (13,626), superior (2,902), junior, junior-senior and senior high (43,589) schools of the province. Teaching staffs comprised 5,873 teachers: in the elementary 3,341, elementary-senior-junior high 487, superior 110, junior, junior-senior and senior high 1,875 and 60 unclassified. Higher education is provided by the University of British Columbia, a provincially endowed institution, two teacher training schools located in Vancouver and Victoria, a vocational institute at Vancouver and a junior college at Victoria.

The total net cost for the enrolment of 164,212 was $45,377,092. The deputy minister and superintendent of education was F. T. Fairey.

Communications.—The total highway mileage as of March 31, 1950, excluding the Alaska highway, was 22,711, of which 10,310 mi. were surfaced, 9,832 mi. were improved earth and 2,569 mi. unimproved earth. Railway mileage as of Dec. 31, 1950, was 4,813 of main line track and 1,215 of sidings. During 1950 approximately 5,016,020 tons of cargo were loaded at British Columbia ports on vessels destined for foreign countries, while 2,851,311 tons of cargo received from foreign countries were unloaded from vessels at local ports. In 1949 the total number of telephones, 254,325, included 103,217 on automatic switchboards.

On Oct. 31, 1950, there were 187,580 passenger cars and 64,087 commercial vehicles registered within the province.

Finance.—On March 13, 1951, Herbert Anscomb, minister of finance, reported that revenue collected for the fiscal year ended March 31, 1950, was $111,302,868; expenditures were $107,983,132; the net debt at Dec. 31, 1950, was $171,211,990, an increase of $25,111,622 over Dec. 31, 1949. Anticipated revenues were $118,502,890 and expenditures $118,269,088, for the fiscal year ending March 31, 1952.

Agriculture, Fisheries, Mining, Forestry.—Preliminary provincial departmental estimates indicated that all four chief basic industries, viz., agriculture, forestry, fisheries and mining, would reach new all-time value highs during 1951. Price increases accounted for a major portion of the increases.

Table I.—*Economic Activity in British Columbia*

	Unit	1950	1949	1951 Preliminary estimates
AGRICULTURE:				
Total value of production	$	136,690,400	139,960,563	148,800,000
Livestock	$	24,144,000	19,708,000	26,000,000
Poultry products . .	$	16,976,000	19,429,000	19,000,000
Dairy products . . .	$	30,821,000	30,707,000	31,500,000
Fruits and vegetables	$	28,384,600	30,729,026	28,800,000
Field crops	$	28,518,000	34,103,000	36,000,000
Miscellaneous . . .	$	7,846,800	5,284,537	7,500,000
FISHERIES:				
Total value of production	$	68,821,358	56,456,260	85,000,000
Pack of canned salmon	cases	1,482,560	1,433,723	1,955,475
FORESTRY:				
Total value of production	$	468,371,142	331,589,549	525,000,000
Timber scaled . . .	M.B.M.	4,560,080	4,049,682	4,500,000
Paper production . .	ton	477,628	462,282	
MINING:				
Total value of production	$	148,155,060	133,012,968	160,000,000
Lead	$	44,391,530	41,645,726	
Zinc	$	48,882,765	36,604,700	
Coal	$	10,025,626	12,462,424	
Gold	$	11,404,270	10,911,780	
INTERNAL TRADE:				
Index of wholesale sales	1935–39 = 100	351.3	332.1	401.0
Total value of retail sales	$000	1,050,054	940,030	1,115,000
Value of retail department store sales . . .	$000	113,273	109,910	120,000
Railway freight loaded	ton	10,834,135	10,394,769	11,500,000
Consumption of electric power	000 kw.hr.	3,960,698	3,601,317	4,200,000
Construction, building permits	$000	86,644	89,293	82,000
Bank debits	$000	8,446,567	7,540,592	10,100,000
Index of employment .	1926 = 100	202.0	200.4	210.0
Salaries and wages paid	$000	690,000	672,000	717,000

Table II.—*Principal Manufacturing Industries of British Columbia*

Industry	Gross value of Products 1949	1948
Sawmills	$209,607,511	$224,664,156
Pulp and paper	69,925,185	75,474,342
Fish processing.	55,553,356	56,309,747
Slaughtering and meat packing	49,120,931	43,419,968
Petroleum products	34,409,015	30,656,627
Fertilizers.	28,060,751	26,119,263
Sash, door and planing mills	26,522,103	23,496,534
Veneers and plywoods	25,239,202	28,320,902
Miscellaneous food industries.	23,057,601	17,744,239
Fruit and vegetable preparations	22,622,366	24,244,004
Total all manufacturing industries	959,008,088	985,592,702

Manufacturing.—Preliminary statistics relating to the manufacturing industries of the province indicated that the 1950 gross value of production would be higher than the previous all-time high established during 1948. This new all-time high was well maintained during 1951 with a large increase in pulp and paper production.

FILMS OF 1951.—*British Columbia—A Friend at the Door* (National Film Board of Canada); *Vancouver Island* (revised), *Peach Time in the Valley* (British Columbia Government Travel Bureau); *British Columbia* (Paul Hoefler Productions). (G. T. H.)

British East Africa.

This term is used to include Kenya (colony and protectorate), Tanganyika (trust territory) and Uganda, Zanzibar and Somaliland (protectorates). Kenya: 224,960 sq.mi.; pop. (1950 est.) 5,500,000; capital, Nairobi. Tanganyika: 362,688 sq.mi.; pop. (1950 est.) 7,600,000; capital, Dar es Salaam. Uganda: 93,981 sq.mi.; pop. (1950 est.) 5,125,000; capital, Entebbe. Zanzibar: 1,020 sq.mi.; pop. (1950 est.) 270,000; capital, Zanzibar. Somaliland: 67,936 sq.mi.; pop. (1950 est.) *c.* 500,000; capital, Berbera. Governors, 1951: Kenya, Sir Philip Mitchell; Tanganyika, Sir Edward Twining; Uganda, Sir John Hall and Andrew Benjamin Cohen; Zanzibar, Sir Vincent Glenday and John Dalzell Rankine; Somaliland, Sir Gerald Reece.

History.—James Griffiths, secretary for the colonies, visited Kenya in May 1951 to discuss constitutional developments, about which talks had already taken place between the governor and the leaders of the European, African and Asian communities. The Europeans wanted to retain a voting power in the legislative council equal to that of the other communities combined, but the non-European groups were reluctant to concede this. As a result of Griffiths' visit the council was to be enlarged after May 1952 to 54 members, with 26 on the official side and 14 Europeans, 6 Africans, 6 Indians and 2 Arabs, a total of 28, on the unofficial side; the seat on the executive council designated as being in the African interest would be filled by an African when it next fell vacant. These changes, announced in the house of commons on May 31, 1951, were interim measures pending a fuller constitutional review.

An African defense facilities conference, convened by Great Britain and South Africa, was held at Nairobi in August. It was attended by representatives of Belgium, Ethiopia, France, Italy, Portugal and Southern Rhodesia and by a United States observer; Egypt had declined an invitation because of its disputes with Britain. Unanimous recommendations were made to ensure the rapid movement of troops and supplies, if required, to East and central Africa. An ordinance passed early in the year in Kenya provided for compulsory national service (military and civil) for all British subjects and protected persons.

On Jan. 9 Viscount Jowitt, the lord chancellor, inaugurated at Nairobi a court of appeal for East Africa and was given the freedom of the city. Sir Barclay Nihill was appointed president of the court, which had jurisdiction covering Kenya, Tanganyika, Uganda, Zanzibar, Aden, Somaliland Protectorate and Seychelles.

A revised five-year development plan for Tanganyika to cost £24,000,000 was introduced in Feb. 1951 which included as an immediate project the extension 60 mi. westward of the Southern Province railway. Meanwhile the decision was taken by the British government to write off £36,000,000 advanced to the Overseas Food corporation for the peanuts scheme, to dispose of the corporation's surplus assets and to transfer the responsibility for its future, very restricted operations in East Africa from the ministry of food to the colonial office. In October the Colonial Development corporation reported the finding of a 200,000,000-ton coal field of good quality in the Ruhuhu valley with adjacent iron deposits.

A report on constitutional reform in Tanganyika, published in August, recommended the maintenance of official control in an enlarged legislative council of 42 members; interracial partnership was to be implemented by an equal division of the 21 unofficial seats among Europeans, Asians and Africans, a recommendation unpopular with some, though by no means all, Europeans. Less controversial, but of equal importance, were the comprehensive proposals for a modern system of local government, with district and county councils and regional administrations. These were designed to encourage interracial cooperation in local affairs, to decentralize administration and to provide a sound, democratic foundation for the steady development of self-government at the centre.

In Jan. 1951 the *lukiko,* the "parliament" of the Buganda kingdom (part of Uganda), underwent a measure of reform, the proportion of elected representatives being increased to 40 out of a total of 89. It was announced in April that the first cotton mill in East Africa was to be built in Uganda by a new company, Nyanza Textile Industries, Ltd., with a capital of £1,500,000, of which £600,000 would be provided by the Uganda government and the balance by Lancashire interests. Plans were announced in September for the reorganization of the cotton-growing industry itself. The scheme provided for the buying up by the government and closing of 35 redundant ginneries and the expansion of co-operative ginning by the growers. All the lint would continue, as at present, to be sold by the ginneries to the lint marketing board. The latter had, by the end of the 1950–51 season, accumulated a stabilization fund of £22,000,000 so that plenty of money was available for expanding the industry.

Zanzibar's chief problem remained the "sudden death" disease in cloves. It had been decided in 1950 not to proceed with wholesale cutting out of affected trees partly because of the inevitable political repercussions and partly because it would have cost £1,000,000. During 1951, however, scientists diagnosed the cause of the disease and it was hoped that, as a result, alternative methods of control might be developed. In spite of the disease a bumper crop was harvested; in very good years it was not possible to pick the whole crop and the effect of "sudden death" was felt only when crops were normal or subnormal. Proposals for elections in the Arab and Indian communities were still under consideration at the end of the year.

Initial opposition in Somaliland to the setting up of local authorities and district councils in the tribal areas disappeared and the native authority system was successfully established. Of even greater importance was the arrival of an expert in October to carry out a survey for large-scale irrigation. On the coast of the Red sea hopeful experiments were started in growing dates.

Finance and Trade.—Currency: East African shilling, divided into 100 cents and valued at 14 cents U.S. (1951).

	Revenue*	Expenditure*	Imports, 1950	Exports, 1950
Kenya	£13,400,000	£12,500,000	£31,700,000	£19,700,000
Tanganyika	14,300,000	15,000,000	28,000,000	26,000,000
Uganda	12,500,000	11,600,000	15,400,000	29,000,000
Zanzibar	1,470,000†	1,030,000†	3,900,000	5,100,000
Somaliland	584,000	1,200,000	1,200,000	732,000

*1951 estimates. †1950 actual.

Principal exports: Kenya—wheat, maize, sisal, pyrethrum, tea, gold, silver, kyanite; Tanganyika—diamonds, sisal, hides; Uganda—raw cotton, sugar; Zanzibar—cloves, coconut oil, oil cake; Somaliland—hides and skins, livestock, gums and ghee. (K. G. B.)

British Empire: *see* COMMONWEALTH OF NATIONS.

British Guiana.

A British colony, British Guiana is on the northeast of the continent of South America between Venezuela, Brazil and Surinam. Area: *c.* 83,000 sq.mi. Pop.: (1946 census) 369,678, excluding *c.* 6,000 Amerindians in remote districts; (1950 est.) 425,156. Language: English; various East Indian languages also spoken. Religion: 60% Christian; non-Christians are mainly Hindu or Moslem. Principal towns (pop., 1950 est.): Georgetown (cap., 84,794); New Amsterdam (11,812). Governor in 1951: Sir Charles Woolley.

History.—During 1951 a mission from the Colonial Development corporation spent three months investigating the possibility of developing the rice industry, which was stimulated by an arbitration award on the prices to be paid for rice by other British Caribbean colonies. Sugar production was maintained, and the bauxite industry completed large capital works. Legislation to assist the starting of new industries by relief from import duties and income tax came into effect. Evidence of further social progress was found in the opening of the new Queen's college, which provided secondary education for 500 boys, and in the inauguration of the potable water supply scheme for Georgetown.

A commission on constitutional development headed by Sir John Waddington recommended the introduction of full adult suffrage. Other proposals, which were accepted in principle by the secretary of state for the colonies, provided for a court of policy (formerly executive council) consisting of the governor, 3 ex officio members, 5 or possibly 6 ministers from the house of assembly and a minister without portfolio from the state council; a house of assembly consisting of 3 ex officio, 24 elected members and a speaker; and a state council of 6 nominated members, drawn equally from the three counties, and 3 appointed on the recommendation of the majority and the minority in the house of assembly.

Education.—Pupils in elementary schools (1950): 74,153; expenditure on elementary education: B.W.I. $2,125,128.

Finance, Trade and Production.—Currency: British West Indian dollar, valued in 1951 at 58.33 cents U.S. Budget (1951 est.): revenue B.W.I. $24,311,822; expenditure B.W.I. $24,224,018, excluding colonial development funds. Foreign trade (1950): imports B.W.I. $55,057,592; exports, including re-exports, B.W.I. $50,254,942. Principal exports: sugar, bauxite, rum, rice, diamonds, timber, balata. Production: sugar crop (1951) 205,688 tons; bauxite (1950) 1,583,417 tons. (P. H-MY.)

British Honduras.

A British colony in Central America bounded by Mexico and Guatemala, British Honduras has an area of 8,598 sq.mi. Pop.: (1946 census) 59,220; (1950 est.) 67,000. Language: English, Spanish and Indian dialects. Religion: mainly Roman Catholic. Chief towns (pop., 1946): Belize (cap., 21,886); Stann Creek (3,414). Governor in 1951, Sir Ronald Garvey.

History.—The development program continued to make considerable strides. In April 1951 the first export of 12,000 stems of bananas was made to the United States and Canada from the plantation established by the Colonial Development corporation in the Stann Creek district. In October 8,300 stems were shipped to the United Kingdom. Progress was made with the ramie fibre project in the western district. Exports of timber, citrus fruit and chicle all increased substantially throughout 1951.

Grants under the Colonial Development and Welfare acts continued on an increasing scale, and special attention was paid to the construction of feeder roads to open up new territory for smallholders. Progress was made on the road from Roaring Creek to Middlesex which was to give land communication between north and south.

A major political issue discussed was whether the colony should join in any federation of the British Caribbean colonies such as that recommended in the report of the standing closer association committee which had been published in March 1950. The People's United party conducted a strong campaign against federation.

Education.—Schools: 92 primary and 5 secondary schools (65 controlled by the Jesuit mission). Attendance: primary schools, 13,526; secondary 672.

Finance and Trade.—Currency: British Honduras dollar, valued in 1951 at 70 cents U.S. Budget (1951 est.): revenue $4,712,699; expenditure $4,612,699. Foreign trade (1950): imports $8,076,417; exports $4,594,-

36. Principal exports: timber, coconuts, chicle and grapefruit.
(P. H-MY.)

British Malaya: *see* MALAYA (FEDERATION OF) AND SINGAPORE

British Somaliland: *see* BRITISH EAST AFRICA.

British South African Protectorates.

The three territories in southern Africa which are not part of the Union of South Africa, Basutoland, Bechuanaland protectorate and the protectorate of Swaziland, are generally referred to as the High Commission Territories in South Africa.

	Area (sq. mi.)	Population (1950 est.)	Capital
Basutoland	11,716	574,000	Maseru
Bechuanaland	c. 275,000	289,000	Mafeking
Swaziland	6,705	197,000	Mbabane

High commissioners (1951): Sir Evelyn Baring and (from Oct. 2) Sir John Le Rougetel. Resident commissioners: (Basutoland) E. P. Arrowsmith; (Bechuanaland) E. B. Beetham; (Swaziland) D. L. Morgan.

History.—Patrick Gordon Walker, British secretary of state for commonwealth relations, visited the territories in Feb. 1951. He met chiefs and other notables and addressed representative gatherings.

Basutoland.—The report of the special commissioner, G. I. Jones, who inquired into the increase in "medicine" murders, was published in 1951. He found that the primary cause was the Basuto belief in the medicinal efficacy of human flesh. The revival of this belief was attributed to changes in chieftainship which had adversely affected the status and security of men in authority. The report recommended *inter alia* closer association of the Basuto people with the work of government and reforms in the system of native administration. These proposals were accepted by the secretary of state. After an inquiry into the working of native courts, steps were taken to improve their procedure and to record native law and custom.

Ma'Ntsebo, the regent, accompanied by advisers, paid her first visit to London in Oct.–Nov. 1951. She saw Gordon Walker and Lord Ismay, who succeeded him, and sought a declaration that Basutoland would never be handed over to the Union of South Africa without the consent of the Basuto; but neither minister was prepared to go beyond earlier assurances of prior consultation.

Bechuanaland.—The Bamangwato tribe was disturbed by the effects of the banishment of its two leading figures, Tshekhedi Khama and Seretse Khama, following the latter's marriage to a white woman. Tshekhedi's desire to return led to debates, in June, in both houses of parliament at Westminster, and to the dispatch from Britain of three observers to report on the attitude of the tribe to Tshekhedi's return. The observers found that an overwhelming majority was opposed to return, but the Conservative government announced in December that it was its intention to allow Tshekhedi to return ultimately to live as a private person in the reserve.

Swaziland.—Legislation provided a firmer legal basis for the system of indirect rule in native administration on the lines already adopted in other British dependencies. The paramount chief and his council were recognized as the native authority with power to run a series of native courts. A national treasury, financed from local revenue, was established under the general control of the native authority. These laws marked a new stage in local self-government reached after years of consultation with the tribal leaders.

The African demand for primary and secondary education continued to grow. An increasing number of children were enrolled and new buildings erected, including a new European school. Plans for further development were under consideration. Extensions of medical facilities cost £71,000. A leper survey, involving the examination of 31,000 persons, was conducted with satisfactory results. (*See* also SOUTH AFRICA, UNION OF.)
(JU. L.)

Education.—Schools, with the numbers attending in parentheses, were in 1950:

	Primary	Secondary and postprimary	European
Basutoland	899 (88,236)	10 (1,012)	6 (116)
Bechuanaland	152 (16,346)	1 (34)	9 (224)
Swaziland	194 (13,588)	13 (670)	7 (568)

A small private university from which students took external degrees of the University of South Africa was maintained by the Roman Catholic mission at Roma, Basutoland.

Finance and Trade.—Currency: South African pound (£[S.A.]1 = £1 sterling).

	Budget est., 1951–52*		Foreign trade, 1950†	
	Revenue	Expenditure	Imports	Exports
Basutoland	£938,921	£977,624	£2,555,614	£2,588,120
Bechuanaland	505,293	559,120	1,487,147	1,626,014
Swaziland	529,120	518,588	1,090,793	2,144,851

*Excluding Colonial Development fund expenditure estimated at: Basutoland £107,397; Bechuanaland £155,239; and Swaziland £144,797. Deficits met from accumulated surpluses.

†Excluding earnings of labourers remitted from neighbouring territories for which no estimate was available; the total was believed to be considerable.

Principal exports: *Basutoland:* livestock, grain, wool, hides and skins. *Bechuanaland:* beans, dairy produce, livestock, hides and skins, gold, *Swaziland:* livestock, tobacco, asbestos (32,667 short tons in 1950), gold, peanuts, tung oil.

British West Africa.

This term includes the following territories on the west coast of Africa: Gambia, colony and protectorate; Gold Coast, colony and protectorate; Togoland under United Kingdom trusteeship, administered with the Gold Coast; Nigeria, colony and protectorate; Cameroons under United Kingdom trusteeship, administered with Nigeria; Sierra Leone, colony and protectorate.

Governors (Dec. 31, 1951): Gambia, P. W. Harris; Gold Coast, Sir Charles Arden-Clarke; Nigeria, Sir John Macpherson; Sierra Leone, Sir George Beresford Stooke.

History.—The year 1951 saw constitutional development in

GOLD COAST citizens preparing to vote in the British colony's first parliamentary elections in Feb. 1951. The nationalist Convention People's party, pledged to end British support, won 34 of the 38 seats subject to popular vote

	Area (sq.mi.)	Population (1950 est.)	Chief towns
Gambia	4,074	271,000	Bathurst (cap., 21,152)
Gold Coast . . .	78,802	3,788,000	Accra (cap., 135,926), Kumasi (78,483), Sekondi-Takoradi (44,557)
Togoland	13,041	393,000	. . .
Nigeria	338,593	24,000,000	Lagos (cap., 250,000), Ibadan (335,500), Kano (102,000)
Cameroons . . .	34,081	1,025,000	. . .
Sierra Leone . . .	27,925	1,865,000	Freetown (cap., 64,576)

all four British territories, in part the implementation of decisions announced in 1950.

Gambia.—The new constitution came into operation and elections in Bathurst for three members of the legislative council took place on Oct. 25. It was also announced that the number of unofficial members of the executive council would be increased to four, to be selected from the eight unofficial members of the legislative council, and that two of them would be members of government without portfolio and receive remuneration.

Gold Coast.—The year saw the inauguration of the remarkable political experiment in the Gold Coast, the new constitution which established a legislative assembly of 84 members (75 elected) and an executive council, with the governor as president and 11 members, 8 of whom were chosen from the assembly and were removable at its instance. Elections for the assembly were held during the period Feb. 5–10. There was no disorder and few election offenses were reported. About 80% of the electorate were illiterate.

The three main political parties were the Convention People's party led by Kwame Nkrumah, the United Gold Coast convention led by J. B. Danquah and the much smaller and, as events proved, ineffective National Democratic party. In the 33 rural seats, for which there were 89 candidates, the Convention People's party secured 1,946 votes and 29 seats against 745 votes and 4 seats for all others, while in the municipalities of Accra, Kumasi, Sekondi-Takoradi and Cape Coast they polled 58,886 votes against 5,500 for the rest and secured all five seats. The new assembly had an average age of just below 40, and of its 84 members 22 were graduates and 40 had received no post-primary education. Nkrumah, who was elected for Accra with a vote of 20,780, was at the time serving a prison sentence which was not due to end until November (having been convicted on charges of violating emergency regulations), but on Feb. 12 Sir Charles Arden-Clarke, the governor, remitted the remainder of the sentence.

On Feb. 26 Arden-Clarke submitted to the assembly the names of Nkrumah as leader of government business, and seven others as ministers.

Nigeria.—A new constitution was promulgated on June 29. It established legislatures in each of the three regions as well as a central legislature, the members of which would be elected by the regional legislatures. In the northern and western regions, the legislatures would be bicameral, with an upper house of chiefs, as well as a house of assembly. Regional business was placed under the direction of a regional executive composed of a lieutenant governor, not more than five officials and from six to nine ministers, appointed from the members of legislatures with the approval of the members of the house concerned.

The regions were permitted to legislate on specified subjects, including agriculture, education, health and local government, subject to the approval of the central council of ministers. The central legislature consisted of 136 representatives, 68 elected from among members of the northern legislature, and 34 each from the western and eastern legislatures, together with 6 ex-officio members and 6 special members. The central council of ministers, "the principal instrument of policy in and for Nigeria," consisted of the governor as president, 6 officials and 12 ministers appointed from the members of the central legislature (4 from each region) with the approval of the regional legislatures. Responsibility for government was vested in the council as a whole, individual ministers being responsible for submitting to the council questions within their spheres, conducting business relating to such matters in the central legislature and ensuring, in association with the public officer concerned, that the decisions of the council were carried out.

The franchise, on which election to the regional legislatures took place between August and December, had been extended in April. Voters had to be 21 years of age or over; either resident for 12 months in, or natives of, the division concerned; and to have paid, or been exempted from, tax. Women were not eligible to vote in the northern region nor in practice in the eastern, since they were not liable to tax there. The primary elections were for a series of electoral colleges, and in the northern and the western regions, but not in the eastern, additional members were nominated directly to these electoral colleges by the native authorities.

In Lagos, five members were directly elected by secret balloting.

The two principal parties were Nnamdi Azikiwe's National council and Awolowo's Action groups for which support mainly came from the Yoruba tribes. In the western region the Action group won 45 of the 80 seats. The National council secured all 5 of the Lagos seats and 12 of the 80 in the eastern region, while a further 13 in that region were at the end of the year "doubtful."

Sierra Leone.—The new constitution, delayed by opposition to increased protectorate representation, was introduced in 1951 after a petition from the National Council of Sierra Leone asking that the territory be divided into two separate political units had been rejected. Elections took place in November and were contested by the two most important political organizations, the Sierra Leone People's party and the National council. The People's party stood for the maintenance of the unity of the colony and protectorate but demanded a more democratic constitution; its other objectives included government control of the produce marketing boards, greater Africanization and reduction in the cost of living. The National council did not contest seats for the protectorate, since it stood for separation. This was the first time that women took part in elections for the legislative council.

The People's party won all 14 protectorate seats and 2 of the colony seats.

Finance and Trade.—Currency: (West African) pound (£1 = £1 sterling = 280 cents U.S.).

	Revenue 1950	Expenditure 1950	Imports 1950	Exports 1950
Gambia	£ 999,216	£ 1,062,311	£ 2,752,000	£ 1,743,000
Gold Coast	20,564,750	15,643,150	44,276,174	71,435,395
Nigeria	30,800,000	28,200,000	60,500,000	85,500,000
Sierra Leone	2,920,729	3,205,299	6,745,865	6,959,130

The principal exports were: Gambia, peanuts; Gold Coast, cocoa, gold, manganese, timber; Nigeria, cocoa, tin, peanuts, palm oil and kernels; Sierra Leone, palm kernels, diamonds, iron ore.

Bibliography.—J. R. E. Carr-Greg, *Self-Rule in Africa* (1951); J. H. Price, *The Gold Coast Election* (London, 1951); F. J. Pedler, *West Africa* (London, 1951); Lord Hailey, *Native Administration in the British African Territories*, vol. iii (London, 1951). (K. E. R.)

British West Indies: *see* Bahamas; Barbados; Jamaica; Leeward Islands; Trinidad and Tobago; Windward Islands.

Broadcasting: *see* Radio; Television.

Brookings Institution: *see* Societies and Associations, U.S.

Brozovich or Broz, Josip (Tito): *see* Tito (Josip Brozovich or Broz).

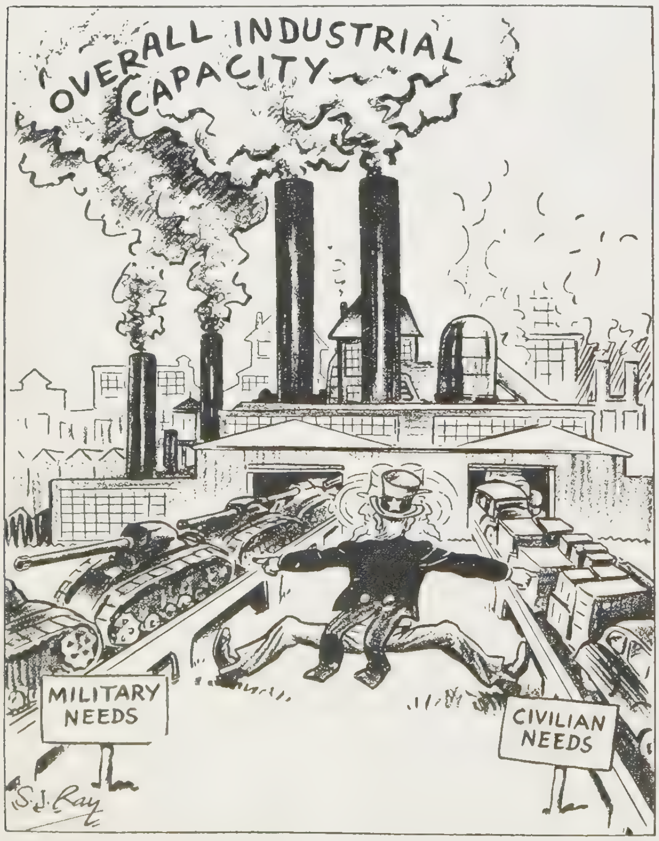
Brunei: *see* British Borneo.

Budget, National. **United States.**—The U.S. budget submitted to the congress by Pres. Harry S. Truman on Jan. 21, 1952, recommended expenditures of $85,444,000,000 for the fiscal year ending June 30, 1953. This total represented an increase of about $14,500,000,000 over fiscal 1952 and of about $45,300,000,000 over fiscal 1950, the last full year before the outbreak of the Korean conflict. On the basis of existing tax laws, it was expected that revenues in fiscal 1953 would total $70,998,000,000, as compared with an estimated $62,680,000,000 in fiscal 1952.

Expenditures and revenues for the fiscal year 1953 as presented in the budget would result in a deficit of $14,446,000,000. For fiscal 1952 there would be an estimated deficit of $8,201,000,000.

The president noted that ". . . partly as a result of inadequate revenue legislation last year, we were now confronted with the impracticability of financing government expenditures currently out of taxes for the next year or so." However, he suggested that, "at the very least," additional revenue be raised to the amount (about $5,000,000,000) by which legislation in 1951 fell short of his recommendations.

The 1953 budget, the president stressed, was dominated by "major national security programs"—military services, international security and foreign relations, the development of atomic energy, the promotion of defense production and economic stabilization, civil defense and merchant marine activities. The expenditures earmarked for such programs formed 76% of the total budget. It was also noted by the president that outlays for the major national security programs—at $65,100,000,000 in fiscal 1953 as compared with $17,800,000,000 in fiscal 1950—accounted for all of the increase in total budget expenditures since the attack on Korea. Expenditures for all other programs were placed at $20,300,000,000 for fiscal 1953, about $2,000,000,000 less than in fiscal 1950 and $900,000,000 below the estimate for fiscal 1952.



"TESTING THE OLD BOY'S GENIUS," a 1951 cartoon by Ray of the *Kansas City Star* (Mo.)

Military Services.—The bulk of the projected increase in the 1953 budget was for the purpose of strengthening and expanding the armed forces. Comprising 60% of the over-all budget total, an outlay for military services of more than $51,000,000,000 was recommended for fiscal 1953, as compared with $39,800,000,000 for fiscal 1952, $20,500,000,000 for fiscal 1951, and $12,300,000,000 for fiscal 1950.

International Security and Foreign Relations.—The other increase of large magnitude in the 1953 budget was for foreign policy and international programs, consisting mainly of military and economic and technical assistance to friendly nations in Europe, the middle east and Asia. Total expenditures in this category were projected at $10,800,000,000, substantially above estimated outlays of $7,200,000,000 in fiscal 1952. The increase was attributed by the president to "a sharp acceleration in deliveries of military equipment to our allies overseas."

Finance, Commerce and Industry.—For programs embraced under the heading of finance, commerce and industry, expenditures of $833,000,000 were recommended for fiscal 1953. The increase over outlays of $751,000,000 in 1952 and $176,000,000 in 1951 stemmed entirely from the expansion of programs promoting defense production and economic stabilization. These provided for various forms of financial aid to defense industries, allocation of scarce materials and controls over prices, wages, rents and credit.

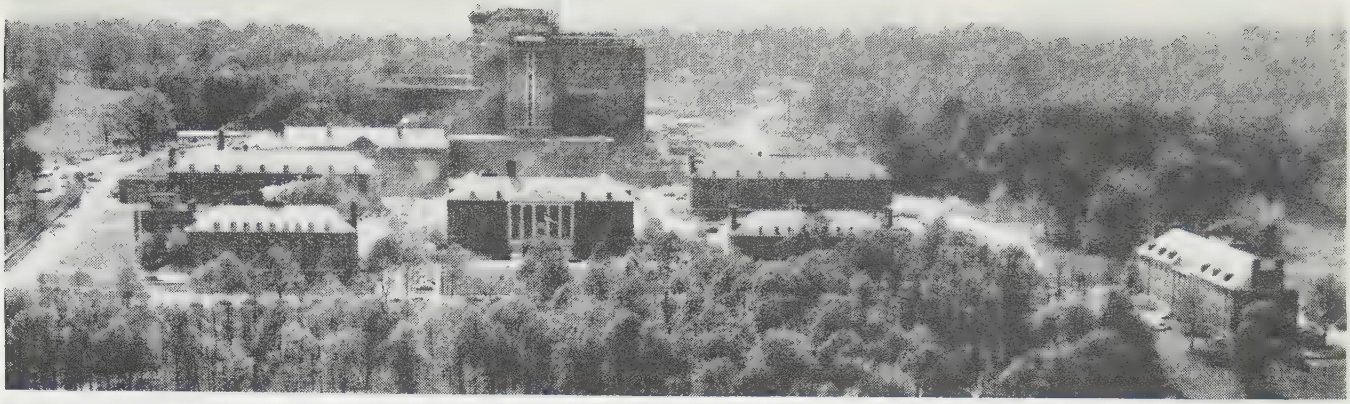
In his budget message the president called for the extension of the Defense Production act beyond its expiration date of June 30, 1952, and urged that the act be strengthened with respect to its price control features. Of the $1,171,000,000 of new obligational authority recommended under this category for 1953, all but $40,000,000 was accounted for by the proposed extension of the Defense Production act.

Transportation and Communication.—Expenditures for transportation and communication were estimated at $1,643,000,000 for fiscal 1953, about $500,000,000 less than in the preceding year. The decline assumed a reduction of $370,000,000 in the postal deficit. Of this amount, $225,000,000 reflected a recommended upward revision in postal rates.

Natural Resources.—The government's programs to conserve and develop natural resources were estimated to require expenditures of $3,237,000,000 in fiscal 1953, as compared with $3,082,000,000 in fiscal 1952. Outlays for atomic energy comprised more than one-half of these totals.

Agriculture and Agricultural Resources.—Expenditures for operating government programs relating to agriculture and agricultural resources were estimated at $1,478,000,000 for fiscal 1953. This compared with $1,408,000,000 for 1952, $650,000,000 for 1951 and $2,783,000,000 for 1950. For the most part, the sharp fluctuation in expenditures was accounted for by the agricultural price support program. In 1951, for example, the Commodity Credit corporation had net receipts of $781,000,000 from the sale of its accumulated holdings of agricultural commodities. For 1952 and 1953, on the other hand, its operations were expected to result in net crop acquisitions (and expenditures) amounting to $70,000,000 and $240,000,000, respectively. Apart from price support outlays, agricultural expenditures in 1953 were scheduled to decline because of lower payments under the agricultural conservation program and of reduced requirements, with the shortage of critical materials, for financing rural electrification.

Labour.—For the fiscal year 1953, expenditures required for administering labour programs were placed at $246,000,000—$6,000,000 more than in the previous year. Three-fourths of the total consisted of direct grants to the states for the administration of the employment services and the unemployment



MEDICAL RESEARCH and hospital centre built at Bethesda, Md., in 1951, at a cost of $40,000,000, housing the national institutes of health, including those for cancer, mental health, dentistry, etc.

insurance systems.

Housing and Community Development.—Budget outlays for housing and community development were estimated, on balance, to decline from $881,000,000 in fiscal 1952 to $678,000,000 in fiscal 1953. In line with the government's policy to curtail housing construction so as to help meet the materials requirements of the defense program, it was expected that in 1953 net purchases of mortgages would decline by almost $500,000,000 and that public housing programs would realize substantial net receipts, instead of incurring net expenditures. However, expenditures for defense housing and community facilities and for civil defense activities were scheduled to increase sharply.

Education and General Research.—Under this category it was recommended that expenditures be increased from $238,000,000 to $624,000,000. By far the largest part of the increase was attributable to proposed grants of $290,000,000 to the states for the operation and maintenance of elementary and secondary schools. Other legislation proposed by the president called for $35,000,000 to help provide schools in communities overburdened because of federal activities and $30,000,000 to give financial aid to "capable young people who otherwise would not attend a college or university."

Social Security, Welfare and Health.—Expenditures for social security, welfare and health were estimated at $2,662,000,000, slightly less than in the previous year. Anticipated declines in the transfer of pay roll taxes to the railroad retirement trust account and in federal aid for hospital construction were approximately offset by the proposed expenditure of $100,000,000 to provide additional help to the states, on a matching basis, to raise benefit rates under public assistance programs.

Veterans' Services and Benefits.—The largest decrease among the budgetary programs was projected for services and benefits to veterans. Outlays for 1953 were estimated at $4,200,000,000, or about $1,000,000,000 less than in 1952. The bulk of the drop centred in outlays for the education and training of World War II veterans. This program was scheduled to taper off sharply, as the deadline for initiation of training under it had been July 25, 1951. New legislative proposals by the president included $75,000,000 to cover the first year's cost of a program of readjustment benefits to servicemen discharged since the beginning of the Korean conflict and $100,000,000 to defray the cost of an upward revision in rates of death and disability compensation payments arising from service causes.

General Government.—Expenditures for general government services and activities in fiscal 1953 were included in the budget at $1,484,000,000, about 10% higher than in 1952. Decreases scheduled for several items were more than counterbalanced by the recommended increase of $148,000,000 in the government's contribution to the civil service retirement system and by the additional $24,000,000 requested for the bureau of internal revenue for handling the increased volume of tax collections and expanding its auditing and enforcement operations.

Interest.—Accounting for more than 7% of total budget expenditures, interest payments by the federal government were expected to amount to $6,256,000,000 in fiscal 1953. Of this total, $6,150,000,000 represented interest on the public debt. Because of an increase in the volume of interest-bearing debt and higher interest rates, this latter figure was $300,000,000 more than estimated expenditures in fiscal 1952.

Budget Receipts.—The federal government's two largest sources of revenue—income taxes on individuals and income and excess profits taxes on corporations—were expected under existing law to provide revenues of more than $60,000,000,000 in fiscal year 1953, comprising more than four-fifths of the estimated total of budget receipts. Excises, the other major source

Table I.—*Summary of Budget Receipts and Expenditures, United States Fiscal Years 1951 through 1953*

Based on existing and proposed legislation

Description	Actual, 1951	Estimate, 1952	Estimate, 1953
Budget receipts:			
Direct taxes on individuals .	$24,095,000,000	$30,064,000,000	$33,005,000,000
Direct taxes on corporations	14,388,000,000	22,900,000,000	27,800,000,000
Excise taxes.	8,693,000,000	9,046,000,000	9,744,000,000
Employment taxes	3,940,000,000	4,857,000,000	5,000,000,000
Customs	624,000,000	575,000,000	575,000,000
Miscellaneous			
Existing legislation . . .	1,629,000,000	1,598,000,000	1,598,000,000
Proposed legislation . .	—	—	15,000,000
Deduct:			
Appropriation to federal old-age and survivors insurance trust fund . .	3,120,000,000	3,850,000,000	4,030,000,000
Refunds of receipts (excluding interest) . . .	2,107,000,000	2,510,000,000	2,709,000,000
Total budget receipts	48,143,000,000	62,680,000,000	70,998,000,000
Budget expenditures:			
Military services	20,462,000,000	39,753,000,000	51,163,000,000
Veterans' services and benefits	5,339,000,000	5,165,000,000	4,197,000,000
International security and foreign relations	4,727,000,000	7,196,000,000	10,845,000,000
Social security, welfare and health	2,380,000,000	2,679,000,000	2,662,000,000
Housing and community development	602,000,000	881,000,000	678,000,000
Education and general research	115,000,000	238,000,000	624,000,000
Agriculture and agricultural resources	650,000,000	1,408,000,000	1,478,000,000
Natural resources	2,051,000,000	3,082,000,000	3,237,000,000
Transportation and communication	1,685,000,000	2,153,000,000	1,643,000,000
Finance, commerce and industry	176,000,000	751,000,000	833,000,000
Labour	228,000,000	240,000,000	246,000,000
General government . . .	1,209,000,000	1,353,000,000	1,484,000,000
Interest.	5,714,000,000	5,955,000,000	6,256,000,000
Reserve for contingencies .	—	25,000,000	100,000,000
Adjustment to daily treasury statement basis	−705,000,000	—	-
Total budget expenditures . .	44,633,000,000	70,881,000,000	85,444,000,000
Excess of budget expenditures	—	−8,201,000,000	−14,446,000,000
Excess of budget receipts	3,510,000,000	—	

Detail will not necessarily add to totals because of rounding.

Table II.—*Government Receipts and Expenditures—Great Britain*

(£ millions)

Receipts	Exchequer Receipts 1950-51	Esti-mate, 1951-52
Income tax	1,404	1,625
Surtax	121	128
Death duties	185	180
Stamps	54	55
Profits tax and excess profits tax	268	313
Other inland revenue duties	1	1
Special contributions	5	2
Total inland revenue	2,038	2,302
Customs	905	931
Excise	725	720
Total customs and excise	1,630	1,651
Motor vehicle duties	62	62
Total receipts from taxes	3,730	4,015
Sales of surplus war stores	45	20
Surplus receipts from trading services	81	50
Broadcast receiving licences	13	14
Receipts from sundry loans	27	27
Miscellaneous	82	110
Total ordinary revenue	3,978	4,236

Detail will not necessarily add to total because of rounding.

Expenditures	Exchequer Issues, 1950-51	Estimate 1951-52
Debt charge	497	535
Payments to North Ireland exchequer	38	38
Other	10	11
Total consolidated fund services	545	584
Supply services:		
Defense	777	1,114
Margin for defense and civil defense supplementary estimates		160
Civil	1,902	2,302
Customs and excise, inland revenue and balance of post office rates	34	37
Total supply services	2,713	3,613
Total ordinary expenditure	3,258	4,197
Surplus	720	39
Total	3,978	4,236

of federal revenue, amounted to about $9,750,000,000 in the 1953 budget. As already noted, the budgeted expenditures and receipts for fiscal 1953 would result in a deficit of about $14,500,000,000.

(*See* also DEBT, NATIONAL; INCOME AND PRODUCT, U.S.; TAXATION; UNITED STATES.)

Great Britain.—The 1951–52 budget of Great Britain, presented in April 1951, showed total receipts of £4,236,000,000 as compared with £3,978,000,000 in the preceding fiscal year. The estimated expansion in receipts was confined largely to increases in income and profits taxes, reflecting in part the imposition of higher rates.

Total budget expenditures were estimated to rise from £3,258,000,000 in fiscal 1950–51 to £4,197,000,000 in 1951–52. The bulk of the increase was attributable to the provision of larger outlays for defense and for the stockpiling of strategic materials.

A small surplus of ordinary receipts over ordinary expenditures (amounting to £39,000,000) was shown by the budget for fiscal 1951–52. In the preceding year there was a surplus of £720,000,000. (C. F. Sz.)

Buhl Foundation: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Building and Construction Industry.

The dollar value of building and construction activity in the United States climbed to new heights in 1951. Despite federal restrictions and threats of material shortages, total expenditures for new construction in the United States amounted to $30,000,000,000 during the year, an increase of 7% over the 1950 total. Rising construction costs, however, absorbed the difference in dollar outlay between the two years so that in physical terms the value of new construction in 1951 was approximately the same as in the previous year.

The construction boom appeared to taper off, however, at mid-year. The second half of 1951, reflecting the impact of the defense program, was marked by a gradual reduction in total construction from the record levels of the previous 18 months. Although there were larger outlays for such defense-connected work as industrial, military and naval projects, declines occurred in new private residential, commercial and other nondefense projects. The shift in the type of construction was also accompanied by a change in the proportion of total activity financed by private and public funds. In 1951 private and public construction constituted 70% and 30% of the total, respectively, contrasted with 75% and 25% in the previous year.

Private investment in new construction in 1951 totalled $20,800,000,000, an amount equal to the 1950 sum. Declines in housebuilding, commercial and recreational construction were almost exactly balanced by increased expenditures for new industrial plants, utility installations, office and warehouse buildings and institutional construction. Publicly financed new construction in 1951 amounted to $9,000,000,000, 27% above the 1950 total. Expenditures on new military facilities increased sixfold

Table I.—*New Construction Activity, Continental United States**

(In millions of dollars)

Type of construction	1951 Dec.	1951 Nov.	Dec. 1950	12 months 1951	12 months 1950	Per cent change Dec. 1951 from Nov. 1951	Per cent change Dec. 1951 from Dec. 1950	Per cent change 12 months 1951 from 12 months 1950
Total new construction	2,222	2,495	2,234	29,863	27,902	−11	− 1	+ 7
Private, total	1,521	1,692	1,721	20,823	20,789	−10	−12	†
Residential (excluding farm)	809	915	1,003	10,915	12,600	−12	−19	−13
New dwelling units	715	815	923	9,775	11,525	−12	−23	−15
Additions and alterations	80	86	62	950	900	− 7	+29	+ 6
Nonhousekeeping	14	14	18	190	175	0	−22	+ 9
Nonresidential building	320	343	395	4,907	3,777	− 7	−19	+30
Industrial	147	155	125	1,975	1,062	− 5	+18	+86
Warehouses, office and loft buildings	31	32	48	518	402	− 3	−35	+29
Stores, restaurants and garages	38	43	92	794	886	−12	−59	−10
Other nonresidential building	104	113	130	1,620	1,427	− 8	−20	+14
Religious	23	26	39	429	409	−12	−41	+ 5
Educational	25	26	29	339	294	− 4	−14	+15
Hospital and institutional	32	34	30	418	344	− 6	+ 7	+22
Social and recreational	7	8	20	161	247	−13	−65	−35
Miscellaneous	17	19	12	273	133	−11	+42	+105
Farm construction	81	92	71	1,250	1,170	−12	+14	+ 7
Public utility	305	336	247	3,685	3,130	− 9	+23	+18
Railroad	34	38	28	375	315	−11	−21	+19
Telephone and telegraph	32	35	35	460	440	− 9	− 9	+ 5
Other public utility	239	263	184	2,850	2,375	− 9	+30	+20
All other private	6	6	5	66	112	0	+20	−41
Public, total	701	803	513	9,040	7,113	−13	+37	+27
Residential	66	69	30	600	345	− 4	+120	+74
Nonresidential building	260	269	216	3,318	2,402	− 3	+20	+38
Industrial	86	85	31	880	224	+ 1	+177	+293
Educational	116	118	110	1,486	1,163	− 2	+ 5	+28
Hospital and institutional	34	38	39	496	476	−11	−13	+ 4
Other nonresidential building	24	28	36	456	539	−14	−33	−15
Military and naval	149	148	24	1,045	177	+ 1	+521	+490
Highway	95	170	103	2,225	2,350	−44	− 8	− 5
Sewer and water	48	54	56	703	671	−11	−14	+ 5
Miscellaneous public service enterprises	11	14	13	210	186	−21	−15	+13
Conservation and development	68	74	65	860	886	− 8	+ 5	− 3
All other public	4	5	6	79	96	−20	−33	−18

*Joint estimates of the U.S. Department of Commerce and the Department of Labor.

†Increase less than 0.5%

MASS-PRODUCED, low-cost housing development at Hollin Hills in Alexandria, Va., awarded first prize by the Southwest Research institute for its good contemporary lines and excellence of site

between 1950 and 1951, and investment in atomic energy and defense plants was nearly four times as large in 1951 as in 1950.

Construction Costs.—Construction costs continued to increase in the course of 1951, but the rate of increase declined as the year progressed. In the early months the department of commerce composite index was 12% higher than for the first quarter of 1950. For the next four months, however, there was virtually no change in the index, which stood at approximately 237 (1939=100), and by August construction costs were only 5.4% above the comparable month of the previous year. The Boeckh indexes of residential-construction cost and the cost of constructing apartments, hotels and office buildings, each displayed the same general movement revealed by the composite index. In October these indexes were equal to 239.3 and 221.0 respectively, each roughly 6% above the previous year's level.

Materials Prices and Production.—Wholesale prices of building material continued to rise in the early months of the year, reaching a record level of 252.5 (1939=100) in March and April, an increase of 18% in one year. Beginning in May, a turnback in materials prices occurred and the gradual reduction in the ensuing months brought the August materials price index below the level for January, but still 4% higher than Aug. 1950. The main cause of the decline was the drop in lumber and paint materials prices. Prices of structural steel, cement, brick and tile, plumbing and heating equipment and other materials remained largely unchanged after the first quarter.

The production of virtually all major building materials increased appreciably during 1951. The composite index of materials output was 8.3% higher for the first eight months of 1951 than in the January to August period of 1950. Brick, cement and gypsum board output rose 12.8%, 12.1% and 18.3% respectively, while lumber and hardwood flooring each increased 4.3% during this interval. Production of wire, nails and warm-air furnaces each were at fractionally lower levels than the previous year. In general, supplies of building materials were adequate to meet the large volume of new construction during the first half of the year. By midyear, however, builders were encountering increased difficulty in obtaining metallic building products. Copper and copper alloy items were in particular short supply and shortage of heavy structural steel shapes and piling had become evident. As the year progressed, finished products in trade channels began to be used up and materials shortages in some areas began to delay the completion of projects.

Government Regulation.—Shortly after the outbreak of the Korean war, the National Production authority limited the construction of nonessential facilities in an attempt to conserve material and manpower for the defense effort. During the first half of 1951 further limitations and restrictions were invoked, and on Aug. 3 a new basic order was announced which revised the regulation of construction and the use of building materials. Under this order the construction of all types of buildings, structures or projects requiring the use of more than specified quantities of controlled materials could be undertaken (or continued if already begun) only if the private contractor received federal authorization and a related allotment of materials.

A contractor, however, could self-authorize orders for less than the specified amounts of restricted materials. Construction for recreation, entertainment and amusement purposes was expressly forbidden unless the structure required less than two tons of carbon steel, 200 lb. of copper and no aluminum, aluminum alloy steel or stainless steel.

It was expected that the bulk of residential construction would proceed under self-authorization since this procedure was available to builders of one- to four-family houses which do not require more than specified amounts of copper and steel. All multifamily (five or more units) residential construction started or continued after Sept. 30 required specific authorization and the allotment of controlled materials. Application might also be made to secure more than the amounts of controlled materials allowed under the self-authorization procedure for one- to four-family dwellings, but such authorization was strictly limited to cases of unforeseeable hardship.

Credit Regulation and Price Control.—Credit limitations were imposed on nonresidential building for the purpose of adding further restraints on inflation and to conserve critical materials and labour for defense construction. Effective Feb. 15, 1951, the federal reserve board limited maximum loans on new office buildings, warehouses, stores, banks, hotels, theatres, clubs and other new structures used for nonresidential purposes to 50% of sale price. The financing of major additions or improvements (those exceeding 15% of value) was similarly

HEMISPHERIC HOUSES in a project on the outskirts of Milan, It., which included 13 homes in 1951. Each of the 4-room concrete structures cost about $2,000 and had a diameter of 27 ft.

restricted to a maximum of 50% of cost. Necessary civilian facilities, such as schools, public utilities or government buildings, were exempted from credit restraints as were structures devoted to manufacturing, mining or farm use.

The Office of Price Stabilization on Nov. 20 established ceiling prices for construction and related services, on the basis of current costs for labour, materials and equipment, plus 90% of the highest profit markup which the seller used for similar jobs during the pre-Korean war base period of July 1, 1940, to June 24, 1950. Defense agency contracts were exempted from these regulations as were speculative builders who constructed houses for sale or rent, rather than on contract for an owner.

Employment and Earnings.—Building and construction activity in 1951 provided employment for more than 2,500,000 workers on the average per month, an all-time record in the history of the industry. In January, normally a low month of the year because of seasonal factors, employment stood at 2,281,000, considerably higher than the peak months of many previous years. During the ensuing months employment increased steadily, reaching the record number of 2,791,000 workers employed on construction projects of all types during the month of August. Employment dropped slightly in September, but the monthly average for the first eight months of 1951 showed a 14.5% increase over the comparable period of the year previous.

General inflationary pressures coupled with a shortage of trained construction workers, brought about by the unprecedented volume of building, were reflected in higher wage rates, longer work week and increased earnings. The index of union hourly wage rates stood at 189.0 (1939=100) at midyear, an increase of 7% over a twelve-month period. The average hourly earnings of all workers (union and nonunion) employed by construction contractors rose steadily during the year, from $2.09 in January to $2.18 in August. Average weekly earnings rose faster than the hourly rate because of the increased length of the work week. On the average, construction workers earned $7.47 more per week during August than in January and about $10 more than in Aug. 1950, bringing their average weekly earnings to $85.08.

Table II.—*Estimated Increases in Union Wage Rates and Rate Levels*

Trade	Average amount of increase Oct. 1950 to Oct. 1951 (Per cent)	(Cents per hour)	Rate levels Oct. 1951 Low	Average	High
Bricklayers	4	12	$2.48	$2.98	$3.50
Carpenters	6	14	1.82	2.54	2.75
Electricians	6	15	2.01	2.75	3.25
Painters	7	15	1.50	2.45	2.83
Plasterers.	3	9	2.25	2.94	3.30
Plumbers	4	10	2.00	2.73	3.10
Building labourers . .	6	9	.88	1.66	2.15

Residential Construction.—The number of nonfarm dwelling units put under construction amounted to 1,022,600 units in the first 11 months of the year. The single-family house was by far the preferred type of new dwelling accounting for more than eight out of every ten new units started. The continuing trend toward the further development of small towns, particularly those which comprise the suburbs of large cities, was manifest in the fact that more than 40% of the new dwelling units put under construction were in rural nonfarm areas while somewhat less than 60% were located in urban centres.

More than 40% of the private dwelling units started in the course of the year were undertaken with mortgage guarantee or insurance aids provided by the Federal Housing administration and the Veterans administration. Home loans (on new as well as existing dwellings) guaranteed and insured by these federal agencies constituted more than one-third of the estimated amount of nonfarm mortgage recordings of $20,000 or less.

Co-operative housing in the United States received a small but significant stimulus from mortgage insurance provisions of sec. 213 of the National Housing act, as amended in 1950. During the first 11 months of 1951, applications covering 26,196 new dwelling units were received, and 7,085 new units were insured under this program.

The provision of publicly subsidized permanent low-rent dwelling units took rapid strides during the year. As of Dec. 7, 1951, local housing authorities throughout the nation had 585 projects comprising 100,252 new housing units under construction, of which 68,760 had been started after the first of the year. These dwellings were to be occupied by families whose income was not sufficient to allow them to rent or purchase adequate homes, and by households that had been displaced as a result of urban redevelopment or slum clearance projects.

Since the passage of the Housing act of 1949, applications had been filed by local housing authorities for federal financial assistance in developing 511,000 dwellings. The Public Housing authority allocated 332,000 of these, and co-operation agreements were executed between local housing authorities and local governing bodies in connection with the development of 293,335 dwellings. Site selections were approved for 236,100 units and presidential authorization for annual contribution contracts was received for 195,700 units.

As a defense conservation measure, the president had budgeted only 75,000 low-rent units to be started during 1951 compared with the 135,000 units authorized in the 1949 housing act. In the course of the year, congress further reduced the number of units on which construction could be begun to 50,000 for the year beginning July 1, 1951, and ending June 30, 1952.

Urban Redevelopment.—Planning for slum clearance and urban redevelopment was under way in many cities, and site preparation and reconstruction was begun in some. As of Oct. 31, 1951, 144 local programs were in process, of which 138 were operating under approved applications for federal aid in accordance with the provisions of title I of the Housing act of 1949. Most of the programs were still at the planning stage, but applications for capital grants in the amount of $180,323,000 had been made in anticipation of the write-down in values that would be necessary to put the land to its proper redeveloped use.

Outlook for 1952.—The office of the economic stabilization director recommended a sharp reduction in housing construction for 1952 to somewhere between 450,000 to 500,000 family units as an anti-inflationary device. The Defense Production administration maintained that there were adequate materials for 700,000 dwelling units, while the Housing and Home Finance agency estimated the national need to be in the vicinity of 900,000 dwellings. For the first three months of 1952, however, the Defense Production administration authorized a sufficient amount of steel, copper and aluminum to permit a home construction rate of 850,000 per year. (*See* also Architecture; Business Review; Ceramic Products; Housing.)

(Ch. Ra.)

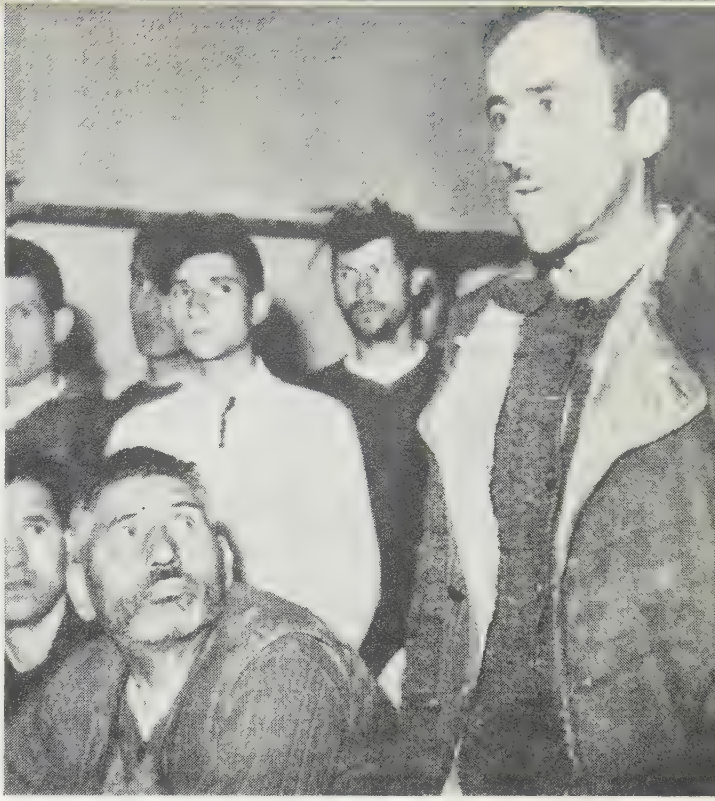
Great Britain.—Against a background of increased wage rates and materials costs, the British building industry sought during 1951 to adjust itself to the changes brought about by rearmament. Normal civil building was replaced by building for defense purposes to the extent of about 10% and it was forecast that this proportion would be considerably increased during the 3-year defense program. Work was seriously hampered by shortage of steel. The housing program remained unaltered at 200,000 houses a year, until the promise to raise the number to 300,000 became one of the principal planks in the Conservative platform at the general election. It was ultimately concluded that the target could be raised only gradually and there were many who felt that increased production of houses could be obtained only at the expense of other building.

Labour relations remained good although there were occasional calls for nationalization from the trades union leaders. Wage increases amounting, in all, to 3*d.* per hour (bringing their rate to 3*s.* 3*d.* per hour in London) were negotiated for skilled craftsmen and incentives payment schemes were extended, so that most workers were able to earn weekly wages substantially greater than the standard rate.

The first international Building Research congress met in London in September. The reluctance of the industry to take advantage of the results of research was stressed at several of the discussions, the evidence from western Europe and from the U.S. differing little from that from Great Britain so far as established methods of small-scale building were concerned. It was notable, however, that in the less complex, larger-scale work, described in Great Britain as civil engineering, as distinct from building, development continued satisfactorily. (D. A. G. R.)

Bulgaria. A people's republic in the eastern part of the Balkan peninsula, Bulgaria is bounded north by Rumania, west by Yugoslavia, south by Greece and east by Turkey and the Black sea. Area (including southern Dobruja): 42,796 sq.mi. Pop.: (1946 census) 7,022,206, (mid-1950 est.) 7,235,000. Languages (1947 est.): Bulgarian 88%, Turkish 9.8%. Religions (1947 est.): Greek Orthodox 84%, Moslem 11.5%. Chief towns (pop., 1947 est.): Sofia (cap., 434,888); Plovdiv (125,440); Varna (77,792); Russe (53,420). Chairman of the praesidium of the national assembly in 1951, Gen. Georgi Damianov; prime minister, Vulko Chervenkov.

History.—In contrast with the more northerly and economically more developed people's democracies, Bulgaria did not revise its five-year plan. It was probable that the existing targets were quite as ambitious as so backward a country could hope to achieve. In so far as scarce raw materials and machinery were allocated for the whole eastern European region by the supreme planners in Moscow, it might be expected that Bulgarian industrial projects had the lowest priority of all. The argument so much emphasized by Yugoslav propaganda, that Bulgaria was being treated as an agrarian colony of the soviet imperialists, had some basis in fact. Bulgarian spokesmen, however, continued to stress their state's industrial progress. Premier Chervenkov, in a speech in Sept. 1951, on the eve of the seventh anniversary of "liberation," boasted that Bulgaria produced all forms of agricultural machinery except tractors and combines, and such electrical equipment as motors, automatic telephone exchanges and radios. A nitrogenous fertilizer plant with a yearly capacity of 70,000 tons would soon be in operation. Meanwhile great progress, he claimed, was being made with the electrification of the country. Later in September it was announced that the ministry of industry had been divided into two: a ministry of heavy industry under Anton Yugov and a ministry of light industry under Atanazi Dimitrov.



BULGARIANS who fled to Yugoslavia for safety in 1951. The farmer spokesman at right stated that he feared for his life because of his refusal to terrorize other farmers into meeting compulsory food deliveries

Labour conditions were tightened up at the end of 1950. A law for the protection of state property included severe penalties, and was so phrased as to enable the most sinister interpretation to be placed on acts of negligence. A decree forbade workers to change their jobs, and forbade any factory to employ new workers, unless the workers had official permits from the cadres department of their local authority (people's committee). The wages system was further remodelled on the soviet system of progressive piece rates. By Aug. 1951 it was officially claimed that it was stimulating output considerably.

Bulgaria remained far ahead of the other people's democracies in its progress towards collectivization of agriculture. By June collective farms included more than half the peasant population of the country and nearly half its arable land. In the main grain producing areas—the Dobruja and the plains on the south bank of the Danube—a large majority of all peasant holdings were included in collective farms. The average collective farm included 220 peasant families and possessed 845 ha. of land. The methods by which these results were obtained caused a good deal of administrative confusion and controversy within the Communist party ranks. As early as February a decree introduced the brigade system, by which peasants worked in groups of 40 to 60 under a foreman and were paid according to their output. In April Chervenkov complained of abuses committed in the countryside by party members and of a "distortion of the party line." In June a special political administration, controlled directly by the Communist party, was set up in the ministry of agriculture, and political departments of party members were attached to machine tractor stations and state farms. These departments were copied from the soviet experience of 1933–34. The decree which set them up stated: "The organs of the party and the state can no longer confine themselves to giving instructions and financial and material aid: they must take into their own hands the direction of co-operatives, state farms and machine tractor stations." In June the minister of agriculture, Titko Chernokolev, was dismissed and replaced by Nikola Stoilov. A few months later there were official complaints that the "statute" of the collective farms was being violated. In particular, land had been used for other purposes than those laid down in official directives and members had been given excessive advances on their pay.

The pace of collectivization in Bulgaria was comparable to that in the Soviet Union in 1929–33. The fact that it was far more difficult for independent observers to visit the Bulgarian countryside than it had been then to visit the soviet countryside made it impossible to compare the results. There were some indications of slaughter of animals by peasants and some reports of minor armed clashes between peasants and police. Bulgarian peasants from the western provinces fled to Yugoslavia and told of an atmosphere of terror in the Bulgarian villages. There was plenty of evidence from official Bulgarian sources that the harvest was going badly, and it was a reasonable interpretation that this was at least partly because peasants refused in some areas to cultivate crops from which they knew that they would gain nothing. The reasons for the dismissal of Chernokolev and the reorganization of the ministry were not clear. But it seemed likely that the minister had been considered by Chervenkov and his soviet masters too indulgent to the peasants. In general since 1947 the trend of government policy had been to increase the pressure on the peasants.

By a ministerial reshuffle of Dec. 29, 1950, Ivan Mihailov became a deputy premier, and Georgi Veselinov was appointed minister of the interior in place of Russi Hristozov, who became minister of food and supplies. In June 1951 the minister of local economy and public works, Peter Kamenov, was relieved of his duties. The next month there was published a report by the State Control commission on its survey of government departments and nationalized enterprises. It found that administrative personnel was much in excess of the numbers laid down by law, that public funds were extravagantly spent and that the ministry of finance was not exercising effective control over other departments' expenditure.

The hate campaign against Yugoslavia continued throughout the year and there were a number of spy trials. (*See* also YUGOSLAVIA.)

Education.—Schools (1949–50): kindergarten, including part-time schools 1,403, pupils 57,487, teachers 2,124; primary 6,112, pupils 755,628, teachers 18,801; elementary 2,960, pupils 308,160, teachers 12,636; secondary 218, pupils 112,633, teachers 4,624; technical 101, pupils 26,800, teachers 943. Universities and institutions of higher education (1947–48) 9, students 49,800, professors and lecturers 1,283. Illiteracy (1946) 23%.

Finance and Banking.—Budget (1950 est.) balanced at 211,866,000,000 leva; (1951 est.) revenue 271,794,000,000 leva, expenditure 267,922,000,000 leva. National debt (March 31, 1947) 68,896,000,000 leva. Monetary unit: lev (pl. leva) with an exchange rate (Nov. 1951) of 290 leva to the U.S. dollar.

Foreign Trade.—(1948) Imports 35,119,000,000 leva, exports 34,114,000,000 leva. Main sources of imports (1949): U.S.S.R. 64%; other eastern European countries 26%. Main destinations of exports: U.S.S.R. 48%; other eastern European countries 34%. Main imports: metals, machinery and textiles. Main exports: tobacco, wines and spirits.

Transport and Communications.—Roads (1945): 13,870 mi. Licensed motor vehicles (Dec. 1950): cars 6,000; commercial 5,000. Railways (1949): 1,996 mi. Telephones (1948): 54,347. Radio receiving sets (1949): 205,000.

Agriculture.—Main crops (metric tons, 1948): wheat 1,503,000; rye (1947) 95,000; barley 249,000; oats 105,000; maize 890,000; sugar, raw value (1950) 46,000; tobacco 20,000. Livestock: cattle (1950) 2,140,000; horses and mules (1948) 449,000; sheep and goats (1948) 8,995,000; pigs (1950) 1,500,000; poultry (1947) 10,329,000. Wool production, greasy basis (1950) 12,700 metric tons. Wine production (1949): 426,000 hl.

Industry.—Fuel and power: coal and lignite (1948) 3,933,000 metric tons; electricity (1949) 551,000,000 kw.hr. Index of industrial production (on basis of 1938 = 100) 1949: 227; 1950: 280. (H. S-W.)

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Burma. An independent federal republic, Burma lies on the eastern side of the Bay of Bengal, between Pakistan and India on the northwest, Tibet on the north and China, Indochina and Thailand (Siam) on the east. The republic comprises Burma proper, the Shan state, the Kachin state, the Chin special division and, when it is constituted, the Karen state. Area: 261,749 sq.mi. Pop.: (1941 census) 16,823,798; (1950 est.) 18,489,000. Racially, the peoples of Burma are Mongoloid. About 90% are Buddhist by religion, and about 70% use the Burmese language. Largest indigenous minorities (1931): Karens 1,367,673, of whom 218,790 were Christians; Shans 1,057,406; Chin-Kachin group *c.* 750,000. Largest immigrant minorities: Indians (1931) 1,017,825, divided equally between Moslems and Hindus; Chinese (1941) *c.* 380,000. Chief towns: Rangoon, capital and main port (pop. 1941, 501,291); Mandalay (pop. 1941, 163,537); Moulmein (pop. 1931, 65,506); Bassein (pop. 1941, *c.* 50,000); and Akyab (pop. 1931, 38,094). President of the republic in 1951, Sao Shwe Thaik; prime minister, Thakin Nu.

History.—The country continued throughout 1951 to be troubled by the operations of various types of rebels, notably the Burma Communist party, the Communist party (Burma) and the Karen National Defense organization, all of whom maintained their resistance against the forces of law and order. The year was a disappointing one for the government with regard to military operations, for no real success was gained. The government forces held the principal towns and, more precariously, the principal lines of communication; but none of these was completely secure; thus the Rangoon-Mandalay railway line, though at times open to traffic, was frequently disrupted by sabotage. Away from the towns and principal communications, moreover, the government's hold on the country was tenuous in the extreme, and over wide areas law and order did not exist. In general, there was a distinct tendency for the Communist rebels to move northward and northeast, and in the view of some observers their intention was to consolidate themselves in an extensive area on the Chinese frontier where they would be more accessible to any aid that might be forthcoming from Communist China. There was also a tendency toward increasing co-operation between the different rebel factions, and both the Burma Communist party and the Karens seemed to have reached a stage where they had come to dislike the government more than they disliked one another. Some hope of reconciling the Karens to the lawful regime was aroused by the government's proposal to set up a Karen state, comprising the Salween district and so much of adjacent areas as were predominantly Karen in population, with a wide measure of local self-government similar to the local autonomy enjoyed by the Shan and Kachin states; but at the end of the year it was not apparent that this measure was sufficiently far-reaching to satisfy the Karens.

A further element of disorder was the presence in the Shan state of Kengtung, in the east of Burma, of a force of Chinese nationalist troops. These, consisting mainly of Kuomintang forces which had fled into Burma early in 1950 before the advance of the Chinese Communists into Yunnan, had held out in

Kengtung despite all efforts of the Burmese government to dislodge or capture them; and in July 1951 they attempted an invasion of Yunnan. This incursion was repelled and the Kuomintang force thereafter maintained itself in the Shan states, living on the countryside and presenting a possible cause of discord between Burma and China.

Disorder necessarily affected the country's finances; and the budget for 1951–52, introduced on Aug. 30, provided for expenditure of Rs. 919,300,000 and revenue of Rs. 745,500,000, so giving a deficit of Rs. 173,800,000. The deficit was the result of heavy expenditure on defense forces and police.

Despite the widespread disorders, the first general elections since Burma attained independence in 1948 were held during the year. The elections took place in three stages, the first in June in 67 constituencies in the least-disturbed parts of the country, the second in 36 constituencies in August and the remainder in about 90 constituencies in November. Unfortunately, the charges of malpractice brought by defeated candidates were so numerous that the final results were still unknown at the end of the year, but it was evident that the Anti-Fascist People's Freedom league (A.F.P.F.L.)—the main support of the government—was, in general, successful. According to the press, in 43 constituencies in the first electoral group, the league won 26 seats. The principal opposition party, the Burma Workers' and Peasants' party, which had broken off from the Socialist party—the chief component of the A.F.P.F.L.—in Dec. 1950, was avowedly Marxist in attitude, sympathetic to the Soviet Union and seeking to align Burma with the Communist states as against the democracies, but it professed a policy of constitutional opposition. It made little appeal to the electorate, however, and gained only three seats in the first series of elections. Attempts were made to form a united opposition under the leadership of Ba Maw, the wartime dictator of Burma during the Japanese occupation, but these efforts came to little.

Rice production was well maintained during the year, and exports totalled more than 1,300,000 tons, as compared with 1,800,000 tons in 1950; but even so the total compared poorly with the prewar average export of more than 3,000,000 tons. In other fields of economic activity, measures to facilitate production took the form of proposals for joint ownership between the Burmese government and the European concerns dominating the petroleum and mining industries. An agreement was reached with the Burma Oil company whereby the government, aided by a loan of £2,500,000 from the British treasury, was to become owner of one-third of the stock of the concern, and a similar plan was in hand for joint ownership of the Burma corporation's silver and lead mining concern at Bawdwin-Namtu in the Shan state.

Burma also benefited from aid from the Economic Cooperation administration. Under an E.C.A. agreement, the United States made available a sum of $1,500,000 to reconstruct and modernize the ports of Akyab, Bassein, Moulmein, Mergui and Tavoy, and a further $1,000,000 was provided for the improvement of the port of Rangoon. (B. R. P.)

Education.—Schools (1948): primary 4,795, pupils 431,684, teachers 11,315; postprimary 142, pupils 11,648, teachers 722. Teachers' training college 1, with more than 200 trainees. Universities (1950) 2, students 3,350 (including 780 women).

Finance and Banking.—Budget (1951–52 est.): ordinary revenue Rs. 583,772,000, ordinary expenditure Rs. 542,457,000; capital revenue Rs. 161,801,000, capital expenditure Rs. 376,789,000. Monetary unit: rupee, with an exchange rate (1951) of Rs. 4.762 to the U.S. dollar.

Foreign Trade.—Imports (1950) Rs. 432,000,000; exports Rs. 661,000,000. Main sources of imports (Jan.-June 1950): India 39.6%; U.K. 31.4%; China 4.1%; Iran 4.1%. Main destinations of exports: Ceylon 30.5%; Japan 17.3%; India 11%; Indonesia 10.5%. Main imports (1948–49): textiles 36%; food products 13%; machinery appliances and vehicles 11%. Main exports: rice 82%, metals and ores 3%.

Transport and Communications.—Roads (1949) 12,472 mi. Licensed motor vehicles (Dec. 1950): cars 5,100; commercial 24,000. Railways (1950): 1,777 mi.; passenger-miles 80,000,000; net freight ton-miles 93,000,000.

Agriculture.—Main crops (metric tons, 1950–51); rice 4,080,000; peanuts 147,000; cottonseed 11,000; sesame seed 40,100; cotton, ginned, 6,000; dry beans 50,000. Livestock (Jan. 1950): cattle 4,488,000; sheep 21,000; goats 172,000; pigs 402,000; buffaloes 721,000. Fisheries: total catch estimated at 500,000 tons annually.

Industry.—Factories (1947) 473; persons employed 46,480. Raw materials (1950): tin concentrates 1,709,000 metric tons; natural rubber 15,800 metric tons; lead (1948) 7,600 metric tons; silver (1948) 480,000 fine oz.; timber, teak (1948–49 rafting season), 68,938 logs.

Buses: *see* Automobile Industry; Electric Transportation; Motor Transportation.

Business Review. Mobilization of the economy for national defense was the fundamental force behind most major changes in the economy during 1951 in the United States, as it had been from mid-1950 with the outbreak of war in Korea. During the greater part of the year 1951, the economic situation was characterized by high levels of activity in all sectors of the economy and a substantial degree of stability, in contrast with the intensity of the inflation which gripped the nation during the last half of 1950 and the early months of 1951, and in spite of the many internal shifts in the economy incident to expanding and speeding up the defense program.

During the second and third quarters of the year a reasonably orderly adaptation of the economy to the conditions of partial mobilization occurred, and the inflationary pressures, still inherent in the situation, became less pronounced as the control measures enacted in late 1950 and early 1951 became effective, and as the intensity of private consumer demand subsided after the two buying sprees touched off by the international situation.

Efforts to stabilize the economy and to channel the use of resources into the defense effort were reflected in the series of conservation orders issued by the National Production authority: the credit restrictions imposed on the purchase of consumers' durable goods and housing; the higher income tax rates on individuals and corporations; and the monetary actions of the federal reserve board aimed at reducing or controlling the volume of bank credit. In general, these measures were aimed at controlling the inflationary pressures that had already developed and would be intensified as the government spending program got under way, through control of the supply of money and credit, and through limitations and restrictions on consumer spending.

The Revenue Act of 1950, passed in Sept. 1950, increased tax rates applicable to both individual and corporate incomes in 1950 and made further increases applicable to 1951 earnings in both cases. An excess profits tax partially applicable to 1950 income and fully effective in 1951 together with an additional increase of two percentage points in the regular corporate income tax rate for 1951 were subsequently enacted.

In spite of the control measures adopted in the last half of 1950, expanding consumer demand continued to characterize the economy during the first months of 1951. The increase in private investment and consumption coincident with the prospect of expanding government expenditures for defense resulted in a broad extension of the price rise which had been under way since mid-1950, necessitating the imposition of industry-wide government price and wage controls to halt the upward spiral—the price-wage freeze order of Jan. 26, 1951, and further efforts toward credit and monetary controls.

The president, in February, called upon fiscal and monetary authorities to devise means of obtaining adequate bank-credit control without impairing the prospect of successful government debt financing. Possible courses of action included voluntary restrictions on credit by banks and other lending agencies, increases in reserve requirements of banks and direct curbs on credit in areas not yet subject to such control. As a step in

Per Cent Changes in Selected Business Indicators, United States

Business or economic indicator	Per cent change 1951* from: 1939	1944	1950	Per cent change from preceding year: Jan. 1951 from Jan. 1950	Feb. 1951 from Feb. 1950	March 1951 from March 1950	April 1951 from April 1950	May 1951 from May 1950	June 1951 from June 1950	July 1951 from July 1950	Aug. 1951 from Aug. 1950	Sept. 1951 from Sept. 1950	Oct. 1951 from Oct. 1950	Per cent change Oct. 1951 from: Jan. 1951	June 1951	Aug. 1951
General business:																
Business activity[1]	+71.9	+20.1	+7.0	+16.8	+14.6	+12.3	+11.9	+10.6	+8.7	+6.6	+3.7	+2.5	+2.1	−5.9	−4.0	−1.8
Bank debits	+386.9	+82.9	+14.4	+27.9	+23.3	+24.7	+27.0	+21.0	+13.9	+13.0	+6.7	+6.0	+7.0	−2.8	+1.1	+8.4
Commercial failures[3]	−45.9	+555.9	−12.8	−11.2	−16.1	−22.4	−17.2	−15.5	−13.7	−4.3	−6.5	−8.7	−13.0	−9.4	−8.8	−13.9
Personal income:[4]																
Salaries and wages	+268.5	+44.6	+16.3	+19.7	+21.7	+21.3	+21.5	+19.4	+17.9	+16.7	+13.7	+12.4	+11.5	+7.5	+2.1	+1.5
Total	+247.7	+52.1	+12.3	+14.0	+12.9	+11.7	+15.8	+15.2	+14.6	+13.3	+11.4	+9.5	+10.0	+5.7	+2.6	+1.5
Civilian nonagricultural emp.[4]	+49.6	+20.0	+2.9	+4.5	+4.5	+5.7	+3.7	+4.1	+2.7	+3.4	+1.3	+1.3	+1.7	+2.3	+0.7	−1.3
Unemployment[4]	−80.0	+171.4	−38.7	−44.4	−48.9	−48.8	−51.4	−48.4	−41.2	−40.6	−36.0	−30.4	−15.8	−36.0	−20.0	0.0
Employment and earnings (mfg.)[5]:																
Number employed	+59.2	−10.7	+6.3	+13.7	+15.1	+14.2	+12.9	+9.8	+8.1	+6.2	+2.2	+0.4	−1.1	−0.3	−0.5	−0.8
Pay rolls	+331.4	+25.5	+16.1	+28.8	+30.3	+30.4	+28.5	+23.1	+20.1	+15.8	+9.4	+8.4	+3.9	+1.9	−0.8	+0.2
Per production worker:[5]																
Weekly earnings	+171.1	+40.4	+9.2	+13.3	+13.3	+14.2	+13.6	+12.2	+10.6	+8.5	+7.0	+7.9	+5.1	+2.2	+0.1	+1.0
Hourly earnings	+152.4	+55.9	+8.9	+9.9	+9.9	+10.6	+10.5	+10.4	+10.3	+9.6	+9.6	+8.8	+7.3	+3.2	+0.6	+0.6
Hours per week	+8.0	−10.0	+0.5	+3.3	+3.0	+3.5	+3.3	+2.0	+0.5	−0.7	−1.9	−1.0	−2.2	−1.5	−0.7	0.0
Industrial production:[2]																
Durable goods	+150.5	−22.7	+15.2	+28.2	+30.9	+31.3	+25.7	+19.5	+15.6	+13.2	+8.5	+8.4	+5.0	+2.2	0.0	+2.2
Iron and steel	+127.2	+25.7	+13.1	+25.6	+25.4	+27.8	+18.9	+16.4	+13.0	+11.0	+7.6	+5.3	+2.8	+2.0	−0.4	+2.4
Nondurable goods	+78.0	+13.5	+3.7	+12.3	+11.7	+9.9	+10.0	+9.4	+7.1	+3.3	−1.0	−1.0	−3.6	−6.0	−4.1	−2.1
Total	+101.8	−6.4	+10.0	+20.8	+22.8	+18.7	+17.4	+13.8	+11.1	+8.2	+3.8	+3.8	+1.4	−0.9	−0.9	−0.9
Value construction contracts awarded:[6]																
Residential	+372.4	+1,708.9	−6.5	+22.5	+46.9	‡	−12.4	−2.0	−13.2	−18.8	−24.7	−12.7	−6.3	+17.9	−9.0	−12.6
Nonresidential	+579.1	+629.0	+26.5	+95.9	+62.4	−6.3	+15.5	+299.9	+24.6	+10.1	−12.0	−18.9	−2.0	−9.3	−24.4	−12.1
Public works and utilities	+107.0	+246.9	+0.4	+6.1	+16.9	−0.5	+17.2	+5.1	+13.6	−14.4	−13.6	−16.6	−23.5	−15.1	−55.9	−37.5
Total	+335.1	+674.7	+6.5	+42.7	+46.3	−2.5	+1.8	+90.9	+4.7	−2.8	−18.5	−15.8	−7.4	+0.8	−25.4	−16.7
Distribution:[4]																
Department store sales	+196.2	+67.9	+3.6	+28.4	+16.4	+5.8	+3.4	+3.8	+1.3	−14.6	−4.8	−2.5	+4.5	−16.0	+0.7	−4.7
Chain store sales	+253.0	+112.2	+10.2	+20.5	+14.8	+11.1	+9.8	+12.0	+9.5	+1.1	+6.5	+7.7	+11.2	−0.4	+3.4	−0.6
Total retail sales	+259.3	+115.2	+5.2	+22.6	+17.8	+10.8	+7.5	+6.7	+1.7	−6.7	−3.7	−0.6	+3.8		+1.8	+0.2
Consumer credit outstanding-total[2]	+176.4	+290.5	−3.3	+21.8	+20.9	+18.6	+14.9	+12.5	+9.1	+4.6	+2.2	+0.1	+0.1†	−2.6	+0.9	+0.8
Wholesale prices:																
Other than farm and food[5]	+108.2	+71.9	+10.5	+16.8	+17.7	+18.0	+17.7	+16.3	+14.7	+11.2	+7.5	+4.8	+3.2	−2.1	−2.3	−0.3
Prices received by farmers[7]	+215.8	+53.1	+17.2	+27.7	+32.1	+31.2	+28.2	+23.5	+21.9	+11.8	+9.4	+7.0	+10.4	−1.3	−1.7	+1.4
Total[5]	+134.1	+73.6	+11.8	+18.9	+20.2	+20.5	+20.1	+17.3	+15.5	+10.1	+7.0	+4.8	+5.4	−1.1	−1.9	+0.1
Retail prices:																
Food[5]	+138.0	+66.5	+11.0	+13.1	+16.0	+15.0	+14.2	+13.2	+10.9	+8.3	+8.3	+8.5	+9.7	+3.4	+1.0	+1.2
Total cost of living[5]	+86.7	+47.9	+8.4	+8.8	+10.6	+10.5	+10.3	+10.0	+9.0	+7.7	+7.3	+7.3	+7.4	+3.4	+1.2	+1.2
Prices paid by farmers[7]	+128.5	+54.4	+10.2	+9.7	+11.3	+12.0	+13.2	+11.9	+11.0	+10.2	+9.3	+8.5	+8.4	+4.0	+0.4	+0.4
Banking items of member banks:[2]																
Loans	+296.9	+193.2	+23.6	+27.9	+28.8	+30.5	+30.2	+31.5	+29.4	+27.1	+21.8	+18.6	+17.3	+8.0	+3.4	+3.2
Investments in U.S. government obligations	+195.3	−21.4	−12.4	−14.4	−16.5	−16.5	−15.0	−16.1	−15.4	−15.1	−11.8	−10.1	−7.8	−5.1	−0.7	+0.1
Total investments	+172.5	−10.8	−8.8	−9.4	−11.6	−11.5	−10.7	−11.8	−11.3	−11.3	−8.9	−7.7	−5.8	−3.7	−0.1	+0.4
Money in circulation	+294.4	+23.2	+2.4	+0.3	+0.6	+0.5	+0.6	+1.1	+2.1	+2.8	+3.5	+3.9	+4.2	+4.4	+3.3	+1.6
Foreign trade (merchandise):[4]																
Exports	+363.6	+3.3	+43.3	+31.2	+40.8	+49.3	+70.6	+63.2	+47.3	+52.6	+66.3	+35.1	+35.9†	+26.6	−4.8	−2.9
Imports	+359.8	+172.0	+20.4	+64.4	+51.5	+65.3	+76.6	+54.5	+35.4	+26.0	+7.3	−16.7	−22.2†	−29.9	−22.8	−18.4
Corporate profits after taxes[4]	+346.0	+106.5	−2.2	§	§	§	§	§	§	§	§	§	§	§	§	§

*Data for November and December estimated on the basis of October levels taking into account the seasonal factor where significant.
†Data for October estimated on the basis of the September level taking into account the seasonal factor where significant.
‡Less than 0.05%. §Corporate profits reported quarterly. [1]*New York Times.* [2]Federal Reserve Board. [3]Dun and Bradstreet, Inc.
[4]United States Department of Commerce. [5]United States Department of Labor. [6]F. W. Dodge Corporation. [7]United States Department of Agriculture.

the direction of restricting the tendency of nonbank holders of United States securities to sell to the banking system, the treasury announced on March 3 that a new issue of nonmarketable long-term bonds yielding 2¾% would be offered later in March in exchange to present holders of marketable 2½% long-term bonds.

The general freeze order of January was followed by more flexible types of control in the latter part of February. The main features of the modifications made were: (1) wage-rate increases were permitted up to 10% from Jan. 1950 for those workers who had not received such an advance; (2) adjustments were allowed under cost-of-living escalator clauses in labour-management contracts; (3) fringe benefits were also permitted in addition to the 10% adjustment formula, if they were in the contract before the freeze date; (4) a margin type of price control for most types of nonfood retail goods replaced freeze prices.

Further flexibility in price controls was authorized before the middle of the year, the most important of which was the manufacturers' general ceiling price regulation (CPR-22) issued by the Office of Price Stabilization on April 24, effective May 28. This order provided pricing standards for a wide range of industrial products. It allowed manufacturers to add increases in factory pay roll and materials costs to the pre-Korean price in optional base periods—April 1 through June 24, 1950, or any one of the three preceding calendar quarters.

The enactment of the Defense Production bill extended the major economic controls to the middle of 1952, with modifications mainly in the direction of liberalizing price and credit control provisions.

National Product and Income.—The increased tempo in all phases of the national economy in 1951 was registered in the increase in the gross national product which rose from an annual rate of $318,500,000,000 during the first quarter to $325,600,000,000 the second quarter and to $328,000,000,000 the third quarter, as estimated by the United States department of commerce.

The national income (the sum of earnings of labour and property arising from producing the nation's output) rose from an annual rate close to $270,000,000,000 the first quarter to close to $280,000,000,000 in the third quarter.

The gross national product and the national income reached new high levels in 1951. (*See* also INCOME AND PRODUCT, U.S.)

Prices.—The inflationary rise in both wholesale and retail prices which had been in progress since mid-1950 was halted by the end of the first quarter of 1951, but not before prices had reached new high postwar levels. In Jan. 1951 the all-items consumers' price index of the department of labour rose to 181.5% of the 1935–39 average, an increase of about 8% from Jan. 1950, and of 6% from June 1950. Retail prices continued to rise during February and March although the momentum of the advance was greatly diminished following the general freeze of prices and wages on Jan. 26. The all-items index in March had advanced only 1.6% above January.

The increase in wholesale prices from June 1950 to the freeze date had mounted to 14% with all major price areas contributing to the advance. Following the Jan. 26 freeze action, wholesale prices continued to advance moderately through March, when they were about 2% above the January level. After the first quarter of the year, there was relative stability in both

Below: FORMER MOTION-PICTURE THEATRE in Detroit, Mich., one of a growing number of motion-picture houses being closed down in 1951. The slump in box office receipts was variously ascribed to TV, poor films and inflation

Above: BUYING RUSH at a New York city department store during the price war which followed a supreme court ruling of May 21, 1951. The ruling freed retailers from abiding by "fair trade" resale prices set by manufacturers. Competitive mark-downs ranged up to 35%

Below: CATERERS trundling coffee urns to a New York city office building, a service that became increasingly popular with office workers during 1951

Below: G.I. UNDERWEAR being produced at an infants' wear factory in Boston, Mass., under a $1,000,000 army contract

wholesale and retail prices, with wholesale prices maintaining a continuous downward trend through September, and retail prices, a slightly upward trend. The general level of both wholesale and retail prices throughout 1951 was substantially above the previous postwar high level reached in 1948. Retail prices in Sept. 1951 were 8.5% above monthly average retail prices in 1948, and wholesale prices were about 7.5% above the monthly average for 1948. (*See* also PRICES.)

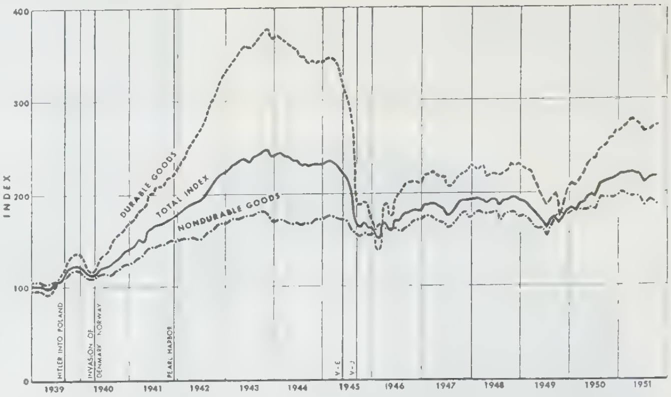
Employment and Wages.—Employment at the beginning of 1951 was near record levels. After dropping slightly in February from January both agricultural and nonagricultural employment increased steadily through October with only minor interruptions. According to estimates of the department of commerce, employment in Jan. 1951 was slightly more than 59,000,000 and unemployment was only 4.1% of the total civilian labour force, lower than the monthly average for any of the previous three years. Nonagricultural employment was estimated at 54,168,000 in October, a gain of almost 1,000,000 workers from Oct. 1950, and of 1,175,000 from Jan. 1951. Agricultural employment in October at 7,668,000 was 823,000 below Oct. 1950, but was up by 1,650,000 workers from Jan. 1951. Thus, total employment in October at 61,836,000 workers was up 2,826,000 from January and unemployment had dropped to 1,616,000 or only 2.5% of the total civilian labour force, the lowest for any period since 1944.

Average hourly earnings in manufacturing rose gradually through September when the average for all manufacturing was $1.61 per hour as compared with $1.55 in January. Retail price increases offset most of this gain, and in terms of 1950 dollars there was substantially no increase in average hourly rates. Average hours worked per week dropped slightly after the first quarter for all manufacturing workers, being slightly more than 41 hr. in the durable goods industries and slightly more than 39 hr. in the nondurable goods industries. (*See* also EMPLOYMENT; WAGES AND HOURS.)

Consumer Credit.—The expansion in consumer credit which had been rapidly increasing since the end of World War II was halted early in 1951 by the controls imposed by the government in late 1950, and the trend was slightly downward through July with slight increases from the July level occurring in August and September. However, although the rapid expansion was curbed, the volume of consumer credit remained high. For each of the first eight months of the year the amount of consumer credit outstanding was only slightly below the high point reached in Dec. 1950, and for each of the first six months of the year was substantially greater than in the corresponding month of 1950. Total credit outstanding in Dec. 1950 amounted to $20,097,000,000 according to reports of the board of governors of the federal reserve system. At the low point in July 1951, the amount outstanding was $19,132,000,000.

Instalment credit, which constituted slightly more than 60% of total consumer credit outstanding during the year, dropped from $13,252,000,000 in Jan. 1951 to $12,903,000,000 in July. By September, instalment credit had risen to $13,156,000,000 which was only $300,000,000 below the high point of Dec. 1950. (*See* also CONSUMER CREDIT.)

Bank Credit.—The expansion in U.S. commercial bank credit which began in May 1950 continued through Sept. 1951 although at a less rapid rate during 1951 than during the fourth quarter of 1950. In Jan. 1951, commercial bank loans stood at $52,700,000,000 and by March had increased to $54,400,000,000 an increase of $1,700,000,000 in the three-month period, according to reports of the board of governors of the federal reserve system. There was little change in the amount of loans outstanding during the four-month period from April through July, but there were increases in August and September, and the September total reached $56,000,000,000, a gain of $1,600,000,000 from March. Thus, during the first three quarters of the year commercial bank credit outstanding increased by $3,300,000,000.



INDUSTRIAL PRODUCTION of U.S. durable and nondurable goods, 1939–51, adjusted for seasonal variation (1935–39=100) (Source: Board of Governors of the Federal Reserve System)

Business loans (commercial, industrial and agricultural loans) of weekly reporting member banks increased by $2,000,000,000 from January to September when they stood at $20,100,000,000. There was a further increase of $500,000,000 in October. The October total of $20,600,000,000 was $4,300,000,000 greater than in Oct. 1950. (*See* also BANKING.)

Personal Income, Spending and Saving.—Total personal income in Jan. 1951 was at the annual rate of $243,600,000,000 and by September had risen to an annual rate of $253,300,000,000, according to reports of the department of commerce. Disposable personal income, that is, income after taxes, rose from an annual rate of $217,500,000,000 in the first quarter to an annual rate of $225,700,000,000 in the third quarter.

Personal consumption expenditures during the first quarter of the year at an annual rate of $208,200,000,000 were higher than for any quarter in 1950, reflecting the second wave of consumer spending touched off by the entrance of the Chinese Communists into the Korean war and the anticipation of rising prices for consumers' goods as well as scarcities in supply as the defense production program progressed. Disposable personal income increased during the second and third quarters as employment expanded and wages increased, but consumption expenditures dropped significantly during the second quarter and rose only slightly during the third quarter.

During the second and third quarters of the year, personal net savings were at an annual rate of slightly more than $21,000,000,000 or almost 10% of the disposable personal income. This was in contrast with net personal savings at an annual rate of only $9,300,000,000 during the first quarter, or only 4.3% of disposable personal income. The total annual personal savings for the year 1951 were estimated to be around $18,000,000,000. the highest at any time since 1945 when savings were forced by lack of things to buy. This amount of savings occurred without any actual dollar reduction in consumption expenditures which, during each of the first three quarters of the year, were at a higher annual rate than in the corresponding quarter of 1950.

Production.—Over-all stability at a high level characterized industrial production during 1951, following the rapid expansion in the last half of 1950. Divergent production trends emerged during the year, however, among the various broad groups of manufacturing. The production of consumer durable goods declined after the first month of the year because of materials shortages and a reduction in demand as instalment credit controls became effective and prices became more stable. The production of producers' durable equipment rose steadily with only a minor setback in the May and July period primarily the result of the materials situation. The federal reserve board's index of total industrial production rose to 220% of the 1935–39 average in October from the July low point of 212% to reach substantially the level of January. The index of manufacturers' durable goods declined during the second quarter of the year after having risen sharply during the first four months of the year, and in July dropped to 266% of the 1935–39 average, the low point for the year and slightly below the January level. During the three-month period August–October, the durable goods index rose sharply and in October stood at 277% of the 1935–39 average, a gain of 11 percentage points from the July low and of 9 percentage points from the January level.

Nondurable manufactures declined steadily from February through July, with a sharp upturn in August followed by declines in September and October. The index of nondurable manufactures in October stood at 190% of the 1935–39 average, only 3 percentage points above the July low, and 11 percentage points below the January level.

The increase during the year in the production of producers' durable goods reflected the effects of the expansion in private business outlays for new plant and equipment and the rearmament program of the government. The decline in the production of consumer durable goods followed the slackening of consumer buying which appeared during the first quarter of the year, at a time when the production of consumers' durables was still close to peak rates. This brought a rather rapid build-up in retail stocks, leading to a sharp contraction in orders placed by retailers and to a subsequent decline in production. The reduction in output in April and May as compared with the previous quarter affected all consumer durable products and, according to estimates of the U.S. department of commerce, ranged from 15% for electric ranges to more than 50% for television receivers. Despite the reduction in the output of consumer durable goods, the flow of these goods to consuming markets during the second quarter of the year was higher than in any other year except 1950, and greater than the existing consumer demand as evidenced by the rapid build-up of retail stocks, particularly of most types of household appliances.

Retail inventories, as reported by the U.S. department of commerce, increased by $2,188,000,000 between January and May to $20,643,000,000 in the latter month. There was some decline during the four-month period June–September, but September inventories of retailers at $18,810,000,000 were still slightly higher than in January. Manufacturers' inventories also rose sharply throughout the year through September with no reduction toward the end of the year, as in the case of retail inventories. Manufacturing inventories in September were estimated by the department of commerce at $40,900,000,000, an increase of $6,780,000,000 from January.

Construction.—Expenditures for new construction continued to increase during the first quarter of the year but declined during the second and third quarters. However, for each month in 1951 through September, expenditures for new construction were higher than during the corresponding month of 1950. October expenditures at $2,395,000,000 were down about $58,000,000 from September in spite of an increase of about $29,000,000 in nonfarm residential construction.

Residential nonfarm construction expenditures continued high during the first quarter, and at $1,049,000,000 in January constituted about 57% of total private construction. Expenditures for residential construction dropped sharply during the second quarter and declined further during the third quarter, but increased by $3\frac{1}{2}$% in October from September.

Federal, state and local government construction expenditures increased during the second and third quarters of the year, as did also private construction other than residential, offsetting to some extent the sharp decline in expenditures for residential construction.

New housing starts for each month of 1951 through September, except for the month of January, were substantially below the corresponding month of 1950. The total of 132,500 new starts in June, the highest month in 1951, compared with 144,300 in June 1950; and the estimated September total of 91,000 was 29,600 below the Sept. 1950 total of 120,600. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING.)

New Plant and Equipment.—Expenditures by businessmen for new plant and equipment increased markedly during the first three quarters of the year, from an annual rate of $20,660,000,000 during the first quarter to an annual rate of $27,200,000,000 during the third quarter, an increase in the annual rate of $6,540,000,00. Third-quarter expenditures for new plant and equipment were at an all-time high and were 45% above the third quarter of 1950, according to estimates of the U.S. department of commerce. Fourth-quarter expenditures were estimated to be at a slightly lower annual rate—$26,440,000,000, which, however, was an annual rate greater by $3,110,000,000 than during the fourth quarter of 1950.

Expenditures for new plant and equipment in manufacturing constituted 47% of the total expenditures in the first quarter and rose to 53.7% of the total during the third quarter. Expenditures during the third quarter were at an annual rate of $14,610,000,000 as compared with $9,820,000,000 for the first quarter and $12,560,000,000 for the second quarter. Third-quarter expenditures at an annual rate of $14,610,000,000 were 78% above the third quarter of 1950, and 30% above fourth-quarter expenditures in 1950.

Business Profits.—Corporate profits before taxes reached an all-time peak during the first quarter of 1951, according to reports of the U.S. department of commerce, but declined during the second and third quarters. First-quarter corporate profits before taxes amounted to $51,800,000,000. As a result of the new provisions of the 1950 tax bills becoming fully effective in the first quarter, the tax liability was raised to an over-all rate of about 55% of profits before taxes, so that profits after taxes, amounting to $31,100,000,000 in the first quarter, dropped to $20,700,000,000 in the first quarter of 1951 from $27,800,000,000 in the fourth quarter of 1950. Dividend payments in the first quarter amounted to $8,800,000,000, only about 42% of corporate profits after taxes, the remainder, $11,900,000,000, being retained by corporations to finance their large capital expenditure programs and for other working capital and reserve purposes.

Although corporate profits after taxes declined during the second and third quarters of the year, dividend disbursements in each quarter were greater than in the first quarter and undistributed profits were correspondingly lower. Dividend disbursements in each of the first three quarters of 1951 were greater than in the corresponding quarter of 1950. (*See* also INTERNATIONAL TRADE; LAW.) (V. B. B.)

Other Countries.—Business in 1951 was under the influence of the Korean war and of the rearmament started by it, which caused a violent rise in the price of most of the important raw materials. This was well under way at the beginning of 1951 and reached a climax during its first quarter, being evident, for example, in the price of cotton, linseed, tin and wool.

The extremely high prices in the first quarter were almost certainly, in part, the result of panic buying and its ensuing reaction. This reaction was aggravated in June by the suggestion made by J. A. Malik, the U.S.S.R. representative to the United Nations, that negotiations for a Korean armistice should be started. The boom in raw material prices had been caused in part by U.S. buying for the stock pile, and this proved capable of exerting a steadying effect. The panic buying on the raw material markets was imitated by the retail buyers of many countries. Here, too, the excess of goods piled up in the early months of 1951 led to a reaction later on.

There was a natural time lag between the movements of raw material prices and the prices of the corresponding finished articles. In Great Britain, for instance, suits made from the dearest sorts of wools (those of the first quarter of 1951) did not appear in the shops until November. On the whole, therefore, the trend of retail prices was upward throughout the year.

Although rearmament was the most powerful single factor in the business situation, it was superimposed on the long-term trend to recovery from World War II—a trend powerfully supported by aid provided by the United States through the European Recovery program, which, though diminishing, still played a large part in the economies of France and western Germany. The situation was complicated by the danger that, in view of the strain on many national economies, a slump might be induced, if not by an excess of finished supplies, then from a deficiency of raw materials. Business might slow down simply because a lack of raw materials made profitable working impossible. There were, in fact, indications that the shortage of coal was bringing this about in western Germany.

After the United States, western Europe was the most important economic region. In western Germany signs of overstocking appeared early in 1951; the strength of the preceding rush to buy can be gauged from the fact that applications for import licences for coffee totalled 60 times the normal amount. This overbuying resulted in a certain stagnation. Easter trade brought little help and by the middle of the year it became necessary to lower the prices of textiles, leather and other goods. Drastic steps were thought necessary to clear stocks, and at the summer sales some goods were almost given away. These measures did succeed in clearing stocks, though probably in some instances at a loss.

In the capital goods industries business declined. This was true of building as well as of machinery. In some sections, however, demand remained high. Machine-tool makers were booked up for eight months and textile machinery makers for five or six months. The difficulties were caused by the shortage of raw materials, particularly coal.

In Italy, the economic basis was rather similar to that existing in Germany: both countries relied largely on industry and both were dependent on imports of raw materials. The buying rush for consumer goods soon died down in Italy, and the shortage of raw materials confronted industry. The coal crisis, however, was less acute than in Germany, for the reservoirs were full and there was an abundance of hydroelectric power. Industrial output increased and in June 1951 was 14% higher than a year earlier. More iron and steel were produced, and Italy reached fourth place among the shipbuilding nations.

Among producers of raw materials the price curve took a form similar to that assumed in the highly industrialized countries, but for different reasons. Prices in the producer countries rose because the individual producers of raw materials could bid heavily for consumer goods. The inflationary development could be seen very clearly in Malaya. During the first half of 1951 the average price of rubber was about 125% above the figure for the same period in 1950, and similar conditions existed for tin.

The result was a violent currency inflation, the volume of the note issue being nearly doubled.

In Sweden, large exports, at high prices, of timber, a raw material of world-wide importance, turned the terms of trade in favour of Sweden, but this improvement did not suffice to provide the country with all the raw materials it needed.

Conditions in the great raw-material producing countries in South America illustrated the way in which political factors affected business. In Brazil, where the government fostered industrial expansion, cotton markets were firm at the beginning of 1951, reached a peak in March and had declined by about 42% at the end of June. The market in coffee, though its statistical position was healthier than that for cotton, also showed a progressive weakening. But these deflationary tendencies were partially compensated for by industrial developments. In spite of the importance of the rubber-growing industry in Brazil, the consumption of rubber exceeded production, and the iron and steel industry continued to expand.

In Argentina, though the economic basis closely resembled that of Brazil, differences were brought about by a different governmental policy. The major fluctuation in the prices of raw materials followed the same curve in Argentina as elsewhere, but the tight control over the economy, dictated by political principles, had a special effect. For instance, the desire to maintain a high average standard of living brought about a reduction in meat exports. The export trade was hampered and the country's economy weakened.

Among the smaller states of South America, the general long-term trend toward higher industrialization and output combined with stimulus provided by the demand for raw materials. This could be noted in countries such as Chile, Venezuela and Colombia.

In Japan during the first half of 1951 a boom, culminating about March, was started by the placing of armament orders connected with the Korean war; but production costs were high and some important orders for cotton textiles were cancelled on the ground of costs. The silk trade, too, failed to recover its markets in the U.S. and Great Britain. Meanwhile, the long-term trend toward recovery, coupled with industrialization, continued, and there were great increases in the output of pig iron, crude steel and cotton yarn and fabrics.

Toward the end of 1951, signs that a slump might be starting began to dwindle. The general outlook pointed toward rising prices, scarcities and lively business, but there was no reason for expecting that the national experiences would be uniform. (*See* also EUROPEAN UNION; STOCKS AND BONDS.)

(W. H. JN.)

Butter: *see* DAIRY PRODUCTS; VEGETABLE OILS AND ANIMAL FATS.

Byrd, Harry Flood (1887–), U.S. senator, was born on June 10 at Martinsburg, W.Va., an elder brother of Adm. Richard E. Byrd. Educated at the Shenandoah Valley academy, Winchester, Va., he began his career as a journalist on the *Winchester Star* (owned by his father), also becoming engaged in farming and fruit-growing. He was a member of the Virginia state senate (1915–25), chairman of the Democratic state committee (1922–25) and governor of Virginia (1926–30). On March 4, 1933, he was appointed U.S. senator to fill the unexpired term of Claude A. Swanson, who had been named Pres. Franklin D. Roosevelt's secretary of the navy. Byrd was elected for the full term 1935–41 and re-elected for the terms 1941–47 and 1947–53. From the first days of the New Deal he opposed almost all its proposed legislation except defense and war measures. He became one of the senate's most persistent advocates of economy in government.

Although Pres. Harry S. Truman in 1950 had complained of "too many Byrds" in congress, Byrd revealed on Jan. 9, 1951, that he had received a cordial letter from the president which was interpreted as a move to reconciliate the southern Democrats. Throughout the rest of the year, however, Byrd continued his attacks on the administration's domestic and foreign policy. On June 25 he charged government leaders with "moral and ethical turpitude." On Nov. 1 Byrd urged all southern Democrats to unite in defeating the Truman Fair Deal in 1952.

Cabinet Members.

The following members of President Harry S. Truman's cabinet held office on Jan. 1, 1952.

Post	*Name*	*State*
Secretary of State	Dean G. Acheson	Maryland
Secretary of the Treasury	John W. Snyder	Missouri
Attorney General	J. Howard McGrath	Rhode Island
Postmaster General	Jesse M. Donaldson	Illinois
Secretary of the Interior	Oscar L. Chapman	Colorado
Secretary of Agriculture	Charles F. Brannan	Colorado
Secretary of Commerce	Charles Sawyer	Ohio
Secretary of Labor	Maurice J. Tobin	Massachusetts
Secretary of Defense	Robert A. Lovett	New York

Great Britain.—The following is a list of cabinet members of Great Britain on Jan. 1, 1952.

Post	*Name*
Prime Minister, First Lord of the Treasury and Minister of Defence	Winston Leonard Spencer Churchill
Secretary of State for Foreign Affairs	Robert Anthony Eden
Lord President of the Council	Lord Woolton
Lord Privy Seal	The Marquess of Salisbury
Lord Chancellor	Lord Simonds
Secretary of State for the Home Department and Minister for Welsh Affairs	Sir David Patrick Maxwell Fyfe
Chancellor of the Exchequer	Richard Austen Butler
Secretary of State for Commonwealth Relations	General Lord Ismay
Secretary of State for the Colonies	Oliver Lyttelton
Secretary of State for Scotland	James Gray Stuart
Secretary of State for the Coordination of Transport, Fuel and Power	Lord Leathers
Minister of Health	Harry Frederick Comfort Crookshank
Minister of Labour and National Service	Sir Walter Turner Monckton
Minister of Housing and Local Government	Harold Macmillan
President of the Board of Trade	George Edward Peter Thorneycroft
Paymaster General	Lord Cherwell

(*See* also GOVERNMENT DEPARTMENTS AND BUREAUS.)

Cacao: *see* COCOA.
Cadmium: *see* MINERAL AND METAL PRODUCTION AND PRICES.
Calendar of Events, 1951: *see* pages 1–16.

California.

Nicknamed the "Golden state" because of its early association with gold production, this most southerly Pacific coast state of the United States achieved statehood on Sept. 9, 1850. California is ranked second nationally in both area and population. Its land area embraces 156,740 sq.mi. and its water area is 1,953 sq.mi. Total population in accordance with the U.S. bureau of the census reports (as of April 1, 1950) was 10,586,223, marking a decade increase of 3,678,836; 80.7% of California's total population is defined as urban. Chief cities with 1950 census figures (and 1940 populations in parentheses) were: Los Angeles 1,970,358 (1,504,277); San Francisco 775,357 (634,536); Oakland 384,575 (302,163); San Diego 334,387 (203,341); Long Beach 250,767 (164,271); Sacramento (the state capital) 137,572 (105,958); Berkeley 113,805 (85,547); Pasadena 104,577 (81,864); Richmond 99,545 (23,642); Glendale 95,702 (82,582); San Jose 95,280 (68,457); Fresno 91,669 (60,685).

History.—There was much political activity during 1951 in booming "favourite son" Gov. Earl Warren as a possible national Republican presidential candidate in 1952. In addition to Warren the state officers remained: lieutenant governor, Goodwin J. Knight; secretary of state, Frank M. Jordan; treasurer, Charles G. Johnson; controller, Thomas H. Kuchel; attorney general, Edmund G. ("Pat") Brown; superintendent of public instruction, Roy E. Simpson.

Defense, inflation and growth were the keynotes of 1951. Federal service calls took much of California's national guard and stimulated plans for recruitment of a state defense and security corps to serve the "home front," while the office of civil defense undertook the planning, co-ordinating and training work to be performed at the state level in line with national plans for civil defense. Inflation necessitated a 5% salary increase for all state employees effective Jan. 1, 1951, and brought forth a $3,000 minimum annual wage for public school teachers. Growth was reflected by completion of the $7,500,000 east wing to the state capitol building (three times as large as the older portion) and by establishment of various committees for state, area and community planning and study.

Education.—Average daily attendance for budgetary purposes for 1949–50 in elementary school districts was calculated at 1,203,342, in high school districts at 420,548 and in junior college districts at 94.377, and state support for public schools was in excess of $220,000,000. Total enrolment in the state board of education's 11 state colleges was 32,112.

Social Insurance and Assistance, Public Welfare and Related Programs.—As of Oct. 1951, average monthly payment to 274,532 needy aged of California was $66.75 (Oct. 1950, 271,867 at an average of $69.57). Aid to the needy blind paid an average of $81.40 to 10,889 persons. Average monthly assistance payments for 136,806 needy children, both in boarding homes and institutions and in families, was $50.21. Total public assistance was $27,317,281, of which 39.2% was derived from federal funds, 44.8% from state funds and 16% from county sources. For Oct. 1950 beneficiaries of the three unemployment-compensation programs administered by the state averaged 71,640 claimants per week, with benefits for the month totalling $7,246,708. Total expenditures for the state department of corrections for 1950–51 were estimated at $11,278,144. Inmates of California's seven correctional institutions for adults (as of Oct. 1951) numbered 11,629. Population of youth authority institutions (as of Nov. 1951) was 2,340, of which 303 were in two schools for girls, 228 in four work camps for boys, 1,120 in four schools for boys and the remainder in other institutions.

Communications.—Automobile and truck registrations to June 30, 1950, totalled 4,124,582. Estimated total expenditures in 1950–51 for reconditioning, resurfacing and construction of California highways was $126,317,209 (1949–50, $101,572,535). Of this amount, approximately $15,828,919 represented federal-aid contributions (1949–50, $15,816,497). In 1949 California had 8,302 mi. of railways, including 747 mi. of electrically operated roads. As of July 1, 1949, California had 463 airports, including 193 commercial, 142 municipal, 39 military and 89 other fields. There were 2,824 mi. of federal airways as of Jan. 1, 1949. At the beginning of 1950 there were 3,600,000 telephone stations within the state.

Banking and Finance.—Total assets of the 116 state-supervised banks (with 213 branch offices) as of June 30, 1951, were $3,936,558,000 (Oct. 4, 1950, $3,880,601,000). Aggregate assets of 116 state-licensed savings

Table I.—*Leading Agricultural Products of California*

Crop	1951	1950	Average, 1940–49
Cotton lint, bales	1,770,000	978,000	584,000
Cottonseed, tons	696,000	402,000	229,000
All hay, tons	5,426,000	6,226,000	5,704,000
Potatoes, bu.	34,605,000	47,040,000	34,039,000
Oranges, boxes	43,400,000	45,110,000	48,196,000
Lemons, boxes	12,900,000	13,400,000	12,993,000
Barley, bu.	42,360,000	60,010,000	40,750,000
Wheat, bu.	9,741,000	13,671,000	10,969,000
Beans, dry, bags (100 lb.)	5,232,000	4,532,000	4,661,000
Rice, bags (100 lb.)	10,362,000	8,270,000	6,630,000
Sugar beets, tons	2,660,000	3,927,000	2,130,000
Flaxseed, bu.	1,738,000	1,416,000	3,225,000
Peaches, bu.	35,670,000	29,668,000	30,169,000
Pears, bu.	15,335,000	14,168,000	11,993,000
Apples, bu.	8,625,000	6,748,000	7,960,000
Grapes, tons	3,107,000	2,433,000	2,608,100
Apricots, tons	168,000	213,000	192,700
Prunes, tons	181,000	149,000	187,200
Plums, tons	97,000	77,000	78,200
Walnuts, tons	67,000	58,000	61,870
Almonds, tons	42,700	37,700	25,480

Source: U.S. Department of Agriculture.

Table II.—*Annual Average Employment in California Manufacturing Industries*

Industry	Oct. 1951	Average 1950	Average 1949
Food and kindred products	177,400	134,400	128,200
Aircraft	154,000	91,200	80,500
Machinery (except electrical)	69,400	48,500	47,700
Fabricated metals	62,200	54,300	46,500
Lumber and wood products	54,500	51,600	45,800
Printing and publishing	49,300	48,100	47,300
Apparel	47,700	51,900	48,600
Primary metals	45,500	39,600	34,200
Electrical machinery	36,100	25,700	21,000
Stone, glass and clay	35,500	33,500	31,600
Chemicals	33,100	30,100	28,600
Petroleum	30,500	28,600	29,600
Furniture and fixtures	28,200	27,100	23,000

Table III.—*Mineral Production of California*

(In short tons, except as noted)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Boron minerals	467,592	$ 11,511,893	647,735	$ 15,890,000
Calcium-magnesium chloride	11,166	204,024	?	?
Cement (bbl.)	23,201,982	57,464,213	26,685,004	65,258,675
Clays	1,391,088	2,744,069	1,454,846	2,904,750
Coke*	346,552	?	512,790	?
Copper	649	255,706	646	268,736
Gold	417,231	14,603,085	412,118	14,424,130
Gypsum	753,581	1,852,452	962,373	2,462,604
Iron ore	584,109	†	951,428	?
Iron, pig*	494,300	?	667,145	?
Lead	10,318	3,260,488	15,831	4,274,370
Lime	153,483	2,516,262	171,440	2,722,835
Magnesium compounds	27,600	1,770,000	?	?
Mercury (flasks, 76 lb.)	4,493	357,014	3,850	312,851
Natural gas (thousand cu. ft.)	550,903,000	64,731,000	535,000,000	67,410,000
Natural gasoline (gal.)	863,871,000	67,407,000	891,755,000	64,869,000
Petroleum (bbl.)	332,942,000	752,450,000	327,627,000	707,670,000
Petroleum gases (gal.)	276,582,000	19,553,000	292,724,000	13,495,000
Pumice and pumicite	149,878	799,602	157,497	970,826
Salt	964,807	4,110,271	868,496	3,816,655
Sand and gravel	36,279,816	30,198,924	41,894,039	35,547,558
Silver (oz.)	783,880	709,451	1,071,917	970,139
Sodium carbonate	200,496	4,163,714	?	?
Stone	11,373,700	12,594,048	11,764,630	13,998,432
Talc	83,359	1,434,046	109,747	2,069,211
Tungsten concentrate, 60% WO_3	952	†	?	?
Zinc	7,209	1,787,832	7,551	2,144,484
Other minerals	...	19,127,393	...	?
Total		$1,075,605,487		?

*Values for processed materials are not included in the totals.
†Value included with other minerals.

and loan associations operating in California (as of Sept. 30, 1951) were $721,959,204.75.

Estimated total state revenues for 1950–51 were $932,757,501 (1949–50, $841,600,157). Total expense estimates for the year were $1,092,711,250 (1949–50, $1,166,762,418). The state's net bonded debt (outstanding Nov. 30, 1950) was $323,376,077.

Agriculture.—Gross cash farm income for 1950 was $2,335,082,000, or 12% higher than in 1949. Livestock and poultry products returns were $837,502,000 (8% higher than in 1949), while crop returns were $1,483,939,000 (1949, $1,296,143,000). Government payments added $13,641,000 to California's farm income (1949, $9,220,000). Total value of truck crops for 1950 was $276,529,000 (a 6% decrease from 1949), value of field crops was $596,640,000 (a 4% increase) and fruit and nut crop value was $563,740,000 (a 46% increase).

Manufacturing.—Employment in California manufacturing industries reached 953,000 in Sept. 1951. Civilian employment reached an all-time peak of 4,669,000 at the same time, while unemployment dropped to 133,000 as compared with 164,000 in Sept. 1950. Retail sales for 1950 were approximately $12,107,674,000, while new construction amounted to about $2,875,000,000.

During 1950 an average of 758,800 wage and salary workers were employed in California manufacturing industries. In production of nondurable goods 332,700 were employed, and 426,100 were employed in manufacture of durable goods. (D. C. Cr.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for those commodities whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

California stands second among the states in total value of mineral production (more than half of which is derived from petroleum and natural gas) and also second as a gold producer.

Cambodia: *see* French Union; Indochina.
Cameroons: *see* British West Africa; Trust Territories.
Cameroun: *see* French Equatorial Africa; French Union.
Camp Fire Girls: *see* Societies and Associations, U.S.

Canada.

A member of the Commonwealth of Nations, Canada is a federal union covering all of North America north of the United States except Alaska. Provinces: Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, British Columbia, Prince Edward Island, Alberta, Saskatchewan, Newfoundland. Outside the provincial boundaries are the Yukon and the Northwest Territories, under federal jurisdiction.

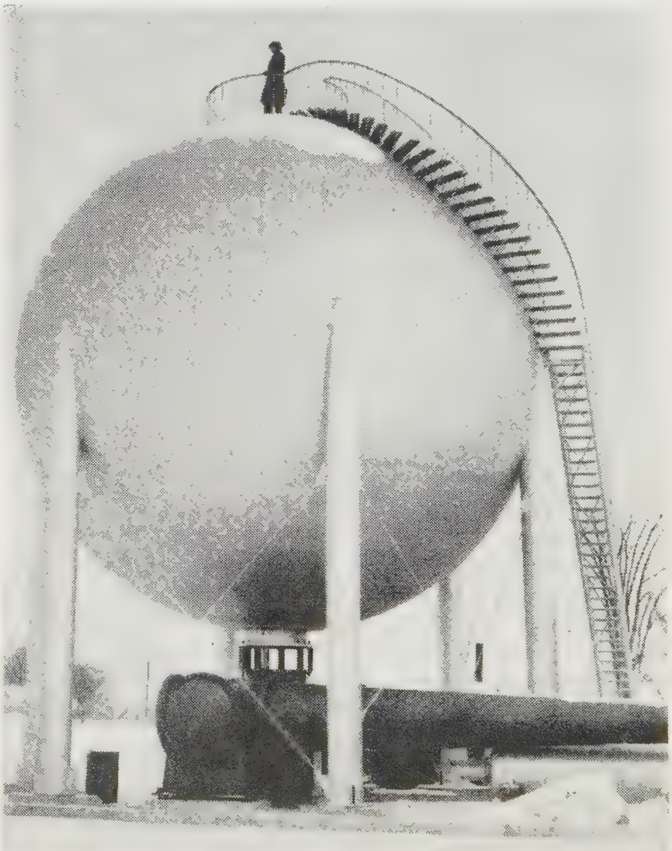
Area: 3,843,144 sq.mi.; capital: Ottawa (*q.v.*); largest English city: Toronto (*q.v.*); largest French city: Montreal (*q.v.*); governor general: Viscount Alexander of Tunis; prime minister: Louis Stephen St. Laurent (*q.v.*); population (June 1951 census, preliminary figure): 13,893,208.

History.—Several federal by-elections were held during 1951. The Conservatives held the seats of Calgary West and Waterloo South, and won the seats of Brandon, Winnipeg South Centre and Queens from the Liberals. These results increased the Conservatives' house of commons representation to 46 and reduced the Liberals' to 182 (total 262). There was little direct political activity outside these by-elections, but the losses alerted the Liberals, under Prime Minister St. Laurent, to the political dangers of the increasing cost of living.

Government and Legislation.—The fourth session of the 21st parliament was called on Feb. 14 and adjourned June 30, and was a heavy session in terms of legislation. Emergency powers were given to the government to act if the security of the nation were threatened; a new department of defense production was set up; war veterans' legislation was strengthened. The fifth session of the 21st parliament was convened on Oct. 9 and ran to about the end of the year. It was marked by legislation creating an authority to deepen the St. Lawrence seaway, to provide increased old-age security and to curb price fixing in the retail field

Constitution.—Early in May St. Laurent announced that all ten provinces had agreed to the terms of an amendment to the British North America act to permit the federal government to pay old-age pensions to all persons 70 years of age and over without a means test; near the end of the month the British parliament passed the necessary amendment to the B.N.A. act in five minutes without discussion. In October the supreme court of Canada, in a unanimous ruling, established the constitutional power of parliament to control interprovincial and international highway traffic.

Provincial and federal authorities continued to work on a formula for obtaining constitutional amendments, and Stuart Garson, justice minister, announced agreement on 146 sections of the B.N.A. act. The federal government refused to allow an increase or extension of a provincial turnover tax. At the end of 1951, renewed federal-provincial tax agreements were in the offing, to supersede the existing agreements signed with all prov-



VACUUM WIND TUNNEL completed at the Ottawa, Ont., laboratories of the Canadian National Research council in 1951 for the development of aircraft and missiles flying at speeds up to 3,000 m.p.h.

inces except Ontario and Quebec in 1947 and expiring in 1952.

External Relations.—Canadian and U.S. civil defense chiefs reached an agreement on joint civil defense research, planning, organization and training. The United States voluntarily gave up certain rights conferred for 99 years by the 1941 agreement on four Newfoundland bases. Therefore the Canadian government extended security laws to protect the security interests of U.S. forces in Canada, and the U.S. recognized Canadian legal jurisdiction over Canadian citizens on the leased bases.

In July a government proclamation ended the state of war between Canada and Germany, which had existed since Sept. 10, 1939; in September Canada signed the peace treaty with Japan; in September also the North Atlantic Treaty organization council met in Ottawa, Ont. Throughout the year Canada donated $195,000,000 of arms to NATO countries, including enough to equip a division for Italy and a division for Belgium. Parliament accepted a government resolution approving Canada's continued "participation in the efforts being made through the United Nations to establish international peace, and in particular to defeat aggression and restore peace in Korea." Parliament voted $7,250,000 to Korean relief through the U.N., and an additional $45,400,000 to cover aid to Asia under the Colombo plan, technical assistance to Pakistan by special agreement, and wheat to India. Parliament also passed conventions with France and Sweden to avoid double taxation and to prevent fiscal evasion, and ratified the international convention for the regulation of whaling.

Defense and Internal Security.—With increasing uneasiness in international affairs, the Canadian government paid increasing attention to the problems of national security. Brooke Claxton, minister of national defense, announced a three-year rearmament program to cost $5,000,000,000, which had as objectives: (1) 40 royal Canadian air force squadrons, (2) a 100-ship navy and (3) a 115,000-man army. It was estimated that 10% of the national income would be necessary to finance the plan. The defense research board announced several new weapons, including armour-piercing shells, an improved anti-tank gun and Canadian-made guided missiles. The air force created new jet fighter squadrons and set up a ground observation corps; the army sent a first contingent of 5,500 men to west Germany as part of the NATO requirements; keels were put down for 12 special antisubmarine vessels, costing $60,000,000. Women's military divisions were reorganized. Paul Martin, minister of national health and welfare, announced that civil defense against atomic attack entered its operational stage with the creation of a $1,000,000 radar network, the provision of the world's first radiation detection course for instructors and the full-time lease of communication systems to warn the populace of an impending air attack.

Internal security measures included an extension of the power of the federal government to take citizenship rights away from Canadians who proved to be disloyal. However, those affected by the legislation had the right to a hearing before a commission. To help prevent sabotage against Canada's vulnerable system of inland waterways, new regulations required all seamen on Canadian ships on the Great Lakes to carry cards issued by the department of labour on recommendation of the royal Canadian mounted police.

Veterans' Affairs.—The federal government extended existing legislation for World War II veterans to members of Canada's special forces serving in Korea and Europe. Pensions to veterans were increased; more help was given to widows of war veterans when children wished to continue their education beyond the statutory age limit; the provisions of the Veterans' Business and Professional Loans act and the Veterans' Insurance act were expanded and the time limit of their availability was extended. On Sept. 8, 1951, 92,519 World War II veterans were receiving pensions.

PRINCESS ELIZABETH and the duke of Edinburgh at a command performance of the Winnipeg Ballet company during the royal couple's tour of Canada in Oct. 1951

Economic Controls.—An Emergency Powers act gave the government the right to control (by order in council) not only things directly pertaining to defense but also trading, exploitation, importation, production and manufacture. Consumer credit regulations were tightened. Before 1951 was far advanced, informal controls of strategic defense supplies were replaced by a complete and strict priority system. Export permits were required for about 150 commodities, in an effort to keep them out of Communist-controlled countries. The foreign exchange controls imposed in 1939 were abolished in December, and Canada became the first controlled-currency country to abandon World War II money restrictions, Parliament rejected, by a vote of 116 to 19, a motion to impose direct price controls. All provinces made provisions to retain rent controls dropped by the federal government April 30, 1951.

Taxation.—Faced with mounting defense costs, Finance Minister Douglas Abbott's 1951–52 budget announced new and increased tax levies. Income taxes went up 20%; sales tax went up 2%; a special 15% excise tax was placed on a limited range of hard consumer goods; the special excise tax on automobiles and a long line of luxury articles was boosted 5%. At the autumn session of parliament, the finance minister announced further tax increases, of 2% on the taxable incomes of corporations and of 2% on the taxable incomes of individuals (returns from both earmarked for old-age pension payments).

Labour Relations.—An Ontario court granted an injunction against the use by picketers of picketing methods that were in themselves unlawful (such as threats and violence), and thus established a distinction between proper and improper picketing. Parliament approved an International Labour office convention fixing minimum age for employment at sea. For the first nine months of 1951 (1950 figures in parentheses) there were 199 (130) strikes and lockouts, involving 65,096 (166,601) workers, with a time loss of 667,622 (1,300,331) days.

Arctic Developments.—The federal government sent the defense research board's motor vessel "Cancolim II" on a 6,000-mi. tour to study the possible uses of the western arctic by enemy forces; it also pushed ahead with a string of air stations across the arctic. Department of national defense studies in the arctic included the insect problem, radio-frequency cold exposure treatments, and winter clothing (by Exercise "Mukluk"). The department of fisheries ketch "Calanus" studied arctic char at Frobisher bay and plankton in the Beaufort sea. The Arctic Institute of North America examined glacier flow on the Alaska-Yukon boundary. A second expedition was sent to Chubb (world's largest meteor) crater in Ungava.

Eskimos and Indians.—A new pattern of Eskimo education was established by steps to create a system of permanent local schools to replace strategically placed boarding schools. A $12,000 federal grant was used to continue research into poliomyelitis among the Eskimos. The federal government completely revised the Indian act, and it became in effect a new charter for Canadian Indians, giving them greater authority in the administration of their own property and affairs; Indian women were entitled to vote in band council elections.

Finance.—Actual 1950–51 federal revenues totalled $3,105,000,000 and expenditures $2,901,844,000. The 1950–51 surplus reduced the national debt to $11,441,100,000 (the World War II peak was $13,421,405,490). Estimated expenditures for 1951–52 fiscal year were set at $3,586,915,657. On Oct. 31, 1951, there was a 1951–52 budget surplus of $604,700,000, but defense spending was not in full flow. At the end of 1951 Canada's reserves of U.S. dollars reached $1,779,000,000 (Nov. 1948, $480,000,000).

National Income.—Preliminary net national income at factor cost for 1950 was as follows: salaries, wages and supplementary labour income $8,300,000,000; military pay and allowances $137,000,000; investment income $2,996,000,000; agriculture and unincorporated businesses $2,875,000,000.

Trade.—Exports for Aug. 1951 (compared with the monthly average for 1950) totalled $349,800,000 ($259,900,000) and imports totalled $370,640,000 ($264,520,000). Canada's total foreign trade for the first nine months of 1951 came to $5,960,200,000, compared with $4,507,700,000 for the similar 1950 period.

Communications.—The Canadian Broadcasting corporation continued to operate 12 high-powered stations in the larger population centres, and hold regulatory powers over the 125 privately owned stations upon which the smaller centres depend for broadcast services. The private broadcasters, organized as the Canadian Association of Broadcasters, in representations to parliament's special committee on broadcasting urged that the regulatory functions vested in the C.B.C. be entrusted to an impartial body similar to the United States Federal Communications commission. The C.B.C.'s new headquarters, Radio Canada building in Montreal, was opened in May to serve the 3,323,000 Canadian radio receivers. Canada's first television stations were in an advanced state of construction in Montreal and Toronto, and contracts were let for a 14-tower microwave circuit from Buffalo, N.Y., to Montreal via Toronto and Ottawa. There were about 100,000 television receivers in Canada at the end of 1951. During the year telegraph and telephone rates were raised.

Transportation.—In 1951 Trans-Canada Air Lines, Ltd., announced it had flown 21,839,355 mi. and carried 820,000 passengers in 1950; during 1951 T.C.A. opened a direct Montreal-Paris service. The government created a new national aeronautical establishment to provide continuing support for co-ordinated research and orderly development in all branches of aviation. The government revised the Railway act to establish rate uniformity recommended by the Turgeon royal commission. Freight rates advanced 12%. In March the department of national defense announced that 40 ships were under construction for the Canadian navy; and in June the department reported the program was expanded by the laying of 12 more keels. In December alone, 70,000 tons of new ships, oil tankers and bulk ore and grain carriers, were launched. The end of the year saw the completion of contracts in eight of ten provinces, representing $50,000,000 or one-sixth of the total trans-Canada highway costs.

Agriculture.—Unseasonal autumn weather left 32% of the 562,000,000 bu. wheat crop of 1951 under snow, and legislation was passed to help farmers with short-term loans. Other federal legislation included creation of a Canadian dairy products board to establish national standards and regulations of interprovincial and international trade; creation of an agricultural products board for the purchase and sale of farm products on a country-to-country basis; and extension of the Farm Improvement Loans act for three years. Parliament voted $65,000,000 for continued water storage as a farm rehabilitation measure. In the 1946–51 period the government spent $10,000,000 to support farm prices; in the 1939–51 period the farm price of agricultural products went up 210.2%. Cash farm income for Jan.-Sept. 1951 was $1,864,900,000, compared with $1,487,600,000 for the same period of 1950 and with $2,169,251,000 for all of 1950.

Industry.—Volume indexes of industrial production (1935–39: 100) in Aug. 1951 (with 1950 monthly averages in parentheses) were: total, 205.3 (198.3); mining, 168.1 (147.5); total manufactures, 210.4 (207.6); nondurable manufactures, 191.4 (197.9); durable manufactures, 243.1 (241.2); electric power, 219.5 (194.4).

Employment.—In Aug. 1951 the Canadian labour force (compared to Aug. 1950) was: agricultural, 1,090,000 (1,153,000); nonagricultural, 4,331,000 (4,171,000); with jobs, 5,343,000 (5,221,000); without jobs and seeking work, 78,000 (103,000).

Wages and Hours.—Average weekly salaries and wages during Aug. 1951: industrial composite $50.16; forestry $47.49; mining $60.77; manufacturing $51.68; construction $49.48; transportation, storage and communication $54.20; public utilities $56.32; trade $43.85; finance, insurance and real estate $46.27; service $31.21. Average hours worked per week during Aug. 1951: metal mining 43.3; coal mining 41.2; manufacturing durable goods 41.4; manufacturing nondurable goods 41.3; construction 40.7.

Natural Resources.—British Columbia's first important oil discovery was made in the Fort St. John area on the Alaska highway, and Manitoba tapped its first successful oil well. Continuing drilling in Alberta and Saskatchewan moved Canada up to the world's tenth largest oil-producing nation. In 1951 Canadian mines produced $1,228,000,000 of minerals (1950—$1,040,000,000); though some of the increase was due to higher metal prices, volume of production was also higher. The Quebec-Labrador iron ore discoveries spurred arctic prospecting, and ores of commercial value were reported under the snowy wastes of Baffin Island. In the 1948–51 period, more than 500 deposits of uranium were reported. First-stage development of hydroelectric power near Kitimat, B.C., heralded construction of a $500,000,000 aluminum plant there.

(*See* also articles on individual Canadian provinces and territories; also Accident Prevention; Atomic Energy; Canals and Inland Waterways; Consumer Credit; Education; Electrical Industries; Electrical Transportation; Fisheries; Forests; Horse Racing; Housing; Industrial Health; Labour Unions; Municipal Government; Newspapers and Magazines; Post Office; Public Utilities; Rivers and Harbours; Rural Electrification; Social Security; Theatre; Veterans' Organizations; Wildlife Conservation.)

Bibliography.—Canadian Institute of International Affairs, *Canada in World Affairs* (Toronto, 1951); D. H. Gillis, *Democracy in the Canadas* (Oxford, 1951); R. K. Turner, ed., *Partners in the Free World: A Summary Report on the Canadian-American Conference on Foreign Relations* (1951).

Films of 1951.—*British Columbia* (Paul Hoefler Production); *French Influence in North America* (Coronet Films); *Fur Trapper of the North* (Encyclopædia Britannica Films Inc.); *How to Build an Igloo* (Young America Films, Inc.); *Peace River, Saint John Valley, The Rising Tide* (National Film Board of Canada). (C. Cy.)

Canadian Literature.

Fiction.—In 1951, of the 125 or so English Canadians who published books, there were only 16 novelists, 2 poets and 1 dramatist to represent imaginative literature. The 1951 reader, looking for the Canadian novelist who went beyond the mechanics of a good yarn to some instructive criticism of life (Canadian or otherwise), had to look hard and long, and his search was lamentably seldom rewarded. Hugh MacLennan's *Each Man's Son,* dealing with events in a Nova Scotia mining community, and Morley Callaghan's *The Loved and the Lost,* about racial problems in Montreal, stated problems without suggesting answers. Better results came from two newcomers to the fiction field: dramatist Robertson Davies' *Tempest-Tost* satirized Canadian small-town life with an alertly roving eye; poet A. M. Klein's *The Second Scroll* described and analyzed various spiritual values. Some attempts to deal with Canadian living problems were to be found in W. G. Hardy's *The Unfulfilled,* George Glay's *Beggars Might Ride,* John Cornish's *The Provincials,* Hugh Garner's *Cabbage Town,* Lois Edwards' *My Heart in Hiding* and Louise Riley's *One Happy Moment,* but the attempts were disappointing, especially considering the general technical competence of the various works. Gabrielle Roy's *Where Nests the Water Hen* and Kristine Kristofferson's *Tanya* both had scenes laid in Manitoba, but whereas the latter stressed actionful plot, the former was practically plotless. When it came to just plain storytelling, veteran Will R. Bird's *So Much to Record,* dealing with the Nova Scotia scene, and Luella Creighton's *High Bright Buggy Wheels,* about an Ontario Mennonite settlement, led the fiction field.

Poetry and Drama.—Other representatives of imaginative literature were scarce. *The Mulgrave Road* by Charles Bruce, however, exhibited sharp insight into Nova Scotia's special qualities, and *The Victorian House and Other Poems* by Philip Child was an arresting study of the mind's persistent effort to overcome personality.

Nonfiction.—The output of 1951 factual books might be divided into two categories—those which could be called examples of personal literature and those which could be called examples of handbook literature. Among the former, a few were simple autobiography, such as Billy Button's *I Married an Artist,* Kenneth M. Wells's *Up Medonte Way,* Barbara Ann Scott's *Skate with Me* and Oliver Philpot's *Stolen Journey;* some were straightforward travel, such as Lyn Harrington's *Manitoba Roundabout,* Lilian Maxwell's *'Round New Brunswick Roads,* John and Marjorie Mackenzie's *Quebec in Your Car,* Blodwen Davies' *Quebec: Portrait of a Province,* Evelyn Earle's *Leeds the Lovely* and Jessie Lawson and Jean Sweet's *This Is New Brunswick.* It was an indicative fact that the autobiographies were light in vein, and that the travel was Canadian. There were but two peaks in that plain of writing: Barbara Cormack's *Local Rag* was a uniquely different autobiographical novel (but not novel enough to be real fiction), with its material projected through the files of a small prairie town weekly newspaper; Judith Robinson's *As We Came By* was travel (in Europe) with a sharp eye and a sharper tongue. Works of humour included Harry Symons' *The Bored Meeting,* Jan Hilliard's *The Salt-Box* and John Robins' *Cottage Cheese.*

For the most part the rest of the factual books published by Canadian writers during 1951 were handbooks. Some, to be sure, were handbooks almost achieving literary status, such as L. L. Snyder's *Ontario Birds,* Daniel McCowan's *Tidewater to Timberline,* Roderick Haig-Brown's *Measure of the Year,* John Murray Gibbon's *Romance of the Canadian Canoe,* Josephine Phelan's *Ardent Exile* and E. K. Brown's *Rhythm in the Novel,* but the bulk of them were merely recitals of history, politics, geography, religion, government and agriculture, to list about half the things that attracted Canadian nonfiction writers in 1951.

Juvenile.—The pronounced drop in production of nonfiction for young readers was not counterbalanced by a more copious flow of juvenile novels. However, there were a few teen-age novels that were appealing. Olive Knox's *Little Giant* (Henry Kelsey) was the only historical story. Career themes were more popular: Jack Hambleton's *Tom Walden, Cub Reporter* (newspaper), Lyn Cook's *The Little Magic Fiddler* (music) and Foster Hewitt's *Along Olympic Road* (athletics). But few Canadian writers in the juvenile field could surpass veteran Dickson Reynolds for thrill and dash and implicit moralizing, of which her *Angry River,* describing the Fraser river on rampage, was a good example. A new and promising writer, Audrey McKim, appeared with *Here Comes Dirk,* the story of a Dutch boy's Canadianization. (*See* also LITERARY PRIZES.) (C. CY.)

Canals and Inland Waterways.

Of the estimated 65,000 mi. of potential inland waterways in the United States, approximately 28,000 mi. had been improved by the end of 1951 for navigation by commercial and pleasure craft. All operations and maintenance of the system, which included 185 harbours and 400 locks, is the responsibility of the corps of engineers, department of the army, under the direction of the congress.

The principal components of the over-all, interrelated system of rivers, lakes, bays and canals include the Great Lakes, the Mississippi river system, the Illinois waterway, the New York state canal system, the Cape Cod canal, the Chesapeake and Delaware canal, the Atlantic Intra-Coastal waterway, the Gulf Intra-Coastal waterway, the Sacramento river system and the Columbia river system.

The Rivers and Harbors act of 1951 provided for $125,192,613 for the construction of 43 authorized projects in 29 states. An additional $61,287,000 was appropriated for maintenance, operation and care of the nation's vast network of ports and inland waterways, and $500,000 for planning, preliminary examinations and surveys of new projects. Also, in addition, the lower Mississippi river and the Sacramento river in California received separate appropriations of $60,500,000 and $1,000,000 respectively for construction, maintenance and operations.

THE "CLIFFS VICTORY," 620-ft. ore carrier, gliding past the raised spans of the Chicago river at the end of her journey from New Orleans, La., in 1951. The converted victory ship was the largest vessel to have passed through the Illinois waterways' system of locks to that date

Among the principal projects on which construction was begun or continued during the year were the McNary lock and dam and the Chief Joseph dam on the Columbia river in the interest of navigation, power development and irrigation; the New York and New Jersey channels; Demopolis lock and dam on the Warrior river, Ala.; Houston ship channel, Tex.; the Neches and Angelina rivers and the Sabine-Neches waterway in Texas; the lateral canal and lock project on the Mississippi river at Chain of Rocks, near St. Louis, Mo.; Morgantown dam and lock no. 2 on the Monongahela river in Pennsylvania; Missouri river between its mouth and Sioux City, Ia.; Pearl river in Mississippi and Louisiana; San Diego river and Mission bay, Calif.; Jim Woodruff lock and dam, Apalachicola river, Fla. (*See* also FLOODS AND FLOOD CONTROL; RIVERS AND HARBOURS.)

According to preliminary estimates, the total net water-borne commerce of the United States, eliminating all known duplications of traffic between rivers and ports, was 820,582,362 short tons in the calendar year 1950. Ocean traffic, foreign and coastwise, aggregated 285,744,943 tons.

United States water-borne commerce on the Great Lakes totalled 169,879,433 tons, aggregating 111,687,340,000 ton-miles. Inland waterway commerce, excluding the Great Lakes, totalled 51,256,637,000 ton-miles, including the deep-sea traffic on the Mississippi river below Baton Rouge, La. Of this total, the Mississippi river system accounted for 33,597,816,000 ton-miles.

Preliminary tonnage figures indicated that the following ten were the leading U.S. ocean ports in 1950; New York, N.Y., 186,527,019; Houston, Tex., 40,825,048; Philadelphia, Pa., 37,220,812; Baltimore, Md., 35,640,406; New Orleans, La., 35,125,047; Norfolk, Va., 25,049,913; Beaumont, Tex., 21,425,323; Los Angeles, Calif., 20,119,966; Boston, Mass., 19,446,154; Port Arthur, Tex., 19,323,487. (G. Hb.)

Canada.—With the general approval of parliament, the federal government passed an act to establish the St. Lawrence Seaway authority "for the purposes of acquiring lands for and constructing, maintaining and operating all such works as may be necessary to provide and maintain, either wholly in Canada or in conjunction with works undertaken by an appropriate authority in the United States, a deep waterway between the port of Montreal and Lake Erie." Parliament voted $4,523,107 for the maintenance and operation of the canal services for 1951–52, plus $2,013,409 for the continued dredging of the St. Lawrence river ship channel below Montreal. Tonnages taken up and down through the three major lock systems of the St. Lawrence-Great Lakes system set records in the April-Oct. 1951 navigation season (1950 in parentheses): Sault Ste. Marie (Canadian-U.S.) 107,729,730 (93,280,527); Sault Ste. Marie (Canadian only) 2,285,699 (1,886,881); Welland 13,774,107 (12,400,905); St. Lawrence 8,692,183 (8,648,438). (*See* also Electrical Industries.) (C. Cy.)

Great Britain.—The third report of the British Transport commission was published in July 1951. It recorded that during 1950 work was advanced on a new lock at Newark, Nottinghamshire, to accommodate four standard Trent craft—the old lock could take only one such boat. Dredging was carried out on the Trent navigation to provide an improved channel to a general minimum depth of five feet. It was decided to improve the Severn channels to enable craft carrying 400 tons to navigate to Worcester, and to carry out works above Worcester to enable existing craft to load up to 150 tons. Total waterway traffic in 1950 was 11,802,000 tons, an increase of 4.2% over 1949. There was a deficit of £93,795 on the carrying business but an amount of £144,141 accrued to the executive as toll payments in respect of that business. As from May 1950, the executive increased statutory charges by 16⅔% and also raised non-statutory charges where appropriate.

France.—The new Jeu de Mail lock, with a reclaimed drop of 1.43 m., on the canal from Bourbourg to Dunkirk, was brought into use in place of the old lock destroyed in World War II. On a branch of the Neuffouse canal around St. Omer, work on the Flandres lock, with a reclaimed drop of 3.97 m., was further advanced; it would replace the Haut-Pont and St.-Bertin locks and would accommodate barges, vessels up to 600 tons and lighters. Progress was made with the new lock on a branch of the Deule river, at Dow: there were to be two basins, in tandem, and a reclaimed drop of 2.82 m. At the old Lens lock on the Lens canal reconstruction continued; this was designed to repair the effect of mining subsidence and, with a reclaimed drop of 7.7 m., to allow vessels of 600 tons to be docked.

Germany.—Removal of wreckage from navigable rivers continued; shipping traffic operated normally. Progress was made in waterway extensions on the Main river Near Würzburg and at Neckar near Heilbronn (Württemberg). A double lock to lower and raise ships on the Mosel river was completed. Low-water regulation was improved on the Danube. Extension work continued on the Dortmund-Ems canal. On the Kiel canal, slopes, locks and retaining sluices were renewed.

Netherlands.—A new Amsterdam-Rhine canal was opened with the object of shortening the route between the lower Rhine towns and the port of Amsterdam.

U.S.S.R.—It was decided to speed up the work on the Stalingrad-Kalach ship canal in order to finish it in 1952 and thus establish a system joining the Caspian and White seas with the Sea of Azov and the Black sea. (*See* also Aqueducts.)

Films of 1951—*The Importance of Water* (Bailey Films).
(A. H. J. B.)

Canary Islands: *see* Spain.

Canasta.

In the U.S. canasta remained the most-played card game in 1951, though interest in it diminished. Many who had turned from other games, such as contract bridge, pinochle and several games that, like canasta, are members of the rummy family, returned to those games. In England and Scotland, canasta increased rapidly in popularity and was perhaps as much played as contract bridge, though it did not achieve the fad stage as it had in the U.S. in 1949 and 1950.

Early in 1951 new international canasta laws were published, jointly agreed to by commissions representing the U.S. and Argentina. These laws, which made few changes in the procedure of play, were later adopted by British and French players. The majority of players in the U.S. and South America rejected the "official" laws in one respect: A player is not permitted to take the discard pile so as to add the top card to a completed canasta. The international laws permit a player to do so.

During 1951 a canasta variant called "samba" grew in popularity. This game is played with three 52-card decks plus six jokers. Each player is dealt 15 cards and when he draws from the stock takes 2 cards, but discards only 1 in each turn. Sequences may be melded up to seven cards in length (never including a wild card or three-spot) and a seven-card sequence, called a samba, ranks as a canasta and scores a bonus of 1,500 points. Game is 10,000 points and when a side's score reaches 7,000, it needs 150 for its initial meld. Otherwise the procedure is substantially the same as in canasta. (A. H. Md.)

Cancer.

The concerted and intensive scientific and humanitarian attack on cancer, by dissemination of information to the medical profession and to the laity, by diagnostic and therapeutic service to the cancer patient, and by research, continued to gain momentum during 1951. These activities were given unprecedented monetary support by a cancer-conscious public through governmental appropriations and voluntary agencies. Contributing materially to the greatly increased public interest were several motion pictures on various aspects of cancer control, notable among which was *Breast Self-Examination,* which was seen by more than 1,000,000 women.

Considerable funds were apportioned to the training of scientists and clinicians, and to fundamental research in biology and in its ancillary sciences, studies often without immediately apparent oncologic significance. Widely diverse investigations under many disciplines of science focused with increasing definition on the nature, early diagnosis and treatment of cancer. Biologist, biochemist, biophysicist, pathologist, cytologist, virologist and clinician worked as a unit toward an understanding of the fundamental mechanisms of normal cellular growth as an essential prerequisite to an insight into the abnormal mechanism of malignant growth. The electron microscope, which shows structural cellular details of approximately ten times the resolution of the ordinary microscope, revealed still further minutiae of the chromosome, the point of departure of the precancerous from the normal cell, and by its use the relation of virus disease to cancer was further elucidated. Ultra-violet radiation was utilized to distinguish normal from cancer cells under the conventional microscope. Cancer cells absorb more of a fluorescent dye than do normal cells and, after ultra-violet irradiation, they emit twice as much light and may be counted mechanically on the microscopic slide by an electronic instrument, the microfluorometric scanner. Light energy from the self-luminous cells is converted by a photocell into a voltage pulse which activates

CANCER GROWN from a tiny transplant, protruding from the side of a mouse. It was the first successful transplant of experimental thyroid cancers following six years of research at the National Cancer institute, Bethesda, Md.

an electronic counting circuit. An entire microscopic slide can be scanned in four minutes, thus greatly facilitating the cytologic diagnosis in secretions from the uterine cervix and other anatomical sites in the routine screening of great numbers of examinees. Cytologic diagnosis of gastric cancer was greatly facilitated by development of an abrasive balloon which, when inflated in the stomach, gathers exfoliated epithelial cells for microscopic examination. Cancers so small as to elude diagnosis by any other method were diagnosed. A motion picture of this method of exfoliative cytologic diagnosis was widely circulated to the medical profession.

Radioactive isotopes of several of the chemical elements were put to work in the battle against cancer. In the study of intermediary metabolism many compounds were tagged with radioactive carbon, iodine, sulphur, phosphorus, etc., enabling the investigator to follow their courses through the body. Radioisotopes were also used in treatment, iodine in cancer of the thyroid, cobalt in bone metastases and cancer of the uterine cervix, etc.

A two-year statistical study of the aetiologic importance of smoking in cancer of the lung was initiated.

Authoritative atlases of the pathology of cancer of various body regions and corresponding clinical monographs prepared by leading specialists were widely distributed.

Organized utilization of pathologic material from spontaneous cancer in domestic, abattoir and zoological garden animals was initiated.

Progress in hormone treatment of cancer included a partially successful search for a testosteronelike compound, methylandrostenediol, with antineoplastic effect and without virilizing action when used in inoperable cancer of the breast.

Use of a 2,000-v. X-ray machine was made possible by development of a device for continually rotating the patient with the lesion at the centre of the X-ray focus, thus obviating the otherwise unavoidable surface damage.

There were the customarily frequent hopeful announcements, some from high places, of cancer tests and cures, each of which in turn was found wanting.

The clinician's attention was focused on early diagnosis which is possible only through co-operation of the apparently healthy individual by presenting himself to his physician or to an organized detection centre for frequent physical examination. (*See* also ATOMIC ENERGY; CHEMOTHERAPY; MEDICINE; SURGERY; X-RAY AND RADIOLOGY.) (CH. C.)

Candy.

As the year 1951 drew to a close there was the likelihood that the dollar volume of candy sales in the United States for the year would exceed the 1948 record of $1,001,000,000. The bureau of the census reported that for the first ten months of 1951, 1,365 manufacturers, employing 75,000 persons, recorded sales of $788,000,000 or an increase of 4% compared with those of the corresponding period of 1950. Total dollar volume sales for 1950 just shaded the $1,000,000,000 figure, compared with $900,000,000 reported by the confectionery business for 1949.

Tonnage-wise, the latest available figures at the close of the year pointed to an estimated volume of 2,668,800,000 lb. or a decline of 4% compared with the 2,780,000,000 lb. recorded for 1950.

The industry's tonnage record, 2,804,000,000 lb., was established in 1944.

The most significant development in the candy industry during 1951 was the move by many manufacturers toward a program of diversification in products offered and in markets covered. Whereas in previous years more than half the industry's tonnage was distributed by jobbers principally through confectionery stores, ice cream parlours and cigar stands and the balance largely through variety and drug store chains, a definite change toward mass marketing of candy through newly developed outlets was noted in 1951.

As a result, new types of confections, new packages and variations of well-known bar goods were displayed and sold in large quantities in supermarkets and by an expanded vending-machine field.

The industry's 1951 tonnage was broken down as follows: bar goods, 40%; other five- and ten-cent items, 10%; package goods, 25%; bulk goods, 20%; and one- and two-cent items, 5%. Chocolate-coated and chocolate-containing candies continued to lead the field in consumer popularity, and with the price of cocoa beans decreasing toward the end of the year (spot cocoa, 28 cents, futures, 25.50 cents), some of the larger chocolate firms were conducting large-scale consumer promotions on one-pound chocolate bars, at 49 to 55 cents per bar. The average price of candy at the wholesale level was slightly higher than the 34-cent average price reported for 1950 and the 33.7-cent price recorded for 1949.

Ten years before, the average wholesale price of candy per pound was 15.9 cents.

As in previous years, the United States continued to be the greatest candy-producing country in the world, although Great Britain still led the world in per capita consumption. The per capita consumption in the United States in 1951 was estimated at slightly less than 18 lb.

The all-time record, 20.5 lb., was established in 1944, the low, 13 lb., in 1932 and 1933.

It was estimated that more than 10,000,000 lb. of candy were imported into the U.S. in 1951, compared with about 6,000,000 lb. in 1950, 3,364,000 lb. in 1949 and 2,936,000 lb. in 1948. Candy exports in 1951 declined to an estimated 8,000,000 lb. compared with 10,000,000 lb. in 1950 and 13,359,000 lb. in 1949. (H. D. G.)

Cane Sugar: *see* SUGAR.

Canning Industry.

The United States and territorial pack of canned fruits, fruit juices, fruit and vegetable specialties, vegetables, milk, fish and meat in 1951 totalled approximately 640,000,000 standard cases (preliminary estimate) compared with 566,300,000 standard cases to 1950. Preliminary statistics for the 1951 pack compared with that for

1950, in terms of millions of standard cases, were shown as in the following table:

	1951	1950
Fruits	90.0	82.0
Fruit juices	72.0	60.8
Vegetables	220.0	172.8
Fruit and vegetable specialties	120.0	115.0
Milk	71.9	68.9
Fish	24.2	29.8
Meat*	41.7	37.0
Total	639.8	566.3

*Total pounds of meat canned divided by factor of 45.

With the exception of canned fish, which showed a substantial decrease, all packs were significantly larger than in 1950. On the basis of year-end estimates, the total pack increase for 1951 over 1950 was 13%.

As in 1950, retail prices of canned fruits and vegetables, according to data from the United States bureau of labour statistics, remained closer to pre-World War II levels than other foods, showing an increase of about 66% as compared with about 125% for all foods.

The bureau of agricultural economics of the United States department of agriculture estimated the per capita consumption of canned fruits and vegetables at 57% more than the 1935–39 average. Principal increases were noted in canned fruit, 14.9 lb. to 19.7 lb.; canned fruit juices, 3.9 lb. to 15.5 lb.; and canned vegetables, 29.9 lb. to 41.5 lb.

The International Tin Study group estimated the world production of metallic tin for January-April 1951 at 55,900 long tons with consumption at 47,300 tons during this period. Production and consumption in the same period of 1950 were 55,000 and 45,400 tons, respectively. At the September meeting in Rome of the International Tin Study group, mine production for 1951 was estimated at 168,000 long tons with consumption at 147,000 tons. Production and consumption for 1950 were 172,100 and 147,500 tons, respectively. In Jan. 1951 commercial stocks (metallic tin and concentrates) in the hands of the United Nations amounted to 104,400 long tons plus stock piles estimated at more than 160,000 tons. (*See* also Tin.)

Advances in technological developments in the canning industry included extended use of high-short (high temperature-short time) processing which utilizes the principles of agitation and aseptic filling. The latter, which involves rapid heating to high temperatures (280° F.–300° F.) followed by filling into sterile containers under conditions which prevent contamination, came into increasing use in canning milk.

Continuing studies were conducted on sterilization by means of antibiotics, particularly subtilin. In various publications and releases the bureau of agricultural and industrial chemistry of the United States department of agriculture stated that subtilin, with mild heat, would destroy heat-resistant bacterial spores that are important in spoilage of canned foods and particularly *Clostridium botulinum,* the only sporeformer associated with food poisoning. This claim was not substantiated by industry research nor had the use of other antibiotics shown promise as an alternate for heat sterilization.

In the field of fundamental research further progress was made in studies relating to sterilization by means of cathode rays. Interest in the possible utilization of radioactivity for sterilization was increased through the announcement by the United States Atomic Energy commission that it expected to be able to make available to industry large quantities of by-product radioactive materials known as "gross fission products" which are produced as waste products by the operation of nuclear chain reactors. Certain of these fission products emit gamma-rays which have greater penetrative power than cathode rays and which are also lethal to bacteria. For experimental purposes, radioactive sources (cobalt 60) which produce gamma radiation were located in several universities where sterilization experiments were in progress. However, no commercial application of sterilization of foods by radioactivity was in sight.

(E. J. C.)

Other Countries.—The event of the year was the World Congress on Canning (Paris, Oct. 16–19) organized by the Comité International Permanent de la Conserve. Developments mentioned by British delegates included a rapid "flame peeling" process for fruits, tests on aluminum cans for fruits and vegetables and the use of electrolytic tin plate for canning vegetables. G. G. Knock (South Africa) said that 12 years earlier the total output of South Africa's canneries was 55,000,000 lb., whereas it was now about five times that figure. W. Krehl of the Yale Nutrition laboratory, U.S., said that more was known about the nutritional value of canned foods than about any other type of processed food. F. Jakobsen (Sweden) mentioned new types of modified phenolic lacquers used for deep-drawn cans in the U.S. and in Scandinavia.

Statistics published during the year by the British ministry of food showed that the United Kingdom production of canned vegetables increased from 300,800 long tons in 1949 to 322,000 tons in 1950, including 143,600 tons of processed dried peas and 93,400 tons of baked beans. Canned fruit fell from 89,100 tons to 75,100, including 35,200 tons of plums and 16,000 tons of apples. Canned soups fell from 71,200 tons to 60,300, and homogenized baby foods from 7,200 tons to 5,100.

The International Tin Study group reported that of a world consumption of nearly 5,750,000 tons of tin plate in 1950, the American continent used 4,152,000 tons, Europe 1,026,000 tons, Asia 250,000 tons, Australasia 124,000 tons and Africa 96,000 tons. Despite a world production approaching 6,000,000 tons in 1951 there was a shortage of tin plate in most countries.

The Colonial Development corporation erected a cannery for turtle soup on Grand Cayman Island, British West Indies, to process 3,000 turtles a year. In Portugal, after several years with poor yields of fish, the sardine-canning industry improved, having begun to revive in the middle of 1950. In Malaya, the pineapple-canning industry produced about 1,000,000 cases against only 9,000 in 1946. There were also considerable developments in pineapple canning in Australia and South Africa. South Africa's crop was valued at £1,000,000.

(G. H. M. F.)

Cape Verde Islands: *see* Portuguese Colonial Empire.
Carnegie Trusts: *see* Societies and Associations, U.S.
Carnivals: *see* Shows.
Caroline Islands: *see* Trust Territories.

Cartography.

The Korean war and general world unrest had a noticeable effect on cartography during the year 1951. Military mapping expanded considerably, with the production of a large number of topographic maps and models. Nonmilitary mapping trended along more routine lines and important new programs were lacking. Publication of outstanding individual maps and atlases, however, continued as in past years with several outstanding achievements.

United States.—In 1951 a new topographic map series was released for public sale through the U.S. geological survey. The maps, at a scale of 1:250,000, were compiled by the army map service, starting in 1946, to fill military needs for a medium-scale map of the United States. Of the 469 sheets to cover the United States, 84 were available by the close of the year. The maps, with both contours and shading to express relief, had considerable detail on roads, railroads, towns and forests. Each map covered 2° of longitude and 1° of latitude and was compiled from existing topographic maps or from special high-altitude aerial photographs designed for medium-scale mapping.

The topographic division of the U.S. geological survey began the publication in March 1951 of a quarterly quasi-official *Bulletin* dealing with topographic mapping and cartography. The publication, the first U.S. government periodical dealing with mapping, contained data on current mapping activities and new technical developments, as well as interesting personal experiences of mappers.

In July the U.S. geological survey published a map showing the status of geologic mapping in the United States. This 1:5,000,000-scale map, showing coverage of published and unpublished geologic maps classified into three scale groups, was a summary of information shown on the state indexes of geologic mapping that were published by the geological survey. The status of geologic mapping was the sixth of a series of inventory-type indexes, the others, dealing with aerial photography, photomosaics, horizontal control, vertical control and topographic maps, having been published previously.

The American Congress on Surveying and Mapping held its 1951 annual meeting in Washington, D.C., June 18–20. There were 663 persons from Canada, the U.S. and many Latin-American countries attending the meetings. The cartographic session was highlighted by a paper describing the importance of cartography in determining boundaries of hydrographic and shore features in the tidelands oil case.

The *Soil Survey Manual*, published by the U.S. department of agriculture as its *Handbook 18* in Aug. 1951, contained a wealth of cartographic information on the preparation of soil maps. About one-third of the 503-page manual was devoted to the principles and methods of processing soil survey data into map form, which made it one of the new texts dealing with specialized, nontopographic cartography available to students.

The second and third of the series of maps that were to compose the *Atlas of Disease* were published in the April and October numbers of the *Geographical Review* (American Geographical society). These maps, depicting the world distribution of cholera and malaria vectors, were compiled by Jacques M. May, and like the others in the series were accompanied by a brief text and bibliography. The map on the distribution of cholera was made possible by a grant of $15,000 from the Upjohn company of Kalamazoo, Mich., in 1949.

Copies of the *Atlas Geográfico General de Mexico* were distributed in 1951, although the cover page carried a publication date of 1949. The atlas was edited by Jorge L. Tamayo and had 24 small-scale, detailed maps covering physical and social subjects. The atlas was accompanied by a two-volume text entitled *Geografía General de Mexico*, which described in considerable detail the physical, social and economic geography of Mexico by regions keyed to the atlas.

Europe.—The ninth general assembly of the International Union of Geodesy and Geophysics was held in Brussels, Belg., Aug. 21 to Sept. 1, 1951. More than 700 delegates from 43 countries attended. From the cartographic standpoint the high light of the meetings was the endorsement by resolutions of the extension of international adjustments of European geodetic control to the Mediterranean area. These adjustments, initiated by the Association of Geodesy, had been under way since 1948, and the work on central and western Europe was completed through the efforts of the U.S. army map service and the U.S. coast and geodetic survey.

The third meeting of the Deutschen Gesellschaft für Kartographie was held at Frankfurt-on-Main, Ger., May 10–11, 1951. This organization resumed meetings on a biennial basis starting in 1947. More than 200 cartographers from various central and western European countries were in attendance.

A new Michelin road map of Spain was published in 1951. This map, in two sheets at a scale of 1:1,000,000, replaced the prewar 1:400,000 series that formerly was standard for Spain and Portugal. The Portuguese part of the series was replaced in 1950 by a new 1:500,000-scale map. With the issuance of the map of Spain, Michelin completed the revision or replacement of its prewar series.

The Italian Touring club world atlas, which was originally issued in 1936, was reprinted in an interim edition in 1951. Although there was little or no revision to the plates, the atlas was the most detailed one covering the world that was available.

Preparation for the International Geographical congress to be held in the United States in the summer of 1952 placed considerable emphasis on cartography. A. Libault of Paris proposed an annual international cartographic competition in which maps portraying physical and social data would be judged on their cartographic merit, and prizes either of cash or scholarships awarded. This suggestion would place cartography in a realm with other sciences where international contests and prizes were a recognized part of the profession.

Reconstitution of the Ordnance Survey library at Surrey, Eng., was undertaken in 1951. The library, as well as many of the records of the survey, were destroyed by direct bomb hits and fire in an air raid on Southampton, its former home, during the early part of World War II.

Eduard Imhof's textbook on cartography, *Gelande und Karte*, became available in the United States in 1951. It was published in Switzerland late in 1950 and dealt with cartography from a new and progressive viewpoint. It went into great detail concerning land forms, cultural patterns and their portrayal at different map scales. The book was designed around Swiss maps and the illustrations contained many beautiful examples of Swiss mapping

Another 1950 publication received in the United States during 1951 was the *Bibliographie cartographique internationale 1948*. It was compiled by experts from 12 countries under the direction of M. Foncin and P. Sommer and was published by the Comité National Français de Géographie and the International Geographic union in co-operation with the United Nations Educational, Scientific and Cultural organization.

Africa and Asia.—Three new parts of the *General Atlas of Belgian Congo* were published by the Institut Royal Colonial, Brussels, during the year. The sections, covering Catholic missions, geology and animal production, consisted of a map and an explanatory text. This made a total of eight parts of the atlas that had been issued since it was started in 1948.

The second volume of the *Historical Records of the Survey of India*, published late in 1950 by the Survey of India, were received in the U.S. in 1951. This volume, by Col. R. H. Phillimore, covered the period of 1800 to 1815 and contained a detailed account of the cartographic history of the East India company during its greatest expansion as well as data on the early trigonometric surveys of the Indian states that led to the founding of the Survey of India. Colonel Phillimore had begun the compilation of the history 17 years before, and volume one appeared in 1945. Several volumes to complete the history were in preparation.

International.—Volume one of *World Cartography* was published in June 1951 by the department of social affairs of the United Nations. The periodical was to be published annually as an international review of mapping activities. The publication is divided into four sections covering general and technical articles, bibliography and notes on current mapping activities. The 1951 issue contained articles on Canada, the United States, Brazil and the Americas in general.

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Films of 1951.—*Global Concepts in Maps, Maps and Their Uses, Maps Are Fun* (Coronet Films); *Maps and Their Meaning* (Academy Films). (W. E. Ds.)

Catastrophes: *see* Disasters.

Catholic Church: *see* Roman Catholic Church.

Catholic Community Service, National: *see* Societies and Associations, U.S.

Catholic Library Association: *see* Societies and Associations, U.S.

Catholic Organizations for Youth: *see* Societies and Associations, U.S.

Catholic Rural Life Conference, National: *see* Societies and Associations, U.S.

Catholic Welfare Conference, National: *see* Societies and Associations, U.S.

Cattle: *see* Livestock.

Cellulose Products: *see* Plastics Industry; Rayon and Other Synthetic Fibres.

Cement.

World production of cement increased from 126,325,000 short tons in 1949 to 144,954,000 tons in 1950, of which about one-third was in the United States.

United States.—The salient features of the cement industry in the United States were reported by the U.S. bureau of mines as follows:

Cement Industry in the U.S.

(Millions of barrels)

	1943	1944	1945	1946	1947	1948	1949	1950
Production	135.3	92.2	104.3	166.5	189.5	208.9	212.9	230.3
Portland cement . .	133.4	90.9	102.8	164.1	186.5	205.4	209.9	226.0
Other varieties . . .	1.8	1.2	1.5	2.5	3.0	3.4	3.2	4.2
Shipments	129.5	95.6	107.8	172.1	190.4	207.7	209.3	232.0
Portland cement . .	127.6	94.3	106.4	169.6	187.5	204.3	206.2	227.8
Other varieties . . .	1.8	1.3	1.5	2.5	2.9	3.4	3.2	4.2
Stocks								
Portland cement . .	23.2	20.0	16.4	11.0	10.0	11.2	14.7	13.0
Clinker	6.0	5.3	4.5	3.9	3.6	3.8	4.6	3.9
Other varieties . . .	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2
Exports	1.7	4.0	6.5	5.2	6.8	5.9	4.6	2.4
Available supply . . .	127.8	91.6	101.4	166.9	183.5	202.0	204.9	231.0

Both production and shipments made new record highs in 1950, and continued to increase in 1951. Production through Oct. 1951 was 205,453,000 bbl., and shipments rose to 211,517,000 bbl., against 186,693,000 bbl. and 195,520,000 bbl. in the same period of 1950. (G. A. Ro.)

Census Data, U. S.

In providing for the census of 1790, the United States became the first of the current national entities to establish a series of regular census enumerations. The first census of the United States was a relatively simple affair, however. It recorded for each household, without listing the names of the members, the number of persons in each of five categories, namely, free white males under 16 years of age, free white males 16 and over, free white females, free persons other than white, and slaves. Subsequent censuses increased the number of categories somewhat, but still required only a count for each household, and it was not until 1850 that the census taker recorded information for each individual person. This was perhaps the most important change that has so far been made in U.S. census methods—though the invention of punched-card tabulation in 1890 and the introduction of questions on a sample basis in 1940 might be close competitors.

From 1850 on, the census schedules (lists of questions) became increasingly complex, until in the 17th census, in 1950, there were 18 questions to be asked about every person, 27 additional questions to be asked of a random sample (mostly 20%) of the persons enumerated, and 31 questions (9 on a sample basis) with regard to the dwelling occupied by each family or household. Even these figures do not constitute a full measure of the complexity of the enumerator's task, at least in the rural areas, since for each farm operator there was another schedule containing numerous inquiries with regard to tenure, equipment, livestock and crops.

While these large numbers of questions, with their classifications and cross classifications, provided literally acres of published statistics (the published reports of the 1940 census of population and housing occupied 75,000 quarto pages, for the most part set in six-point type), requests for simple and purely quantitative data, such as the total population of specified areas on specified dates, were still more frequent (though not necessarily more important) than any other type of inquiry received by the census bureau.

The figures for the 1950 population of the United States, by states, were made public early in Nov. 1950, or nearly a month in advance of the date on which they were required by law, but the final population counts for cities, counties and smaller areas suffered unexpected delays, coming out slowly, state by state, over the subsequent 11 months.

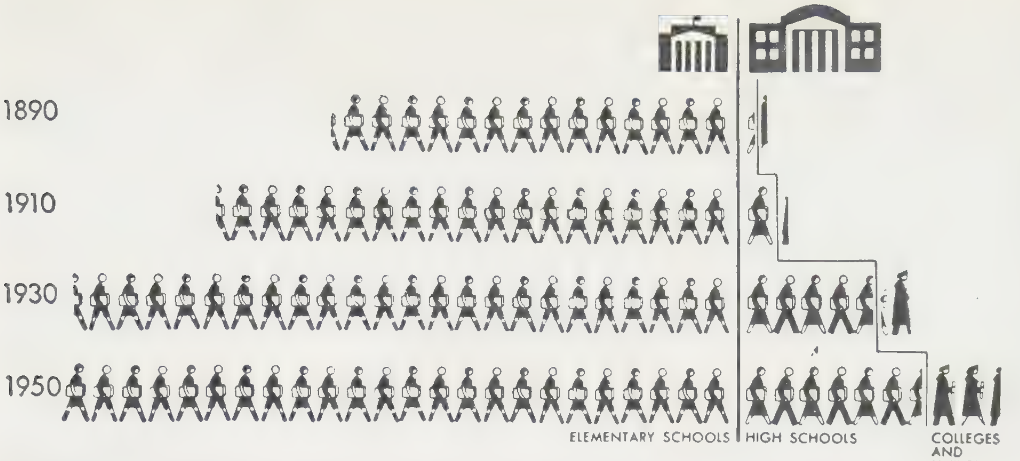
In order to give information with regard to the various characteristics of the population of the United States at the earliest possible date, a random sample comprising the returns for 150,000 persons was selected and tabulated. These sample tabulations afforded preliminary figures for the population classified by colour, sex, age, marital status, education, employment, etc., not only for the United States as a whole but also for the four principal regions and for the ten largest states. Final figures for the characteristics of the population were being made public, state by state, but as of Dec. 1951 there were no U.S. totals for characteristics (other than urban and rural) except those from the sample.

Figures from this sample tabulation are presented in Tables IV to VIII, while in Tables IX to XI are presented figures from the current monthly survey, which covers 25,000 households, or roughly half as many as the census sample just referred to. Though these samples are fairly adequate, especially with respect to U.S. totals, it should be borne in mind that the sample-based figures are all subject to a moderate sampling variability which increases with the decrease in the size of the figures concerned, and that small differences between one figure and another are even more seriously affected by this variability.

Population Growth.—The population of the United States on April 1, 1950, the date of the 17th decennial census, was 150,697,361, as compared with 131,669,275 on April 1, 1940, the date of the 16th census. The increase in population in the decade ending in 1950 thus amounted to 19,028,086 persons, or 14.5%.

Numerically, this was the largest increase attained in any census decade, though the percentage increase was smaller than that recorded in any earlier ten-year period except the period of the depression, between 1930 and 1940, during which the population increased only 7.2%.

The population in 1790, when the first census was taken, was only 3,929,214. Each subsequent census up to 1860 showed an increase of about one-third over the preceding one; from 1860 to 1910 the decennial increase was around 20% or 25%; for the next two decades, around 15% or 16%; and for the decade ending in 1940, only 7.2%, as indicated above. The much more rapid growth which took place between 1940 and 1950 represented, therefore, a reversal of a long-time trend toward slower



ENROLMENT in elementary schools, high schools and colleges, according to U.S. decennial censuses between 1890 and 1950. Each symbol represents 1,000,000 enrolled students

and slower population growth. The data from the 17 censuses are presented in Table I.

Current Estimates.—Monthly estimates of the population of the United States had been made since the 1940 census by adding each month the number of births, subtracting the number of deaths (including an allowance for underregistration of births and deaths) and adding the net civilian immigration. A precensus estimate for April 1, 1950, published in June 1950, exceeded the final census count by less than 100,000. The current estimates were later revised to make the series agree exactly with the census. The revised estimates for July 1 of each year are presented in Table II, together with the three elements on which they are based. These figures indicate significant changes in the rate of population growth within the decade and stress the persistent maintenance of unexpectedly high rates of increase beginning with the high-birth-rate year, 1947.

The average annual increase in the population of the United States between 1930 and 1940 was less than 900,000. During the fiscal year 1940–41 the increase went up to 1,281,000 and then in 1942–43 to a wartime maximum of 1,857,000. For the next three years the increase was maintained at around 1,500,000 or 1,600,000, followed by an all-time maximum of 2,743,000 in 1946–47.

In the years immediately following midyear 1947 the annual increase was maintained at a point only little below this maximum; and the year 1950–51 even showed a considerable gain over the preceding year.

Since the number of deaths in fiscal year 1950–51 was somewhat larger than four years earlier—almost enough larger to cancel the increase of 72,000 in net immigration—the main factor in the persistent maintenance of high rates of population increase was the number of births, which was nearly 6% above 1949–50 and only a little smaller in 1950–51 than in the maximum year, 1946–47, presumably showing the effect of the war activity in Korea. In fact, the number of births registered from January through September in 1951 was practically identical with the number in the same months of the peak year, 1947.

Table II.—*Estimated Total Population of Continental United States, Including Armed Forces Overseas, July 1, 1940, to July 1, 1951*

Date	Population	Increase over preceding date Amount	Increase over preceding date Per cent	Change in preceding period Births*	Deaths*	Excess of births over deaths	Net civilian immigration
July 1, 1940	132,117,000	—	—	—	—	—	—
July 1, 1941	133,399,000	1,281,000	0.97	2,636,000	1,421,000	1,214,000	67,000
July 1, 1942	134,857,000	1,458,000	1.09	2,793,000	1,382,000	1,410,000	47,000
July 1, 1943	136,713,000	1,857,000	1.38	3,168,000	1,448,000	1,720,000	137,000
July 1, 1944	138,354,000	1,641,000	1.20	2,983,000	1,516,000	1,466,000	174.000
July 1, 1945	139,880,000	1,526,000	1.10	2,930,000	1,634,000	1,296,000	230,000
July 1, 1946	141,397,000	1,517,000	1.08	2,869,000	1,440,000	1,429,000	88,000
July 1, 1947	144,140,000	2,743,000	1.94	3,948,000	1,427,000	2,521,000	222,000
July 1, 1948	146,626,000	2,486,000	1.72	3,656,000	1,455,000	2,201,000	285,000
July 1, 1949	149,164,000	2,538,000	1.73	3,660,000	1,438,000	2,222,000	316,000
July 1, 1950	151,672,000	2,509,000	1.68	3,628,000	1,467,000	2,161,000	347,000
July 1, 1951†	154,318,000	2,646,000	1.74	3,836,000	1,485,000	2,352,000	294,000

*Births and deaths adjusted for underregistration.
†Preliminary figures.

Many population experts interested in forecasts for future dates had regarded the large number of births which took place in 1947 as a temporary matter, a sort of aftermath of demobilization, and rather expected that the birth rate would shortly resume the pre-World War II downward trend. The maintenance of the number of births for four years at around 3,650,000 or higher (with the possibility of a new record in calendar year 1951) afforded evidence in support of an alternative opinion, namely, that the nation might look forward to a long period of high birth rates and consequent rapid population increase.

If, to make an extreme assumption, an annual increase of 2,500,000 were maintained until 1955, the population of the United States would then stand at 164,300,000; and if the same rate continued until 1960, the total would then be about 177,000,000. One should not forget, however, that the number of persons 10 to 19 years old in 1950 was smaller by about 2,000,000 than the number in this age range in 1940; and that this was the group which was coming into the major reproductive age range in the years just ahead. In other words, without regard to current rates or happenings, the number of potential fathers and mothers would decrease by 10% or 12% in the decade 1950–60.

The sources of the increase between July 1, 1950, and July 1, 1951, may be summarized as follows: there were during this 12-month period 3,836,000 births, partly offset by 1,485,000 deaths, leaving a natural increase of 2,352,000; and the net civilian immigration amounted to 294,000.

The immigration figure, it may be noted, had increased materially during the decade, rising from around 60,000 in the years ending June 30, 1941 and 1942, to 230,000 in 1945, to 285,-

Table I.—*Census Population of Continental United States: 1790 to 1950*

Census year	Population	Increase over preceding census Number	Increase over preceding census Per cent
1790	3,929,214	. . .	. . .
1800	5,308,483	1,379,269	35.1
1810	7,239,881	1,931,398	36.4
1820	9,638,453	2,398,572	33.1
1830	12,866,020	3,227,567	33.5
1840	17,069,453	4,203,433	32.7
1850	23,191,876	6,122,423	35.9
1860	31,443,321	8,251,445	35.6
1870	39,818,449*	8,375,128	26.6
1880	50,155,783	10,337,334	26.0
1890	62,947,714	12,791,931	25.5
1900	75,994,575	13,046,861	20.7
1910	91,972,266	15,977,691	21.0
1920	105,710,620	13,738,354	14.9
1930	122,775,046	17,064,426	16.1
1940	131,669,275	8,894,229	7.2
1950	150,697,361	19,028,086	14.5

*Revised figure, including estimate for underenumeration in southern states.

000 in 1948 and to figures around 300,000 or above in the remaining years of the period covered by Table II.

The estimates given in Table II represent the population of the United States including men in military service overseas, these being the figures best adapted to showing the actual and potential growth of the nation. Estimates are also made for the civilian population and for the population present in continental United States, which is the population that would be covered by a census. The estimate of the civilian population for July 1, 1951, was 151,002,000, and for the population present in the U.S., including military stationed in the states but not overseas, for the same date it was 153,307,000.

The population on Oct. 1, 1951, including military overseas, was estimated at 155,107,000.

Centre of Population.—As computed for 1950, the centre of population was located in Denver township, Richland county, Ill. about 60 mi. N.N.W. of Evansville. During the decade from 1940 to 1950 the centre of population moved 42 mi. westward and 7.6 mi. southward, reaching its most southerly as well as its most westerly point. It may be noted that, except for the state of Michigan, most of the areas of very rapid 1940–50 increase in population were in the west and the south; and the fact that the computed centre did not move farther south and west stands as evidence of the stability of the great body of the population as a whole.

Urban and Rural.—From 1910 to 1940 the urban population of the United States was defined substantially as the population living in incorporated places of 2,500 or more, with certain unincorporated places in a few states classified as urban under special rule. The urban classification was limited for the most part to incorporated places, because the unincorporated villages had no definite boundaries and therefore could not readily be enumerated separately from the remainder of the township or other civil division in which located. This definition left out of the urban classification most of the larger unincorporated places and much of the population living in the suburbs of the cities. To bring into the urban classification these two fairly important areas, two changes were made in the definition adopted for the 1950 census. First, the suburban areas around all cities of 50,000 or more (in 1940) were carefully mapped and boundaries were established for an area termed the "urban fringe." This urban fringe included of course some incorporated places already classified as urban in their own right, but it also included many thickly settled suburban areas previously classi-

Table III.—*Urban Population, 1950, under New Definition and under Old* (1940) Definition, with Increase over 1940, by States*

	Total population			Urban, 1950, new definition		Urban, 1950, old definition			Per cent urban		
STATE	1950	1940	Per cent increase	Number	Per cent increase	Number	Per cent increase	Urban, 1940	1950, new def.	1950, old def.	1940
United States	150,697,361	131,669,275	14.5	96,467,686	29.6	88,927,464	19.5	74,423,702	64.0	59.0	56.5
New England:											
Maine	913,774	847,226	7.9	472,000	37.6	374,507	9.2	343,057	51.7	41.0	40.5
New Hampshire	533,242	491,524	8.5	306,806	8.3	301,249	6.4	283,225	57.5	56.5	57.6
Vermont	377,747	359,231	5.2	137,612	11.7	137,612	11.7	123,239	36.4	36.4	34.3
Massachusetts	4,690,514	4,316,721	8.7	3,959,239	2.6	4,122,138	6.8	3,859,476	84.4	87.9	89.4
Rhode Island	791,896	713,346	11.0	667,212	2.1	700,410	7.2	653,383	84.3	88.4	91.6
Connecticut	2,007,280	1,709,242	17.4	1,558,642	34.6	1,286,817	11.1	1,158,162	77.6	64.1	67.8
Middle Atlantic:											
New York	14,830,192	13,479,142	10.0	12,682,446	13.6	11,889,008	6.5	11,165,893	85.5	80.2	82.8
New Jersey	4,835,329	4,160,165	16.2	4,186,207	23.3	3,847,771	13.3	3,394,773	86.6	79.6	81.6
Pennsylvania	10,498,012	9,900,180	6.0	7,403,036	12.4	6,906,993	4.9	6,586,877	70.5	65.8	66.5
East North Central:											
Ohio	7,946,627	6,907,612	15.0	5,578,274	20.9	5,273,206	14.3	4,612,986	70.2	66.4	66.8
Indiana	3,934,224	3,427,796	14.8	2,357,196	24.9	2,217,468	17.5	1,887,712	59.9	56.4	55.1
Illinois	8,712,176	7,897,241	10.3	6,759,271	16.3	6,486,673	11.7	5,809,650	77.6	74.5	73.6
Michigan	6,371,766	5,256,106	21.2	4,503,084	30.3	4,099,007	18.6	3,454,867	70.7	64.3	65.7
Wisconsin	3,434,575	3,137,587	9.5	1,987,888	18.4	1,906,363	13.5	1,679,144	57.9	55.5	53.5
West North Central:											
Minnesota:	2,982,483	2,792,300	6.8	1,624,914	16.9	1,607,446	15.6	1,390,098	54.5	53.9	49.8
Iowa	2,621,073	2,538,268	3.3	1,250,938	15.4	1,229,433	13.4	1,084,231	47.7	46.9	42.7
Missouri	3,954,653	3,784,664	4.5	2,432,715	24.1	2,290,149	16.8	1,960,696	61.5	57.9	51.8
North Dakota	619,636	641,935	—3.5	164,817	24.9	164,817	24.9	131,923	26.6	26.6	20.6
South Dakota	652,740	642,961	1.5	216,710	37.1	216,157	36.7	158,087	33.2	33.1	24.6
Nebraska	1,325,510	1,315,834	0.7	621,905	21.0	606,530	18.0	514,148	46.9	45.8	39.1
Kansas	1,905,299	1,801,028	5.8	993,220	31.7	903,468	19.8	753,941	52.1	47.4	41.9
South Atlantic:											
Delaware	318,085	266,505	19.4	199,122	42.8	147,890	6.1	139,432	62.6	46.5	52.3
Maryland	2,343,001	1,821,244	28.6	1,615,902	49.6	1,274,618	18.0	1,080,351	69.0	54.4	59.3
Dist. of Columbia	802,178	663,091	21.0	802,178	21.0	802,178	21.0	663,091	100.0	100.0	100.0
Virginia	3,318,680	2,677,773	23.9	1,560,115	65.1	1,335,944	41.4	944,675	47.0	40.3	35.3
West Virginia	2,005,552	1,901,974	5.4	694,487	30.0	640,606	19.9	534,292	34.6	31.9	28.1
North Carolina	4,061,929	3,571,623	13.7	1,368,101	40.4	1,238,193	27.1	974,175	33.7	30.5	27.3
South Carolina	2,117,027	1,899,804	11.4	777,921	66.9	609,225	30.7	466,111	36.7	28.8	24.5
Georgia	3,444,578	3,123,723	10.3	1,559,447	45.2	1,381,868	28.7	1,073,808	45.3	40.1	34.4
Florida	2,771,305	1,897,414	46.1	1,813,890	73.4	1,566,788	49.8	1,045,791	65.5	56.5	55.1
East South Central:											
Kentucky	2,944,806	2,845,627	3.5	1,084,070	27.6	985,739	16.1	849,327	36.8	33.5	29.8
Tennessee	3,291,718	2,915,841	12.9	1,452,602	41.4	1,264,159	23.1	1,027,206	44.1	38.4	35.2
Alabama	3,061,743	2,832,961	8.1	1,340,937	56.7	1,228,209	43.5	855,941	43.8	40.1	30.2
Mississippi	2,178,914	2,183,796	—0.2	607,162	40.3	601,772	39.0	432,882	27.9	27.6	19.8
West South Central:											
Arkansas	1,909,511	1,949,387	—2.0	630,591	46.0	617,153	42.9	431,910	33.0	32.3	22.2
Louisiana	2,683,516	2,363,880	13.5	1,471,696	50.1	1,363,789	39.1	980,439	54.8	50.8	41.5
Oklahoma	2,233,351	2,336,434	—4.4	1,139,481	29.5	1,107,252	25.9	879,663	51.0	49.6	37.6
Texas	7,711,194	6,414,824	20.2	4,838,060	66.2	4,612,666	58.4	2,911,389	62.7	59.8	45.4
Mountain:											
Montana	591,024	559,456	5.6	258,034	22.0	252,906	19.6	211,535	43.7	42.8	37.8
Idaho	588,637	524,873	12.1	252,549	42.9	234,138	32.5	176,708	42.9	39.8	33.7
Wyoming	290,529	250,742	15.9	144,618	54.5	144,618	54.5	93,577	49.8	49.8	37.3
Colorado	1,325,089	1,123,296	18.0	831,318	40.7	759,939	28.6	590,756	62.7	57.4	52.6
New Mexico	681,187	531,818	28.1	341,889	93.8	314,636	78.4	176,401	50.2	46.2	33.2
Arizona	749,587	499,261	50.1	416,000	139.1	273,794	57.4	173,981	55.5	36.5	34.8
Utah	688,862	550,310	25.2	449,855	47.3	412,518	35.0	305,493	65.3	59.9	55.5
Nevada	160,083	110,247	45.2	91,625	111.6	84,079	94.2	43,291	57.2	52.5	39.3
Pacific:											
Washington	2,378,963	1,736,191	37.0	1,503,166	63.0	1,274,152	38.2	921,969	63.2	53.6	53.1
Oregon	1,521,341	1,089,684	39.6	819,318	54.1	732,247	37.7	531,675	53.9	48.1	48.8
California	10,586,223	6,907,387	53.3	8,539,420	74.2	7,099,166	44.8	4,902,265	80.7	67.1	71.0

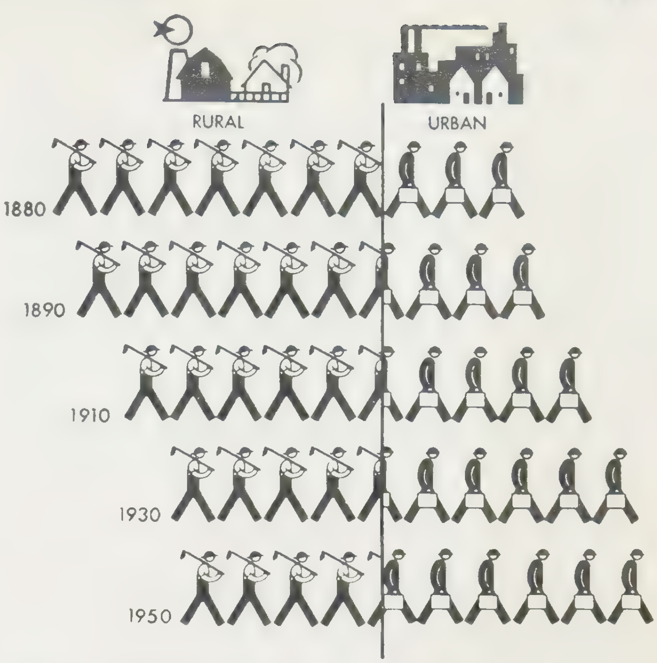
*The "old" definition is the definition that had been used, with only minor changes, from 1910 to 1940.

fied as rural. Second, arbitrary boundaries were established for a large number of unincorporated villages, so that separate counts could be made for these places and these could be classified as urban if they had 2,500 inhabitants or more, along with the incorporated places. These places, except for the few that had been counted as urban under special rule in 1940, represented a net addition to the urban area, as did likewise the previously rural parts of the urban fringes around the large cities.

In order to provide material for evaluating the effect of these changes in the definition of urban territory, the 1950 census returns were tabulated also according to the 1940 definition. The resulting figures are presented, by states, in Table III, with 1940 figures for comparison and various percentages which facilitate their analysis.

For the United States as a whole the 96,467,686 persons living in territory classified as urban under the new 1950 rules constituted 64.0% of the total population, while the 88,927,464 that would have formed the urban population under the old or 1940 rules formed only 59.0%. These percentages may be compared with the 1940 figure of 56.5% urban. The new urban population in 1950 was larger than the 1940 urban population by 29.6%, while the 1950 total under the old rule represented an increase of only 19.5%, or not so very much more than the 14.5% of increase in the total population, urban and rural combined.

It had been expected that the increase in the urban population as measured by the old rule applied to the 1950 counts would more closely represent what might be termed the actual increase in the importance of the urban area; but an analysis of the state figures presented in Table III indicates that this was probably not true, and that the new urban population not only served better for interarea comparisons of 1950 data, but was perhaps also better (certainly not much worse) for comparisons between 1940 and 1950, by reason of the fact that during the intervening decade so much of the population living under strictly urban conditions had been established in unincorporated places and especially in the previously rural parts of the urban fringes. There were 13 states (New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Michigan, Delaware, Maryland, Oregon and California) in which the percentage urban computed under the old rule for 1950 was smaller than the 1940 percentage, and the percentage of increase in rural population classified as in 1940 was greater than the percentage of increase in urban population. Most of these states were states in which it was safe to assume that urbanization was still going on—certainly that the urban population was not becoming a less important element in the state total. In New Jersey, for example, the state which had the highest percentage urban in 1950, the increase in the urban population under the old rule was only 13.3% (as compared with 29% for the rural area), while under the new rule the urban population increased 23.3% and the rural decreased 15.2%. Similar comparisons can be made for most of the other states on the list just given, except for Massachusetts and Rhode Island, where the special-rule procedure of 1940 and earlier censuses had thrown unduly large numbers of entire towns (townships) into the urban column, so that the application of the new 1950 rules resulted in an urban population smaller than what the old rule would have given—and a percentage urban in 1950 materially lower than that of 1940. Except for these states, and three other states in which there were neither urban-fringe cities nor large unincorporated places, the urban population was appreciably larger under the new rule than it would have been if the traditional definitions had been maintained.



RURAL AND URBAN POPULATION in the U.S. based on data of decennial censuses from 1880 to 1950. Each symbol represents 10% of the population

Farm Population.—Another classification somewhat similar to that which separates urban from rural is that which divides the rural population into rural-farm and rural-nonfarm. Farm population is defined, in general terms, as comprising those persons who live on farms. The farm population enumerated in rural areas in 1950 numbered 23,368,433, leaving 30,861,242 for the rural-nonfarm. As compared with the rural-farm population reported in 1940, the 1950 figure represented a decrease of 22.7%, while the nonfarm part of the rural population registered a gain of 14.2% and the urban population a gain of 29.6% partly by reason of a somewhat more inclusive definition, which took over a part of what would have been rural-nonfarm under the old classification.

The real decrease in farm-resident population may not have been quite so great as the 22.7% just quoted would indicate, for there were some changes (presumably improvements from points of view other than that of comparability) in the definition of farm population. For one thing, the population of institutions located on farms, included in 1940, was excluded from the farm-population classification in 1950. This item, however, would not account for more than about 200,000. Another change which tended to make the 1950 definition narrower and less inclusive than that of 1940 took the form of specific instructions to the enumerators not to count as a farm family any family which paid cash rent for the house and yard only, that is, not including space for a garden or anything like that, even though the house was located on what might physically be considered a part of a farm. Doubtless many such families were excluded, even in prior censuses, before these instructions were issued, since the enumerator would often decide, on the basis of common sense, that the house lot was really no longer a part of the farm—that is, of a tract of land that was being used in the production of agricultural products. But the unexpected decrease in the farm-population returns indicated that more borderline cases were excluded as a result of the specific instruction.

The total farm population would include a small element in urban areas, though the urban-farm population was probably not more than 300,000—making a total farm population of around 23,600,000 or 23,700,000.

The figures representing urban, rural-nonfarm and rural-farm population are summarized in Table IV, which gives figures

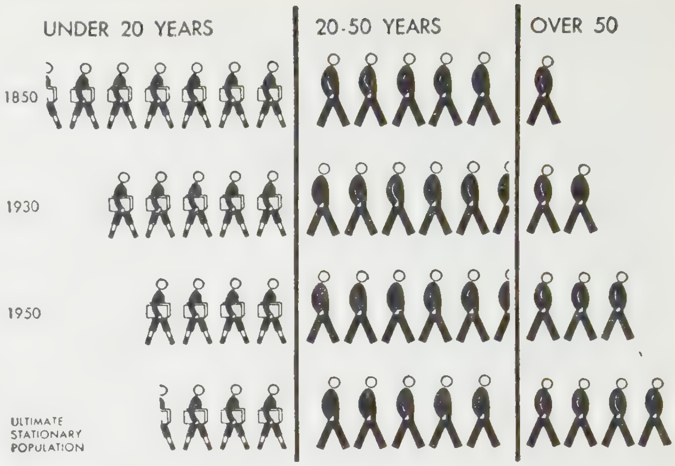
Table IV.—*Urban, Rural-Nonfarm and Rural-Farm Population by Regions,* 1950 and 1940*

Region and date		Total	Urban†	Rural nonfarm‡	Rural farm‡
United States	1950	150,697,361	96,467,686	30,861,242	23,368,433
	1940	131,669,275	74,423,702	27,029,385	30,216,188
Per cent increase		14.5	29.6	14.2	—22.7
Northeast	1950	39,477,986	31,373,200	6,129,889	1,974,897
	1940	35,976,777	27,568,085	6,123,431	2,285,261
Per cent increase		9.7	13.8	0.1	—13.6
North central	1950	44,460,762	28,490,932	8,445,266	7,524,564
	1940	40,143,332	23,437,483	7,447,160	9,258,689
Per cent increase		10.8	21.6	13.4	—18.7
South	1950	47,197,088	22,955,762	12,233,388	12,007,938
	1940	41,665,901	15,290,483	10,031,504	16,343,914
Per cent increase		13.3	50.1	21.9	—26.5
West	1950	19,561,525	13,647,792	4,052,699	1,861,034
	1940	13,883,265	8,127,651	3,427,290	2,328,324
Per cent increase		40.9	67.9	18.2	—20.1

*The northeast comprises the New England and middle Atlantic divisions, as shown in Table III: the north central region includes the east and west north central divisions; the south, the three southern divisions; and the west, the mountain and pacific divisions.

†Final figures. The sum of the rural nonfarm and the rural farm is the final rural total.

‡Distribution of 1950 rural between nonfarm and farm based on the tabulation of a small sample.



AGING OF THE U.S. POPULATION, based on decennial censuses for the last century. Each symbol represents 8% of the population

for the four major regions into which the country is divided, as well as for the United States as a whole, with comparative data for 1940.

The decrease in the rural-farm population was greatest in the south, where the farm population declined from 16,343,914 in 1940 to 12,007,938 in 1950, or 26.5%—accompanying a decline of 11.9% in the number of farms and an increase of 50.1% in the urban population; and least in the northeast, where the decline, 13.6%, was almost exactly equal to the increase in the urban population, 13.8%, and where there was a decline of more than 17% in the number of farms.

Marital Status.—The unusual increases in the numbers of marriages and in the numbers of births which had taken place since 1940, directly or indirectly as a result of war and war conditions, played an important part in the increased rates of population growth which were in evidence especially after 1946 or 1947. The radical changes in the distribution of the population in accordance with marital status which resulted from the increased number of marriages are clearly shown in the 1950 census statistics which are presented in Table V.

The whole number of females 14 years old and over in the population increased from 50,549,176 in 1940 to 56,991,000 in 1950, or 12.7%, but during the same period the number of married women increased from 30,090,488 to 37,338,000, or 24.1%, with an actual decrease in the number of single women amounting to 16.6%. On a relative basis the percentage married in this group increased from 59.5 in 1940 to 65.5 in 1950, while the percentage single declined from 27.6 in 1940 to 20.4 in 1950.

The figures for males show similar changes, though in this case allowance has to be made for the fact that hundreds of thousands of young men were in the armed forces overseas at the time of the census and were thus not included in the count. This accounts in the main for the fact that the number of males 14 years old and over in the resident population increased only 8.6%, as compared with 12.7% for females. It also explains in part, since a large proportion of the men in military service are single, the higher percentages married shown by the census for men as compared with women. The number of married men included in the census count increased from 30,192,334, or 59.7% of the total 14 and over, in 1940 to 37,238,000, or 67.8% of the total, in 1950, while the percentage single declined from 34.8 to 26.2.

Married Couples.—There were 35,320,000 married couples returned in the 1950 census. In the case of 33,054,000 couples, or 93.6% of the total, the husband was returned as the head of the household, these couples being classified in the official reports as "with own household." The remaining 2,265,000 couples, officially classified as "without own household," were for the most part living in other households, that is, sharing a home with other persons. While not identical with the so-called doubled-up families, their number provides a good index of the number of such families. The proportions of all married couples in these two categories were about the same in 1950 as in 1940, the percentage living in other households being 6.4 in 1950 as compared with 6.8 in 1940.

As between one part of the United States and another, there were significant differences. In the northeast 8.1% of the couples were in the status of doubled-up families, as compared with 6.5% in the south, 5.5% in the north central states and 5.1% in the west.

Families.—There were 38,788,000 families in the United States in 1950. This figure was based on a new definition (new, that is, since the 1940 census) in accordance with which a family is a group of two or more persons related by blood, marriage or adoption and residing together. In 1940 the count of families included persons living alone or with no related persons in the same household—the so-called one-person families. It also omitted a considerable number of groups of related persons living in hotels, boarding houses, etc., or as subfamilies in larger households. It is estimated that there were in 1940 about 32,-

Table V.—*Marital Status of the Population 14 Years Old and Over by Sex, 1950 and 1940**

Sex and marital status	1950 Number	1950 Per cent	1940 Number	1940 Per cent	Increase 1940–50
Male					
Total 14 and over	54,923,000	100.0	50,553,748	100.0	8.6
Single	14,398,000	26.2	17,593,379	34.8	—18.2
Married	37,238,000	67.8	30,192,334	59.7	23.3
Widowed or divorced	3,287,000	6.0	2,768,035	5.5	18.7
Female					
Total 14 and over	56,991,000	100.0	50,549,176	100.0	12.7
Single	11,623,000	20.4	13,935,866	27.6	—16.6
Married	37,338,000	65.5	30,090,488	59.5	24.1
Widowed or divorced	8,030,000	14.1	6,522,822	12.9	23.1

*Figures for 1950 based on the tabulation of a small sample.

Table VI.—*Married Couples by Household Status, by Regions,* 1950 and 1940*

Region and date		Total married couples	With own household	Living in other household Number	Living in other household Per cent
United States	1950	35,320,000	33,054,000	2,265,000	6.4
	1940	28,517,000	26,571,000	1,946,000	6.8
Northeast	1950	9,184,000	8,438,000	746,000	8.1
	1940	7,686,000	7,128,000	558,000	7.3
North central	1950	10,727,000	10,141,000	587,000	5.5
	1940	9,059,000	8,500,000	558,000	6.2
South	1950	10,749,000	10,054,000	695,000	6.5
	1940	8,653,000	7,975,000	678,000	7.8
West	1950	4,659,000	4,422,000	237,000	5.1
	1940	3,119,000	2,967,000	152,000	4.9

*Figures for 1950 based on the tabulation of a small sample.

Table VII.—*Families in the United States, Urban and Rural, by Regions, 1950**

Region	Total	Urban	Rural nonfarm	Rural farm
U.S.	38,788,000	25,467,000	7,701,000	5,621,000
Northeast	10,005,000	8,081,000	1,474,000	451,000
North central	11,804,000	7,704,000	2,201,000	1,899,000
South	11,859,000	6,090,000	2,981,000	2,788,000
West	5,120,000	3,592,000	1,045,000	483,000

*Figures based on the tabulation of a small sample.

166,000 new-definition families. In comparison with this estimate the 1950 figure represents an increase of 20.6% in the number of families, as compared with an increase of 14.5% in the population, reflecting the effect of a considerable decline in the average size of family.

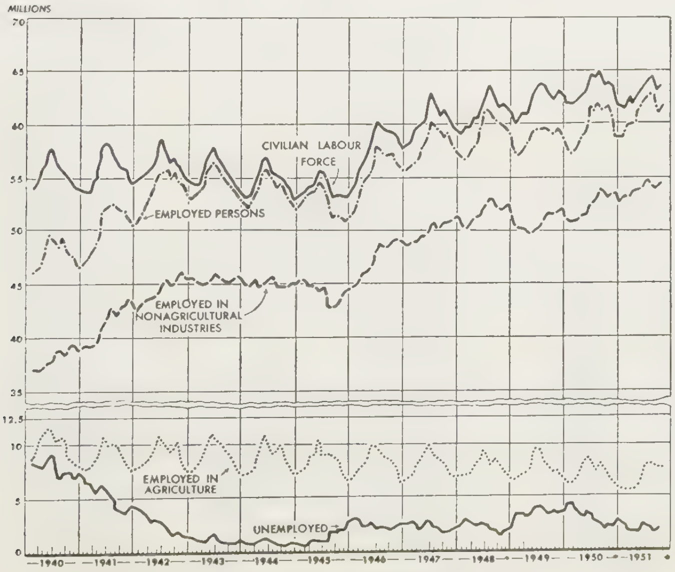
The effect of the change in the definition of a family may be summarized as follows: the new definition excluded, for 1950, about 4,000,000 household heads with no relatives in the household, who would have been classified as one-person families in 1940, and included about 400,000 groups of related persons living as subfamilies in larger households or in hotels or other quasi-households, which would for the most part have been omitted in 1940.

Table VII shows the number of families in rural and urban areas, by regions, the distribution among the various areas being of course similar to the distribution of the population, as shown in Table IV.

Family Income.—Total money income during 1949 was reported by 36,441,000 of the 38,788,000 families in the United States, in response to one of the questions on the 1950 census schedule. Of this number, 3,129,000, or 8.6%, reported a money income of less than $500, and 2,496,000, or 6.8%, reported between $500 and $999. These two groups included, however, considerable numbers of farm families whose cash income was supplemented by farm products raised for home consumption. The largest number in any one of the officially established income groups was 3,989,000, or 10.9%, in the group which reported incomes between $3,000 and $3,499. In the maximum income group, comprising families with $10,000 or more, there were 1,054,000 families, or 2.9% of the total.

The median income for all families in the United States was $3,068 and for rural and urban families, omitting most farm families, $3,245.

There were considerable differences as between one region and another in the distribution by income. In the two northern regions and in the west there were two income groups with more than 10% of the total, all above the $2,500 level, while in the south the only groups with more than 10% of the total were the three groups with income under $1,500. The median income for the west was $3,435; for the northeast, $3,362; for the north central states, $3,257; and for the south, only $2,248. Here again allowance should be made for the fact that the percentage of farm families was highest in the south—though even omitting the rural-farm areas the median for the south was only $2,622.



TRENDS in the labour force, 1940 to 1951 (Source: U.S. Bureau of the Census)

Table VIII.—*Income of Families in the United States, by Regions, 1949**

Income group	United States	Northeast	North central	South	West
Total families. . .	38,788,000	10,005,000	11,804,000	11,859,000	5,120,000
Families reporting . . .	36,441,000	9,178,000	11,120,000	11,237,000	4,905,000
Under $500	3,129,000	644,000	783,000	1,392,000	309,000
$500 to $999 . . .	2,496,000	328,000	605,000	1,343,000	220,000
$1,000 to $1,499. .	2,664,000	454,000	720,000	1,210,000	280,000
$1,500 to $1,999. .	2,717,000	536,000	722,000	1,121,000	338,000
$2,000 to $2,499. .	3,378,000	846,000	999,000	1,116,000	417,000
$2,500 to $2,999. .	3,292,000	925,000	1,073,000	900,000	395,000
$3,000 to $3,499. .	3,989,000	1,182,000	1,279,000	962,000	567,000
$3,500 to $3,999. .	3,179,000	862,000	1,110,000	688,000	519,000
$4,000 to $4,499. .	2,620,000	776,000	866,000	556,000	421,000
$4,500 to $4,999. .	1,786,000	478,000	609,000	416,000	283,000
$5,000 to $5,999. .	2,864,000	823,000	979,000	601,000	461,000
$6,000 to $6,999. .	1,557,000	456,000	507,000	334,000	259,000
$7,000 to $9,999. .	1,714,000	516,000	561,000	367,000	270,000
$10,000 and over. .	1,054,000	351,000	307,000	230,000	166,000
Not reporting income. .	2,348,000	827,000	685,000	622,000	214,000
Median income	$3,068	$3,362	$3,257	$2,248	$3,435

*The figures, which represent total money income during the calendar year 1949, are based on the tabulation of a small sample.

For nonwhite families in the United States, the median money income was only $1,426, and for nonwhite families in urban and rural-nonfarm areas alone, omitting the rural-farm families, $1,658.

In the south the median for all nonwhite families was $1,168, and for nonwhite families, even omitting those in rural farm areas, only $1,389.

Employment and Unemployment.—Estimates of the number of persons in the civilian labour force, the number employed and unemployed, etc., had been published each month since 1940 on the basis of a sample survey covering about 25,000 representative households. For the purpose of these statistics a person who did any work for pay or profit during the week preceding the inquiry or who had a job from which he was temporarily absent was counted as employed; and a person who was seeking work, using the term in a rather broad sense, was counted as unemployed. The employed and the unemployed, taken together, constituted the labour force.

These figures are summarized for the months of Nov. 1951 and 1950, in Table IX.

The civilian labour force decreased slightly from 63,512,000 in Nov. 1950 to 63,164,000 in Nov. 1951, or 0.5%, the decrease being somewhat more than the decrease in the civilian population which resulted from inductions into the armed forces. The number of persons employed nevertheless increased from 61,271,000 to 61,336,000, or 0.1%, while the number of unemployed continued the decrease which had been under way since 1951, dropping from 2,240,000 in Nov. 1950 to a record low of 1,578,000 in Aug. 1951 (a month of high employment in agriculture), from which point there were slight changes from month to

Table IX.—*Employment Status of the Civilian Noninstitutional Population of the United States, Nov. 1950 and 1951**

Employment status	Nov. 4–10, 1951	Nov. 5–11, 1950	Increase or decrease Number	Increase or decrease Per cent
Total, 14 years old and over .	109,122,000	109,293,000	—171,000	—0.16
In civilian labour force	63,164,000	63,512,000	—348,000	—0.55
Employed	61,336,000	61,271,000	+ 65,000	+0.11
In agriculture	7,022,000	7,551,000	—529,000	—7.01
In nonagricultural industries .	54,314,000	53,721,000	+593,000	+1.10
Unemployed	1,828,000	2,240,000	—412,000	—18.39
Not in labour force	45,958,000	45,782,000	+176,000	+0.38
Employed workers, by sex:				
Male	42,344,000	42,710,000	—366,000	—8.6
Female	18,992,000	18,561,000	+431,000	+2.3

*Figures based on a small sample.

Table X.—*Work Experience in 1950 of Persons 14 Years Old and Over in the Civilian Noninstitutional Population of the United States in Jan. 1951, by Number of Weeks Worked, Full-Time or Part-Time Status and Sex**

Work experience in 1950	Both sexes		Male		Female	
	Number (000s omitted)	Per cent	Number (000s omitted)	Per cent	Number (000s omitted)	Per cent
Total who worked in 1950 . .	68,876	100.0	45,526	100.0	23,350	100.0
Year-round full-time workers (worked 50 to 52 weeks at full-time jobs)	38,375	55.7	29,783	65.4	8,592	36.8
Part-year full-time workers . . .	11,795	17.1	7,624	16.7	4,171	17.9
Worked at full-time jobs—						
27 to 39 weeks	4,812	7.0	2,689	5.9	2,123	9.1
40 to 49 weeks	6,983	10.1	4,935	10.8	2,048	8.8
Part-time or intermittent workers .	18,708	27.1	8,120	17.8	10,588	45.3
Worked at full-time jobs—	8,013	11.6	3,636	8.0	4,377	18.7
13 weeks or less	3,524	5.1	1,440	3.2	2,084	8.9
14 to 26 weeks	4,489	6.5	2,196	4.8	2,293	9.8
Worked at part-time jobs—	10,695	15.5	4,484	9.8	6,211	26.6
13 weeks or less	2,808	4.1	1,052	2.3	1,756	7.5
14 to 26 weeks	2,354	3.4	1,022	2.2	1,332	5.7
27 to 39 weeks	1,245	1.8	606	1.3	639	2.7
40 to 49 weeks	969	1.4	398	0.9	571	2.4
50 to 52 weeks	3,322	4.8	1,406	3.1	1,916	8.2

*Figures based on a small sample.

month, with 1,828,000 in Nov. 1951, this figure being 18.4% below the level of Nov. 1950.

The changes in the several elements in the labour force for the entire period from 1940 to Nov. 1951 are presented in graphic form in the chart on page 153.

Part-Time Workers.—The extent to which the nation's work is done by part-time workers was set forth in specific terms in the report of a survey made by the bureau of the census in Jan. 1951, covering (by representative sample) all persons who worked at any time during the year 1950, then just closed. The whole number of such persons included 7,361,000 persons who were neither at work nor seeking work at the time of the survey. The returns from this survey are summarized in Table X.

In all, nearly 19,000,000 persons who worked at some time in 1950 reported either that they usually worked only part time (that is, less than 35 hr. a week), or if they worked full time that they did so for half a year or less. These part-time workers, who were mainly women and school-age persons, represented about 27% of all persons with work experience in 1950.

In Table X the 68,876,000 persons who at some time during 1950 worked for pay or profit or without pay on a family-operated farm or in a family-operated business are classified into three broad categories. Those who worked 50 weeks or more at full-time jobs (35 hr. a week or more) were designated "year-round full-time workers." Those who worked primarily at part-time jobs (less than 35 hr. a week) or at full-time jobs for 26 weeks or less were designated "part-time or intermittent workers." Those who worked between 27 and 49 weeks at full-time jobs were designated "part-year full-time workers."

The 38,375,000 year-round full-time workers included 8,592,000 women, this group forming 36.8% of all women who worked during 1950, as compared with 65.4% for the men.

Of the 18,708,000 part-time or intermittent workers, on the other hand, 10,588,000, or more than 56%, were women; and this group formed 45.3% of all women who reported work experience (but only 17.8% of the men). Of these 10,588,000 part-time or intermittent female workers, 6,211,000, or nearly 60%, worked at part-time jobs, while the remainder worked at full-time jobs for less than 27 weeks during the year. The proportion of male workers in this class who were employed at part-time jobs was slightly less, about 55%.

The classification of the survey returns by occupation indicated, as one might expect, that occupations which require relatively little training or which are subject to strong seasonal variations depend heavily on part-time or intermittent workers as a source of labour supply. Among persons, for example, whose longest job in 1950 was in private household work, two-thirds worked only on a part-time or intermittent basis, and likewise with farm labourers. Trade and service establishments, partly because of the irregular or seasonal variations in their activities, meet a far larger part of their labour requirements through the employment of part-time or intermittent workers than do manufacturing and other nonfarm industries—such workers forming about one-third of those who had worked in trade and service industries in 1950, as against one-fifth in other nonfarm industries.

Work Experience by Age and Sex.—More than 63% of the civilian population 14 years old and over in Jan. 1951 had worked at some time during 1950, including 86.8% of the males and 41.1% of the females. These figures are distributed by age and into the three major work-groups defined earlier, in Table XI.

In addition to the fact just stated, that the proportion of men who worked was decidedly higher than the proportion of women, the figures indicate that a much larger proportion of men who worked were employed full-time year-round—65.4% as compared with 36.8% for the women. Conversely, only 17.8% of the men worked part-time or intermittently, as compared with 45.3% of the women workers. And, referring to the age classification, it may be noted that male part-time workers were important only in the age groups between 14 and 24 years old and among men 65 and over, whereas part-time workers formed 35.8% of the female workers even in the age group (20–24 years) where they formed the smallest proportion of all workers.

The general average of 86.8% of the male population 14 and over with work experience in 1950 represents the merging of much lower percentages for the younger and the older age groups with percentages around 97 or above for men from 25 to 54 years

Table XI.—*Work Experience in 1950 of Persons 14 Years Old and Over in the Civilian Noninstitutional Population of the United States in Jan. 1951, by Age and Sex**

Age and sex	Civilian noninstitutional population, Jan., 1951	Number who worked during 1950	Per cent of pop.	Worked full-time year-round†		Worked full-time part-year‡		Worked part-time or intermittently§	
				Number	Pct. of workers	Number	Pct. of workers	Number	Pct. of workers
Total	109,170,000	68,876,000	63.1	38,375,000	55.7	11,795,000	17.1	18,708,000	27.1
Male	52,419,000	45,526,000	86.8	29,783,000	65.4	7,624,000	16.7	8,120,000	17.8
14 to 17 years	4,230,000	2,206,000	52.2	173,000	7.8	112,000	5.1	1,921,000	87.0
18 to 19 years	1,803,000	1,515,000	84.0	378,000	25.0	264,000	17.4	872,000	57.5
20 to 24 years	4,934,000	4,575,000	92.7	2,470,000	54.0	981,000	21.5	1,124,000	24.5
25 to 34 years	10,788,000	10,520,000	97.5	7,633,000	72.6	1,899,000	18.1	991,000	9.3
35 to 44 years	10,015,000	9,808,000	97.9	7,387,000	75.3	1,657,000	16.9	764,000	7.8
45 to 54 years	8,508,000	8,215,000	96.6	6,120,000	74.5	1,359,000	16.6	738,000	9.0
55 to 64 years	6,705,000	6,007,000	89.6	4,220,000	70.3	949,000	15.8	840,000	13.9
65 and over.	5,436,000	2,679,000	49.3	1,402,000	52.3	405,000	15.1	872,000	32.6
Female	56,751,000	23,350,000	41.1	8,592,000	36.8	4,171,000	17.9	10,588,000	45.3
14 to 17 years	4,173,000	1,389,000	33.3	36,000	2.6	76,000	5.4	1,277,000	91.9
18 to 19 years	2,115,000	1,303,000	61.6	325,000	24.9	224,000	17.1	754,000	57.9
20 to 24 years	5,763,000	3,383,000	58.7	1,422,000	42.0	753,000	22.3	1,210,000	35.8
25 to 34 years	12,103,000	5,292,000	43.7	2,001,000	37.8	944,000	17.8	2,348,000	44.3
35 to 44 years	10,739,000	5,070,000	47.2	2,055,000	40.5	948,000	18.7	2,064,000	40.8
45 to 54 years	8,846,000	3,969,000	44.9	1,691,000	42.6	717,000	18.1	1,562,000	39.4
55 to 64 years	6,889,000	2,223,000	32.3	848,000	38.1	431,000	19.4	946,000	42.6
65 and over.	6,124,000	724,000	11.8	215,000	29.7	80,000	11.1	431,000	59.5

*Labour force figures based on a small sample.
†Worked 50 weeks or more at full-time jobs.
‡Worked 27 to 49 weeks at full-time jobs.
§Worked at part-time jobs, or at full-time jobs for 26 weeks or less.

of age. The proportion of the workers who were in the full-time year-round class was likewise higher for the middle age-range men, running more than 70% for all men from 25 to 64 years of age. Conversely, few of the men from 25 to 54 were in the part-time class.

In the female population the proportion who worked in 1950 was highest (61.1%) in the group 18 to 19 years old. Instead of increasing with increasing age, this percentage fell off to 58.7 in the 20–24 years age group and still further to 43.7% in the 25–34 years group, as increasing numbers of women were married and acquired families. After age 35 there was some increase in the percentage who worked, followed by a decline after age 55, with a very low percentage at 65 and over—11.8% as compared with 49.3% for men in this final age group. Roughly, the percentage in the full-time group followed the trend of the percentage of work participation, as with the men, but for most of the age groups the percentage of part-time workers exceeded that of full-time workers.

Places of 5,000 or More.—Table XII gives the 1950 population of all places of 5,000 inhabitants or more, including unincorporated places as well as incorporated, with 1940 figures for comparison. The 1950 figures represent the final revision of the census count for these areas. (*See* also ALIENS; BIRTH STATISTICS; EMPLOYMENT; HOUSING; MARRIAGE AND DIVORCE; WAGES AND HOURS; WEALTH AND INCOME, DISTRIBUTION OF.)

(L. E. T.)

Table XII.—*Population of Cities and Other Urban Places of 5,000 or More, by States*

Place	1950	1940
ALABAMA:		
Albertville	5,397	3,651
Alexander City	6,430	6,640
Andalusia	9,162	6,886
Anniston	31,066	25,523
Athens	6,309	4,342
Atmore	5,720	3,200
Attalla	7,537	4,885
Auburn	12,939	4,652
Bessemer	28,445	22,826
Birmingham	326,037	267,583
Brewton	5,146	3,323
Cullman	7,523	5,074
Decatur	19,974	16,604
Demopolis	5,004	4,137
Dothan	21,584	17,194
Enterprise	7,288	4,353
Eufaula	6,906	6,269
Fairfield	13,177	11,703
Florence	23,879	15,043
Fort Payne	6,226	4,424
Gadsden	55,725	36,975
Greenville	6,781	5,075
Guntersville	5,253	4,398
Homewood	12,866	7,397
Huntsville	16,437	13,050
Jasper	8,589	6,847
Lanett	7,434	6,141
Mobile	129,009	78,720
Montgomery	106,525	78,084
Mountain Brook	8,359	‡
Opelika	12,295	8,487
Opp	5,240	3,178
Ozark	5,238	3,601
Phenix City	23,305	15,351
Prichard	19,014	6,084
Roanoke	5,392	4,168
Russellville	6,012	3,510
Selma	22,840	19,834
Sheffield	10,767	7,933
Sylacauga	9,606	6,269
Talladega	13,134	9,298
Tarrant City	7,571	6,833
Troy	8,555	7,055
Tuscaloosa	46,396	27,493
Tuscumbia	6,734	5,515
Tuskegee	6,712	3,937
West Huntsville*	8,221	‡
ARIZONA:		
Ajo*	5,817	‡
Amphitheater*	12,664	‡
Douglas	9,442	8,623
Flagstaff	7,663	5,080
Glendale	8,179	4,855
Globe	6,419	6,141
Mesa	16,790	7,224
Morenci*	6,541	‡
Nogales	6,153	5,135
Pasqua Village-El Rio*	5,466	‡
Phoenix	106,818	65,414
ARIZONA—Cont.:		
Prescott	6,764	6,018
Tempe	7,684	2,906
Tucson	45,454	36,818
Wakefield*	8,906	‡
Winslow	6,518	4,577
Yuma	9,145	5,325
ARKANSAS:		
Arkadelphia	6,819	5,078
Batesville	6,414	5,267
Benton	6,277	3,502
Blytheville	16,234	10,652
Camden	11,372	8,975
Conway	8,610	5,782
El Dorado	23,076	15,858
Fayetteville	17,071	8,212
Forrest City	7,607	5,699
Fort Smith	47,942	36,584
Harrison	5,542	4,238
Helena	11,236	8,546
Hope	8,605	7,475
Hot Springs	29,307	21,370
Jonesboro	16,310	11,729
Little Rock	102,213	88,039
Magnolia	6,918	4,326
Malvern	8,072	5,290
Morrilton	5,483	4,608
Newport	6,254	4,321
North Little Rock	44,097	21,137
Osceola	5,006	3,226
Paragould	9,668	7,079
Pine Bluff	37,162	21,290
Russellville	8,166	5,927
Searcy	6,024	3,670
Springdale	5,835	3,319
Stuttgart	7,276	5,628
Texarkana	15,875	11,821
Van Buren	6,413	5,422
West Helena	6,107	4,717
West Memphis	9,112	3,369
CALIFORNIA:		
Alameda	64,430	36,256
Albany	17,590	11,493
Alhambra	51,359	38,935
Alisal*	16,714	‡
Anaheim	14,556	11,031
Antioch	11,051	5,106
Arcadia	23,066	9,122
Arvin*	5,007	‡
Azusa	11,042	5,209
Bakersfield	34,784	29,252
Banning	7,034	3,874
Barstow	6,135	‡
Bell	15,430	11,264
Belmont	5,567	1,229
Benicia	7,284	2,419
Berkeley	113,805	85,547
Beverly Hills	29,032	26,823
Brawley	11,922	11,718
Buena Park*	5,483	‡
CALIFORNIA—Cont.:		
Burbank	78,577	34,337
Burlingame	19,886	15,940
Calexico	6,433	5,415
Chico	12,272	9,287
Chino	5,784	4,204
Chula Vista	15,927	5,138
Claremont	6,327	3,057
Coalinga	5,539	5,026
Colton	14,465	9,686
Compton	47,991	16,198
Concord	6,953	1,373
Corona	10,223	8,764
Coronado	12,700	6,932
Costa Mesa*	11,844	‡
Culver City	19,720	8,976
Daly City	15,191	9,625
Delano	8,717	4,573
East Bakersfield*	38,177	‡
El Cajon	5,600	1,471
El Centro	12,590	10,017
El Cerrito	18,011	6,137
El Monte	8,101	4,746
El Segundo	8,011	3,738
Escondido	6,544	4,560
Eureka	23,058	17,055
Fresno	91,669	60,685
Fullerton	13,958	10,442
Gardena	14,405	5,909
Glendale	95,702	82,582
Grass Valley	5,283	5,701
Hanford	10,028	8,234
Hawthorne	16,316	8,263
Hayward	14,272	6,736
Hermosa Beach	11,826	7,197
Huntington Beach	5,237	3,738
Huntington Park	29,450	28,648
Indio	5,300	2,296
Inglewood	46,185	30,114
Laguna Beach	6,661	4,460
La Loma Airport*	7,866	‡
La Mesa	10,946	3,925
Lindsay	5,060	4,397
Lodi	13,798	11,079
Lompoc	5,520	3,379
Long Beach	250,767	164,271
Los Angeles	1,970,358	1,504,277
Lynwood	25,823	10,982
Madera	10,497	6,457
Manhattan Beach	17,330	6,398
Martinez	8,268	7,381
Marysville	7,826	6,646
Maywood	13,292	10,731
Menlo Park	13,587	3,258
Merced	15,278	10,135
Millbrae	8,972	‡
Mill Valley	7,331	4,847
Modesto	17,389	16,379
Monrovia	20,186	12,807
Montebello	21,735	8,016
Monterey	16,205	10,084
Monterey Park	20,395	8,531
Mountain View	6,563	3,946
Napa	13,579	7,740
National City	21,199	10,344
Newport Beach	12,120	4,438
North Modesto*	5,046	‡
North Sacramento	6,029	3,053
Oakland	384,575	302,163
Oceanside	12,881	4,651
Oildale*	16,615	‡
Ontario	22,872	14,197
Orange	10,027	7,901
Oroville	5,387	4,421
Oxnard	21,567	8,519
Pacific Grove	9,623	6,249
Palm Springs	7,660	3,434
Palo Alto	25,475	16,774
Pasadena	104,577	81,864
Petaluma	10,315	8,034
Piedmont	10,132	9,866
Pittsburg	12,763	9,520
Pleasant Hills*	5,686	‡
Pomona	35,405	23,539
Porterville	6,904	6,270
Redding	10,256	8,109
Redlands	18,429	14,324
Redondo Beach	25,226	13,092
Redwood City	25,544	12,453
Richmond	99,545	23,642
Riverside	46,764	34,696
Roseville	8,723	6,653
Sacramento	137,572	105,958
Salinas	13,917	11,586
San Anselmo	9,188	5,790
San Bernardino	63,058	43,646
San Bruno	12,478	6,519
San Buenaventura	16,534	13,264
San Carlos	14,371	3,520
San Diego	334,387	203,341
San Fernando	12,992	9,094
San Francisco	775,357	634,536
San Gabriel	20,343	11,867
Sanger	6,400	4,017
San Jose	95,280	68,457
San Leandro	27,542	14,601
San Luis Obispo	14,180	8,881
San Marino	11,230	8,175
San Mateo	41,782	19,403
San Pablo	14,476	‡
San Rafael	13,848	8,573
Santa Ana	45,533	31,921
CALIFORNIA—Cont.:		
Santa Barbara	44,913	34,958
Santa Clara	11,702	6,650
Santa Cruz	21,970	16,896
Santa Maria	10,440	8,522
Santa Monica	71,595	53,500
Santa Paula	11,049	8,986
Santa Rosa	17,902	12,605
Seaside*	10,226	‡
Selma	5,964	3,667
Sierra Madre	7,273	4,581
South Bakersfield*	12,120	‡
South Gate	51,116	26,945
South Pasadena	16,935	14,356
South San Francisco	19,351	6,629
Stockton	70,853	54,714
Sunnyvale	9,829	4,373
Susanville	5,338	1,575
Torrance	22,241	9,950
Tracy	8,410	4,056
Tulare	12,445	8,259
Turlock	6,235	4,839
Twin Lakes-Delmar*	6,733	‡
Ukiah	6,120	3,731
Upland	9,203	6,316
Vallejo	26,038	20,072
Visalia	11,749	8,904
Wasco	5,592	‡
Watsonville	11,572	8,937
Whittier	23,820	16,115
Woodland	9,386	6,637
Yuba City	7,861	4,968
COLORADO:		
Alamosa	5,354	5,613
Aurora	11,421	3,437
Boulder	19,999	12,958
Canon City	6,345	6,690
Colorado Springs	45,472	36,789
Denver	415,786	322,412
Durango	7,459	5,887
Englewood	16,869	9,680
Fort Collins	14,937	12,251
Fort Morgan	5,315	4,884
Golden	5,238	3,175
Grand Junction	14,504	12,479
Greeley	20,354	15,995
La Junta	7,712	7,040
Lamar	6,829	4,445
Longmont	8,099	7,406
Loveland	6,773	6,145
Pueblo	63,685	52,162
Sterling	7,534	7,411
Trinidad	12,204	13,223
Walsenburg	5,596	5,855
CONNECTICUT:		
Ansonia	18,706	19,210
Bridgeport	158,709	147,121
Bristol	35,961	30,167
Danbury†	22,067	22,339
Derby	10,259	10,287
Groton†	7,036	4,719
Hartford	177,397	166,267
Meriden	44,088	39,494
Middletown	29,711	26,495
Naugatuck	17,455	15,388
New Britain	73,726	68,685
New Haven	164,443	160,605
New London	30,551	30,456
Norwalk	49,460	39,849
Norwich†	23,429	23,652
Pawcatuk*	5,269	‡
Putnam†	8,181	7,775
Rockville	8,016	7,572
Seymour*	5,342	‡
Shelton	12,694	10,971
Southington*	5,955	‡
Stamford	74,293	47,938
Thamesville*	5,518	‡
Thompsonville*	9,633	‡
Torrington	27,820	26,988
Wallingford†	11,994	11,425
Waterbury	104,477	99,314
Willimantic	13,586	12,101
Winsted	8,781	7,674
DELAWARE:		
Dover	6,223	5,517
Elsmere	5,314	1,630
Milford	5,179	4,214
Newark	6,731	4,502
New Castle	5,396	4,414
Wilmington	110,356	112,504
DISTRICT OF COLUMBIA:		
Washington, D.C.	802,178	663,091
FLORIDA:		
Bartow	8,694	6,158
Belle Glade	7,219	3,806
Bradenton	13,604	7,444
Brownsville-Brent-Gaulding*	20,269	‡
Chattahoochee	8,473	7,110
Clearwater	15,581	10,136
Coral Gables	19,837	8,294
Crestview	5,003	2,252
Daytona Beach	30,187	22,584

Footnotes at end of table.

Place	1950	1940
FLORIDA—Cont.:		
DeLand	8,652	7,041
Delray Beach	6,312	3,737
Fort Lauderdale	36,328	17,996
Fort Myers	13,195	10,604
Fort Pierce	13,502	8,040
Gainesville	26,861	13,757
Haines City	5,630	3,890
Hialeah	19,676	3,958
Hollywood	14,351	6,239
Jacksonville	204,571	173,065
Jacksonville Beach	6,430	3,566
Key West	26,433	12,927
Lake City	7,571	5,836
Lakeland	30,851	22,068
Lake Wales	6,821	5,024
Lake Worth	11,777	7,408
Leesburg	7,395	4,687
Marianna	5,845	5,079
Miami	249,276	172,172
Miami Beach	46,282	28,012
Miami Shores	5,086	1,956
Miami Springs	5,108	898
New Smyrna Beach	5,775	4,402
North Miami	10,734	1,973
Ocala	11,741	8,986
Opalocka	5,271	497
Orlando	52,367	36,736
Palatka	9,176	7,140
Panama City	25,814	11,610
Pensacola	43,479	37,449
Plant City	9,230	7,491
Pompano Beach	5,682	4,427
Quincy	6,505	3,888
St. Augustine	13,555	12,090
St. Petersburg	96,738	60,812
Sanford	11,935	10,217
Sarasota	18,896	11,141
Sebring	5,006	3,155
Tallahassee	27,237	16,240
Tampa	124,681	108,391
Warrington*	13,570	‡
West Palm Beach	43,162	33,693
Winter Haven	8,605	6,199
Winter Park	8,250	4,715
GEORGIA:		
Albany	31,155	19,055
Americus	11,389	9,281
Athens	28,180	20,650
Atlanta	331,314	302,288
Augusta	71,508	65,919
Bainbridge	7,562	6,352
Brunswick	17,954	15,035
Cairo	5,577	4,653
Carrollton	7,753	6,214
Cartersville	7,270	6,141
Cedartown	9,470	9,025
College Park	14,535	8,213
Columbus	79,611	53,280
Cordele	9,462	7,929
Covington	5,192	3,900
Dalton	15,968	10,448
Decatur	21,635	16,561
Douglas	7,428	5,175
Dublin	10,232	7,814
East Point	21,080	12,403
Elberton	6,772	6,188
Fitzgerald	8,130	7,388
Fort Valley	6,820	4,953
Gainesville	11,936	10,243
Griffin	13,982	13,222
Hapeville	8,560	5,059
La Grange	25,025	21,983
Macon	70,252	57,865
Marietta	20,687	8,667
Medway-Hardwick*	14,774	‡
Milledgeville	8,835	6,778
Moultrie	11,639	10,147
Newnan	8,218	7,182
North Atlanta	5,930	1,365
Rome	29,615	26,282
Savannah	119,638	95,996
Statesboro	6,097	5,028
Thomaston	6,580	6,396
Thomasville	14,424	12,683
Tifton	6,831	5,228
Toccoa	6,781	5,494
Valdosta	20,046	15,595
Vidalia	5,819	4,109
Warner Robins	7,986	‡
Waycross	18,899	16,763
IDAHO:		
Blackfoot	5,180	3,681
Boise	34,393	26,130
Burley	5,924	5,329
Caldwell	10,487	7,272
Coeur d'Alene	12,198	10,049
Franklin-Whitney Airport*	7,809	‡
Idaho Falls	19,218	15,024
Lewiston	12,985	10,548
Moscow	10,593	6,014
Nampa	16,185	12,149
Pocatello	26,131	18,133
Twin Falls	17,600	11,851
ILLINOIS:		
Alton	32,550	31,255
ILLINOIS—Cont.:		
Arlington Heights	8,768	5,668
Aurora	50,576	47,170
Batavia	5,838	5,101
Beardstown	6,080	6,505
Belleville	32,721	28,405
Bellwood	8,746	5,220
Belvidere	9,422	8,094
Benton	7,848	7,372
Berwyn	51,280	48,451
Bloomington	34,163	32,868
Blue Island	17,622	16,638
Bradley	5,699	3,689
Broadview	5,196	1,457
Brookfield	15,472	10,817
Cairo	12,123	14,407
Calumet	15,799	13,241
Canton	11,927	11,577
Carbondale	10,921	8,550
Carlinville	5,116	4,965
Carmi	5,574	4,098
Centralia	13,863	16,343
Champaign	39,563	23,302
Charleston	9,164	8,197
Chester	5,389	5,110
Chicago	3,620,962	3,396,808
Chicago Heights	24,551	22,461
Cicero	67,544	64,712
Clinton	5,945	6,331
Collinsville	11,862	9,767
Creve Coeur	5,499	3,535
Danville	37,864	36,919
Decatur	66,269	59,305
De Kalb	11,708	9,146
Des Plaines	14,994	9,518
Dixon	11,523	10,671
Dolton	5,558	3,068
Downers Grove	11,886	9,526
DuQuoin	7,147	7,515
East Alton	7,290	4,680
East Moline	13,913	12,359
East Peoria	8,698	6,806
East St. Louis	82,295	75,609
Edwardsville	8,776	8,008
Effingham	6,892	6,180
Elgin	44,223	38,333
Elmhurst	21,273	15,458
Elmwood Park	18,801	13,689
Evanston	73,641	65,389
Evergreen Park	10,531	3,313
Fairfield	5,576	4,008
Flora	5,255	5,474
Forest Park	14,969	14,840
Franklin Park	8,899	3,007
Freeport	22,467	22,366
Galesburg	31,425	28,876
Geneva	5,139	4,101
Glencoe	6,980	6,825
Glen Ellyn	9,524	8,055
Glenview	6,142	2,500
Granite City	29,465	22,974
Harrisburg	10,999	11,453
Harvey	20,683	17,878
Herrin	9,331	9,352
Highland Park	16,808	14,476
Hinsdale	8,676	7,336
Homewood	5,887	4,078
Hoopeston	5,992	5,381
Ingalls Park*	6,840	‡
Jacksonville	20,387	19,844
Jerseyville	5,792	4,809
Joliet	51,601	42,365
Kankakee	25,856	22,241
Kewanee	16,821	16,901
La Grange	12,002	10,479
La Grange Park	6,176	3,406
Lake Forest	7,819	6,885
Lansing	8,682	4,462
La Salle	12,083	12,812
Lawrenceville	6,328	6,213
Libertyville	5,425	3,930
Lincoln	14,362	12,752
Litchfield	7,208	7,048
Lombard	9,817	7,075
Loves Park	5,366	‡
Lyons	6,120	4,960
Macomb	10,592	8,764
Madison	7,963	7,782
Marion	10,459	9,251
Mattoon	17,547	15,827
Maywood	27,473	26,648
Melrose Park	13,366	10,933
Mendota	5,129	4,215
Metropolis	6,093	6,287
Milton*	8,232	‡
Moline	37,397	34,608
Monmouth	10,193	9,096
Morris	6,926	6,145
Mount Carmel	8,732	6,987
Mount Vernon	15,600	14,724
Murphysboro	9,241	8,976
Naperville	7,013	5,272
Normal	9,772	6,983
North Chicago	8,628	8,465
Oak Lawn	8,751	3,483
Oak Park	63,529	66,015
Olney	8,612	7,831
Ottawa	16,957	16,005
Pana	6,178	5,966
Paris	9,460	9,281
Park Forest	8,138	‡
ILLINOIS—Cont.:		
Park Ridge	16,602	12,063
Pekin	21,858	19,407
Peoria	111,856	105,087
Peoria Heights	5,425	4,376
Peru	8,653	8,983
Pontiac	8,990	9,585
Princeton	5,765	5,224
Quincy	41,450	40,469
Rantoul	6,387	2,367
Ridgewood*	5,586	‡
Riverdale	5,840	2,865
River Forest	10,823	9,487
Riverside	9,153	7,935
Robinson	6,407	4,311
Rochelle	5,449	4,200
Rock Falls	7,983	4,987
Rockford	92,927	84,637
Rock Island	48,710	42,775
St. Charles	6,709	5,870
Salem	6,159	7,319
Savanna	5,058	4,792
Skokie (Niles Center)	14,832	7,172
Springfield	81,628	75,503
Sterling	12,817	11,363
Streator	16,469	14,930
Summit	8,957	7,043
Sycamore	5,912	4,702
Taylorville	9,188	8,313
Urbana	22,834	14,064
Vandalia	5,471	5,288
Venice	6,226	5,454
Villa Park	8,821	7,236
Washington Park	5,840	4,523
Waukegan	38,946	34,241
Western Springs	6,364	4,856
West Frankfort	11,384	12,383
Wheaton	11,638	7,389
Wilmette	18,162	17,226
Winnetka	12,105	12,430
Wood River	10,190	8,197
Woodstock	7,192	6,123
Zion	8,950	6,555
INDIANA:		
Alexandria	5,147	4,801
Anderson	46,820	41,572
Angola	5,081	3,141
Auburn	5,879	5,415
Bedford	12,562	12,514
Beech Grove	5,685	3,907
Bloomington	28,163	20,870
Bluffton	6,076	5,417
Boonville	5,092	4,526
Brazil	8,434	8,126
Clarksville	5,905	2,386
Clinton	6,462	7,092
Columbus	18,370	11,738
Connersville	15,550	12,898
Crawfordsville	12,851	11,089
Crown Point	5,839	4,643
Decatur	7,271	5,861
East Chicago	54,263	54,637
East Gary	5,635	3,401
Elkhart	35,646	33,434
Elwood	11,362	10,913
Evansville	128,636	97,062
Fort Wayne	133,607	118,410
Frankfort	15,028	13,706
Franklin	7,316	6,264
Gary	133,911	111,719
Goshen	13,003	11,375
Greencastle	6,888	4,872
Greenfield	6,159	4,821
Greensburg	6,619	6,065
Hammond	87,594	70,184
Hartford City	7,253	6,946
Highland	5,878	2,723
Hobart	10,244	7,166
Huntington	15,079	13,903
Indianapolis	427,173	386,972
Jasper	5,215	5,041
Jeffersonville	14,685	11,493
Kendallville	6,119	5,431
Kokomo	38,672	33,795
Lafayette	35,568	28,798
La Porte	17,882	16,180
Lebanon	7,631	6,529
Linton	5,973	6,263
Logansport	21,031	20,177
Madison	7,506	6,923
Marion	30,081	26,767
Martinsville	5,991	5,009
Michigan City	28,395	26,476
Mishawaka	32,913	28,298
Mount Vernon	6,150	5,638
Muncie	58,479	49,720
New Albany	29,346	25,414
New Castle	18,271	16,620
Noblesville	6,567	5,575
Peru	13,308	12,432
Plymouth	6,704	5,713
Portland	7,064	6,362
Princeton	7,673	7,786
Richmond	39,539	35,147
Rushville	6,761	5,960
Seymour	9,629	8,620
Shelbyville	11,734	10,791
South Bend	115,911	101,268
Speedway	5,498	2,325
Sullivan	5,423	5,077
INDIANA—Cont.:		
Tell City	5,735	5,395
Terre Haute	64,214	62,693
Tipton	5,633	5,101
Valparaiso	12,028	8,736
Vincennes	18,831	18,228
Wabash	10,621	9,653
Warsaw	6,625	6,378
Washington	10,987	9,312
West Lafayette	11,873	6,270
Whiting	9,669	10,307
Winchester	5,467	5,303
IOWA:		
Algona	5,415	4,954
Ames	22,898	12,555
Atlantic	6,480	5,802
Bettendorf	5,132	3,143
Boone	12,164	12,373
Burlington	30,613	25,832
Carroll	6,231	5,389
Cedar Falls	14,334	9,349
Cedar Rapids	72,296	62,120
Centerville	7,625	8,413
Chariton	5,320	5,754
Charles City	10,309	8,681
Cherokee	7,705	7,469
Clarinda	5,086	4,905
Clinton	30,379	26,270
Council Bluffs	45,429	41,439
Creston	8,317	8,033
Davenport	74,549	66,039
Decorah	6,060	5,303
Des Moines	177,965	159,819
Dubuque	49,671	43,892
Estherville	6,719	5,651
Fairfield	7,299	6,773
Fort Dodge	25,115	22,904
Fort Madison	14,954	14,063
Grinnell	6,828	5,210
Indianola	5,145	4,123
Iowa City	27,212	17,182
Keokuk	16,144	15,076
Knoxville	7,625	6,936
Le Mars	5,844	5,353
Marion	5,916	4,721
Marshalltown	19,821	19,240
Mason City	27,980	27,080
Mount Pleasant	5,843	4,610
Muscatine	19,041	18,286
Newton	11,723	10,462
Oelwein	7,858	7,801
Oskaloosa	11,124	11,024
Ottumwa	33,631	31,570
Perry	6,174	5,977
Red Oak	6,526	5,763
Shenandoah	6,938	6,846
Sioux City	83,991	82,364
Spencer	7,446	6,599
Storm Lake	6,954	5,274
Washington	5,902	5,227
Waterloo	65,198	51,743
Waverly	5,124	4,156
Webster City	7,611	6,738
West Des Moines	5,615	4,252
KANSAS:		
Abilene	5,775	5,671
Arkansas City	12,903	12,752
Atchison	12,792	12,648
Chanute	10,109	10,142
Coffeyville	17,113	17,355
Concordia	7,175	6,255
Dodge City	11,262	8,487
El Dorado	11,037	10,045
Emporia	15,669	13,188
Fort Scott	10,335	10,557
Garden City	10,905	6,285
Great Bend	12,665	9,044
Hays	8,625	6,385
Hutchinson	33,575	30,013
Independence	11,335	11,565
Iola	7,094	7,244
Junction City	13,462	8,507
Kansas City	129,553	121,458
Lawrence	23,351	14,390
Leavenworth	20,579	19,220
Liberal	7,134	4,410
McPherson	8,689	7,194
Manhattan	19,056	11,659
Newton	11,590	11,048
Olathe	5,593	3,979
Ottawa	10,081	10,193
Parsons	14,750	14,294
Pittsburg	19,341	17,571
Pratt	7,523	6,591
Russell	6,483	4,819
Salina	26,176	21,073
Topeka	78,791	67,833
Wellington	7,747	7,246
Wichita	168,279	114,966
Winfield	10,264	9,506
KENTUCKY:		
Ashland	31,131	29,537
Bellevue	9,040	8,741
Bowling Green	18,347	14,585
Corbin	7,714	7,893
Covington	64,452	62,018
Danville	8,686	6,734
Dayton	8,977	8,370
Elizabethtown	5,807	3,667
Fort Thomas	10,870	11,034

Footnotes at end of table.

Place	1950	1940
KENTUCKY—Cont.:		
Frankfort . . .	11,916	11,492
Georgetown . .	5,516	4,420
Glasgow	7,025	5,815
Harrodsburg . .	5,262	4,673
Hazard	6,985	7,397
Henderson . . .	16,837	13,160
Henry Clay* . .	6,104	‡
Hopkinsville . .	12,526	11,724
Jenkins	6,921	9,428
Lexington . . .	55,534	49,304
Louisville . . .	369,129	319,077
Ludlow	6,374	6,185
Lynch-Benham*.	7,952	‡
Madisonville . .	11,132	8,209
Mayfield	8,990	8,619
Maysville . . .	8,632	6,572
Middlesborough.	14,482	11,777
Mount Sterling .	5,294	4,782
Murray	6,035	3,773
Newport	31,044	30,631
Owensboro . . .	33,651	30,245
Paducah	32,828	33,765
Paris	6,912	6,697
Picadome* . . .	7,352	‡
Pikeville	5,154	4,185
Princeton . . .	5,388	5,389
Richmond . . .	10,268	7,335
Somerset	7,097	6,154
Winchester . . .	9,226	8,594
LOUISIANA:		
Abbeville . . .	9,338	6,672
Alexandria . . .	34,913	27,066
Bastrop	12,769	6,626
Baton Rouge . .	125,629	34,719
Bogalusa	17,798	14,604
Bossier City . .	15,470	5,786
Covington . . .	5,113	4,123
Crowley	12,784	9,523
De Ridder . . .	5,799	3,750
Eunice	8,184	5,242
Franklin	6,144	4,274
Goosport* . . .	8,318	‡
Gretna	13,813	10,879
Hammond . . .	8,010	6,033
Houma	11,505	9,052
Jackson	6,772	5,384
Jennings	9,663	7,343
Kenner	5,535	2,375
Lafayette . . .	33,541	19,210
Lake Charles . .	41,272	21,207
Minden	9,787	6,677
Monroe	38,572	28,309
Morgan City . .	9,759	6,969
Natchitoches . .	9,914	6,812
New Iberia . . .	16,467	13,747
New Orleans . .	570,445	494,537
Oakdale	5,598	3,933
Opelousas . . .	11,659	8,980
Pineville	6,423	4,297
Plaquemine . .	5,747	5,049
Rayne	6,485	4,974
Ruston	10,372	7,107
Shreveport . . .	127,206	98,167
Sulphur	5,996	3,504
Tallulah	7,758	5,712
Thibodaux . . .	7,730	5,851
Ville Platte. . .	6,633	3,721
West Monroe . .	10,302	8,560
Westwego . . .	8,328	4,992
Winnfield . . .	5,629	4,512
MAINE:		
Auburn	23,134	19,817
Augusta	20,913	19,360
Bangor	31,558	29,822
Bath	10,644	10,235
Belfast	5,960	5,540
Biddeford . . .	20,836	19,790
Brewer	6,862	6,510
Brunswick*. . .	7,342	‡
Gardiner	6,649	6,044
Houlton*. . . .	6,029	‡
Kittery*	6,692	‡
Lewiston	40,974	38,598
Millinocket* . .	5,755	‡
Old Town . . .	8,261	7,688
Portland	77,634	73,643
Presque Isle . .	9,954	7,939
Rockland . . .	9,234	8,899
Rumford* . . .	7,888	‡
Saco.	10,324	8,631
Sanford*	11,094	‡
Skowhegan* . .	6,183	‡
South Portland .	21,866	15,781
Waterville . . .	18,287	16,688
Westbrook . . .	12,284	11,087
MARYLAND:		
Annapolis . . .	10,047	13,069
Baltimore . . .	949,708	859,100
Cambridge . . .	10,351	10,102
College Park . .	11,170	‡
Cumberland . .	37,679	39,483
Elkton.	5,245	3,518
Frederick . . .	18,142	15,802
Frostburg . . .	6,876	7,659
Greenbelt . . .	7,074	2,831
Hagerstown . .	36,260	32,491
Havre de Grace.	7,809	4,967
Hyattsville . . .	12,308	6,575
MARYLAND—Cont.:		
Mount Rainier .	10,989	4,830
Riverdale . . .	5,530	2,330
Rockville . . .	6,934	2,047
Salisbury . . .	15,141	13,313
Takoma Park. .	13,341	8,938
Westminster . .	6,140	4,692
MASSACHUSETTS:		
Adams-Renfrew*	11,633	‡
Amesbury*. . .	9,711	‡
Amherst* . . .	7,900	‡
Athol*.	9,708	‡
Attleboro . . .	23,809	22,071
Beverly	28,884	25,537
Boston.	801,444	770,816
Brockton. . . .	62,860	62,343
Cambridge . . .	120,740	110,879
Chelsea	38,912	41,259
Chicopee. . . .	49,211	41,664
Clinton*	12,287	‡
Everett	45,982	46,784
Fall River . . .	111,963	115,428
Fitchburg . . .	42,691	41,824
Franklin* . . .	5,348	‡
Gardner	19,581	20,206
Gloucester . . .	25,167	24,046
Greenfield*. . .	15,075	‡
Haverhill . . .	47,280	46,752
Holyoke	54,661	53,750
Lawrence . . .	80,536	84,323
Leominster. . .	24,075	22,226
Lowell.	97,249	101,389
Lynn	99,738	98,123
Malden	59,804	58,010
Marlborough . .	15,756	15,154
Maynard* . . .	6,690	‡
Medford	66,113	63,083
Melrose	26,988	25,333
Middleborough*	5,889	‡
Milford*	14,396	‡
New Bedford . .	109,189	110,341
Newburyport . .	14,111	13,916
Newton	81,994	69,873
North Adams. .	21,567	22,213
Northampton. .	29,063	24,794
Peabody	22,645	21,711
Pittsfield. . . .	53,348	49,684
Plymouth* . . .	10,540	‡
Quincy	83,835	75,810
Revere.	36,763	34,405
Salem	41,880	41,213
Somerville . . .	102,351	102,177
Southbridge* . .	16,748	‡
Spencer*	5,259	‡
Springfield . . .	162,399	149,554
Taunton	40,109	37,395
Turners Falls* .	5,179	‡
Waltham. . . .	47,187	40,020
Ware*	6,217	‡
Webster*. . . .	12,160	‡
Westfield. . . .	20,962	18,793
Whitinsville* . .	5,662	‡
Williamstown* .	5,015	‡
Woburn	20,492	19,751
Worcester . . .	203,486	193,694
MICHIGAN:		
Adrian.	18,393	14,230
Albion	10,406	8,345
Allen Park . . .	12,329	3,487
Alma	8,341	7,202
Alpena.	13,135	12,808
Ann Arbor . . .	48,251	29,815
Battle Creek . .	48,666	43,453
Bay City. . . .	52,523	47,956
Benton Harbor .	18,769	16,668
Benton Heights*	6,160	‡
Berkley	17,931	6,406
Big Rapids. . .	6,736	4,987
Birmingham . .	15,467	11,196
Buchanan . . .	5,224	4,056
Cadillac	10,425	9,855
Center Line . .	7,659	3,198
Charlotte . . .	6,606	5,544
Cheboygan. . .	5,687	5,673
Clawson	5,196	4,006
Coldwater . . .	8,594	7,343
Dearborn . . .	94,994	63,584
Detroit	1,849,568	1,623,452
Dowagiac . . .	6,542	5,007
East Detroit . .	21,461	8,584
East Grand Rapids. . .	6,403	4,899
East Lansing . .	20,325	5,839
Ecorse	17,948	13,209
Escanaba . . .	15,170	14,830
Ferndale	29,675	22,523
Flint	163,143	151,543
Garden City . .	9,012	4,096
Grand Haven. .	9,536	8,799
Grand Rapids .	176,515	164,292
Greenville . . .	6,668	5,321
Grosse Pointe. .	6,283	6,179
Grosse Pointe Farms	9,410	7,217
Grosse Pointe Park	13,075	12,646
Grosse Pointe Woods. . . .	10,381	2,805
Hamtramck . .	43,355	49,839
Hancock	5,223	5,554
MICHIGAN—Cont.:		
Hastings	6,096	5,175
Hazel Park. . .	17,770	‡
Highland Park .	46,393	50,810
Hillsdale . . .	7,297	6,381
Holland	15,858	14,616
Inkster	16,728	7,044
Ionia	6,412	6,392
Iron Mountain .	9,679	11,080
Ironwood . . .	11,466	13,369
Ishpeming . . .	8,962	9,491
Jackson	51,088	49,656
Kalamazoo. . .	57,704	54,097
Kingsford . . .	5,038	‡
Lansing	92,129	78,753
Lapeer.	6,143	5,365
Lincoln Park . .	29,310	15,236
Livonia	17,534	8,728
Ludington . . .	9,506	8,701
Manistee. . . .	8,642	8,694
Manistique. . .	5,086	5,399
Marquette . . .	17,202	15,928
Marshall	5,777	5,253
Melvindale. . .	9,483	4,764
Menominee. . .	11,151	10,230
Midland	14,285	10,329
Monroe	21,467	18,478
Mount Clemens.	17,027	14,389
Mount Pleasant.	11,393	8,413
Muskegon . . .	48,429	47,697
Muskegon Heights	18,828	16,047
Negaunee . . .	6,472	6,813
Niles	13,145	11,328
Oak Park . . .	5,267	1,169
Owosso	15,948	14,424
Petoskey. . . .	6,468	6,019
Plymouth . . .	6,637	5,360
Pontiac	73,681	66,626
Port Huron . .	35,725	32,759
River Rouge . .	20,549	17,008
Roseville. . . .	15,816	9,023
Royal Oak . . .	46,898	25,087
Saginaw	92,918	82,794
St. Clair Shores.	19,823	10,405
St. Joseph . . .	10,223	8,963
Sault Ste. Marie	17,912	15,847
South Haven . .	5,629	4,745
Springfield Place-Lakeview* . .	13,161	‡
Sturgis.	7,786	7,214
Three Rivers . .	6,785	6,710
Traverse	16,974	14,455
Trenton	6,222	5,284
Wayne.	9,409	4,223
Willow Run* . .	11,365	‡
Wyandotte. . .	36,846	30,618
Ypsilanti. . . .	18,302	12,121
MINNESOTA:		
Albert Lea . . .	13,545	12,200
Alexandria . . .	6,319	5,051
Anoka	7,396	6,426
Austin.	23,100	18,307
Bemidji	10,001	9,427
Brainerd	12,637	12,071
Chisholm . . .	6,861	7,487
Cloquet	7,685	7,304
Columbia Heights	8,175	6,035
Crookston . . .	7,352	7,161
Crystal	5,713	2,373
Detroit Lakes .	5,787	5,015
Duluth	104,511	101,065
East Grand Forks	5,049	3,511
Edina	9,744	5,855
Ely	5,474	5,970
Eveleth	5,872	6,887
Fairmont . . .	8,193	6,988
Faribault . . .	16,028	14,527
Fergus Falls . .	12,917	10,848
Golden Valley .	5,551	2,048
Grand Rapids .	6,019	4,875
Hastings	6,560	5,662
Hibbing	16,276	16,385
Hopkins	7,595	4,100
International Falls	6,269	5,626
Little Falls. . .	6,717	6,047
Mankato. . . .	18,809	15,564
Marshall	5,923	4,590
Minneapolis . .	521,718	492,370
Montevideo . .	5,459	5,220
Moorhead . . .	14,870	9,491
New Ulm . . .	9,348	8,743
Northfield . . .	7,487	4,533
Owatonna . . .	10,191	8,694
Pipestone . . .	5,269	4,682
Red Wing . . .	10,645	9,962
Richfield	17,502	6,750
Robbinsdale . .	11,289	6,018
Rochester . . .	29,885	26,312
Roseville. . . .	6,437	‡
St. Cloud . . .	28,410	24,173
St. Louis Park .	22,644	7,737
St. Paul	311,349	287,736
St. Peter. . . .	7,754	5,870
South St. Paul .	15,909	11,844
Stillwater . . .	7,674	7,013
Thief River Falls	6,926	6,019
Virginia	12,486	12,264
West St. Paul .	7,955	5,733
Willmar	9,410	7,623
Winona	25,031	22,490
Worthington . .	7,923	5,918
MISSISSIPPI:		
Aberdeen . . .	5,290	4,746
Biloxi	37,425	17,475
Brookhaven . .	7,801	6,232
Canton	7,048	6,011
Clarksdale . . .	16,539	12,168
Cleveland . . .	6,747	4,189
Columbia . . .	6,124	6,064
Columbus . . .	17,172	13,645
Corinth	9,785	7,818
Greenville . . .	29,936	20,892
Greenwood . .	18,061	14,767
Grenada . . .	7,388	5,831
Gulfport . . .	22,659	15,195
Hattiesburg . .	29,474	21,026
Jackson	98,271	62,107
Kosciusko . . .	6,753	4,291
Laurel	25,038	20,598
Louisville . . .	5,282	3,451
McComb . . .	10,401	9,898
Meridian. . . .	41,893	35,481
Natchez	22,740	15,296
Pascagoula . .	10,805	5,900
Picayune. . . .	6,707	5,129
Starkville . . .	7,107	4,900
Tupelo	11,527	8,212
Vicksburg . . .	27,948	24,460
West Point. . .	6,432	5,627
Yazoo City. . .	9,746	7,258
MISSOURI:		
Berkeley	5,268	2,577
Boonville . . .	6,686	6,089
Brentwood . . .	7,504	4,383
Brookfield . . .	5,810	6,174
Cape Girardeau .	21,578	19,426
Carthage. . . .	11,188	10,585
Caruthersville .	8,614	6,612
Charleston . . .	5,501	5,182
Chillicothe . . .	8,694	8,012
Clayton	16,035	13,069
Clinton	6,075	6,041
Columbia . . .	31,974	18,399
De Soto	5,357	5,121
Excelsior Springs	5,888	4,864
Ferguson. . . .	11,573	5,724
Festus	5,199	4,620
Flat River . . .	5,308	5,401
Fulton.	10,052	8,297
Hannibal. . . .	20,444	20,865
Independence. .	36,963	16,066
Jefferson City .	25,099	24,268
Jennings	15,282	‡
Joplin	38,711	37,144
Kansas City . .	456,622	399,178
Kennett	8,685	6,335
Kinloch	5,957	‡
Kirksville . . .	11,110	10,080
Kirkwood . . .	18,640	12,132
Ladue	5,386	3,981
Lebanon	6,808	5,025
Lexington . . .	5,074	5,341
Maplewood . .	13,416	12,875
Marshall	8,850	8,533
Maryville . . .	6,834	5,700
Mexico	11,623	9,053
Moberly	13,115	12,920
Neosho	5,790	5,318
Nevada	8,009	8,181
Overland. . . .	11,566	2,934
Pine Lawn . . .	6,425	‡
Poplar Bluff . .	15,064	11,163
Richmond Heights . . .	15,045	12,802
Rolla	9,354	5,141
St. Charles . . .	14,314	10,803
St. Joseph . . .	78,588	75,711
St. Louis. . . .	856,796	816,048
Sedalia	20,354	20,428
Sikeston	11,640	7,944
Springfield . . .	66,731	61,238
Trenton	6,157	7,046
University City .	39,892	33,023
Warrensburg . .	6,857	5,868
Washington . .	6,850	6,756
Webb City . .	6,919	7,033
Webster Groves.	23,390	18,394
Wellston . . .	9,396	‡
MONTANA:		
Anaconda . . .	11,254	11,004
Billings	31,834	23,261
Bozeman. . . .	11,325	8,665
Butte	33,251	37,081
Glendive City .	5,254	4,524
Great Falls. . .	39,214	29,928
Havre	8,086	6,427
Helena	17,581	15,056
Kalispell	9,737	8,245
Lewistown . . .	6,573	5,874
Livingston . . .	7,683	6,642
Miles City . . .	9,243	7,313
Missoula	22,485	18,449
Silver Bow Park-Floral Park* .	5,128	‡
NEBRASKA:		
Alliance	7,891	6,253
Beatrice	11,813	10,883
Columbus . . .	8,884	7,632
Fairbury	6,395	6,304
Falls City . . .	6,203	6,146
Fremont	14,762	11,862

Footnotes at end of table.

Place	1950	1940
NEBRASKA—Cont.:		
Grand Island	22,682	19,130
Hastings	20,211	15,145
Kearney	12,115	9,643
Lexington	5,068	3,688
Lincoln	98,884	81,984
McCook	7,678	6,212
Nebraska City	6,872	7,339
Norfolk	11,335	10,490
North Platte	15,433	12,429
Omaha	251,117	223,844
Scottsbluff	12,858	12,057
South Sioux City	5,557	4,556
York	6,178	5,383
NEVADA:		
Elko	5,393	4,094
Las Vegas	24,624	8,422
Reno	32,497	21,317
Sparks	8,203	5,318
NEW HAMPSHIRE:		
Berlin	16,615	19,084
Claremont	12,811	12,144
Concord	27,988	27,171
Dover	15,874	14,990
Franklin	6,552	6,749
Keene	15,638	13,832
Laconia	14,745	13,484
Manchester	82,732	77,685
Nashua	34,669	32,927
Portsmouth	18,830	14,821
Rochester	13,776	12,012
Somersworth	6,927	6,136
NEW JERSEY:		
Asbury Park	17,094	14,617
Atlantic City	61,657	64,094
Audubon	9,531	8,906
Bayonne	77,203	79,198
Belleville	32,019	28,167
Bellmawr	5,213	1,250
Bergenfield	17,647	10,275
Bloomfield	49,307	41,623
Bogota	7,662	7,346
Boonton	7,163	6,739
Bordentown	5,497	4,223
Bound Brook	8,374	7,616
Bridgeton	18,378	15,992
Burlington	12,051	10,905
Caldwell	6,270	4,932
Camden	124,555	117,536
Carlstadt	5,591	5,644
Carteret	13,030	11,976
Chatham	7,391	4,888
Cliffside Park	17,116	16,892
Clifton	64,511	48,827
Collingswood	15,800	12,685
Dover	11,174	10,491
Dumont	13,013	7,556
Dunellen	6,291	5,360
East Orange	79,340	68,945
East Paterson	15,386	4,937
East Rutherford	7,438	7,268
Elizabeth	112,817	109,912
Englewood	23,145	18,966
Fair Lawn	23,885	9,017
Fairview	8,661	8,770
Florence-Roebling*	6,785	‡
Fort Lee	11,648	9,468
Freehold	7,550	6,952
Garfield	27,550	28,044
Glassboro	5,867	4,925
Glen Ridge	7,620	7,331
Glen Rock	7,145	5,177
Gloucester City	14,357	13,692
Guttenberg	5,566	6,200
Hackensack	29,219	26,279
Haddonfield	10,495	9,742
Haddon Heights	7,287	5,555
Haledon	6,204	5,303
Hammonton	8,411	7,668
Harrison	13,490	14,171
Hasbrouck Heights	9,181	6,716
Hawthorne	14,816	12,610
Highland Park	9,721	9,002
Hoboken	50,676	50,115
Irvington	59,201	55,328
Jersey City	299,017	301,173
Keansburg	5,559	2,904
Kearny	39,952	39,467
Keyport	5,888	5,147
Lakewood*	9,970	‡
Leonia	7,378	5,763
Linden	30,644	24,115
Lodi	15,392	11,552
Long Branch	23,090	17,408
Madison	10,417	7,944
Manville	8,597	6,065
Maywood	8,667	4,052
Metuchen	9,879	6,557
Middlesex	5,943	3,763
Midland Park	5,164	4,525
Millville	16,041	14,806
Montclair	43,927	39,807
Morristown	17,124	15,270
Mount Holly*	8,206	‡
Newark	438,776	429,760
New Brunswick	38,811	33,180
New Milford	6,006	3,215
NEW JERSEY—Cont.:		
Newton	5,781	5,533
North Arlington	15,970	9,904
Northeast Vineland*	5,646	‡
North Plainfield	12,766	10,586
Nutley	26,992	21,954
Ocean City	6,040	4,672
Oceanport	7,588	3,159
Orange	38,037	35,717
Palisades Park	9,635	8,141
Palmyra	5,802	5,178
Paramus	6,268	3,688
Passaic	57,702	61,394
Paterson	139,336	139,656
Paulsboro	7,842	7,011
Penns Grove	6,669	6,488
Perth Amboy	41,330	41,242
Phillipsburg	18,919	18,314
Pitman	6,960	5,507
Plainfield	42,366	37,469
Pleasantville	11,938	11,050
Princeton	12,230	7,719
Prospect Park	5,242	5,714
Rahway	21,290	17,498
Raritan	5,131	4,839
Red Bank	12,743	10,974
Ridgefield	8,312	5,271
Ridgefield Park	11,993	11,277
Ridgewood	17,481	14,948
River Edge	9,204	3,287
Riverside*	7,199	‡
Roselle	17,681	13,597
Roselle Park	11,537	9,661
Rutherford	17,411	15,466
Salem	9,050	8,618
Sayreville	10,338	8,186
Secaucus	9,750	9,754
Somerville	11,571	8,720
South Amboy	8,422	7,802
Southeast Vineland*	6,376	‡
South Orange	15,230	13,742
South Plainfield	8,008	5,379
South River	11,308	10,714
Summit	17,929	16,165
Tenafly	9,651	7,413
Totowa	6,045	5,130
Trenton	128,009	124,697
Union City	55,537	56,173
Ventnor City	8,158	7,905
Verona	10,921	8,957
Vineland	8,155	7,914
Wallington	8,910	8,981
Westfield	21,243	18,458
West New York	37,683	39,439
West Orange	28,605	25,662
Westwood	6,766	5,388
Whitesville-West Grove-Bradley Park*	7,480	‡
Wildwood	5,475	5,150
Woodbury	10,931	8,306
Wood-Ridge	6,283	5,739
NEW MEXICO:		
Alamogordo	6,783	3,950
Albuquerque	96,815	35,449
Artesia	8,244	4,071
Atrisco-Five Points*	7,367	‡
Carlsbad	17,975	7,116
Clovis	17,318	10,065
Deming	5,672	3,608
Gallup	9,133	7,041
Hobbs	13,875	10,619
Las Cruces	12,325	8,385
Las Vegas City	7,494	5,941
Las Vegas Town	6,269	6,421
Los Alamos*	9,934	‡
Portales	8,112	5,104
Raton	8,241	7,607
Roswell	25,738	13,482
Santa Fe	27,998	20,325
Silver City	7,022	5,044
Tucumcari	8,419	6,194
NEW YORK:		
Albany	134,995	130,577
Amityville	6,164	5,058
Amsterdam	32,240	33,329
Arlington*	5,374	‡
Auburn	36,722	35,753
Babylon	6,015	4,742
Batavia	17,799	17,267
Bath	5,416	4,696
Bay Shore*	9,665	‡
Beacon	14,012	12,572
Binghamton	80,674	78,309
Bronxville	6,778	6,888
Buffalo	580,132	575,901
Canandaigua	8,332	8,321
Catskill	5,392	5,429
Cedarhurst	6,051	5,463
Cohoes	21,272	21,955
Corning	17,684	16,212
Cortland	18,152	15,881
Dansville	5,253	4,976
Depew	7,217	6,084
Dobbs Ferry	6,268	5,883
Dunkirk	18,007	17,713
East Aurora	5,962	5,253
East Rochester	7,022	6,691
NEW YORK—Cont.:		
East Rockway	7,970	5,610
Elmira	49,716	45,106
Elmira Heights	5,009	4,829
Endicott	20,050	17,702
Fairport	5,267	4,644
Floral Park	14,582	12,950
Fredonia	7,095	5,738
Freeport	24,680	20,410
Fulton	13,922	13,362
Garden City	14,486	11,223
Geneva	17,144	15,555
Glen Cove	15,130	12,415
Glens Falls	19,610	18,836
Gloversville	23,634	23,329
Great Neck	7,759	6,167
Hamburg	6,938	5,467
Hastings-on-Hudson	7,565	7,057
Haverstraw	5,818	5,909
Hempstead	29,135	20,856
Herkimer	9,400	9,617
Hornell	15,049	15,649
Hudson	11,629	11,517
Hudson Falls	7,236	6,654
Huntington*	9,324	‡
Huntington Station*	9,924	‡
Ilion	9,363	8,927
Islip*	5,254	‡
Ithaca	29,257	19,730
Jamestown	43,354	42,638
Johnson City	19,249	18,039
Johnstown	10,923	10,666
Kenmore	20,066	18,612
Kings Park*	10,960	‡
Kingston	28,817	28,589
Lackawanna	27,658	24,058
Lancaster	8,665	7,236
Larchmont	6,330	5,970
Lindenhurst	8,644	4,756
Little Falls	9,541	10,163
Lockport	25,133	24,379
Long Beach	15,586	9,036
Lynbrook	17,314	14,557
Malone	9,501	8,743
Malverne	8,086	5,153
Mamaroneck	15,016	13,034
Massena	13,137	11,328
Mechanicville	7,385	7,449
Medina	6,179	5,871
Middletown	22,586	21,908
Mineola	14,831	10,064
Mount Kisco	5,907	5,941
Mount Vernon	71,899	67,362
Newark	10,295	9,646
Newburgh	31,956	31,883
New Hyde Park	7,349	4,691
New Rochelle	59,725	58,408
New York City	7,891,957	7,454,995
Bronx	1,451,277	1,394,711
Brooklyn	2,738,175	2,698,285
Manhattan	1,960,101	1,889,924
Queens	1,550,849	1,297,634
Richmond	191,555	174,441
Niagara Falls	90,872	78,029
North Pelham	5,046	5,052
North Tarrytown	8,740	8,804
North Tonawanda	24,731	20,254
Norwich	8,816	8,694
Nyack	5,889	5,206
Ogdensburg	16,166	16,346
Olean	22,884	21,506
Oneida	11,325	10,291
Oneonta	13,564	11,731
Ossining	16,098	15,996
Oswego	22,647	22,062
Owego	5,350	5,068
Oyster Bay*	5,215	‡
Patchogue	7,361	7,181
Peekskill	17,731	17,311
Pelham Manor	5,306	5,302
Pen Yan	5,481	5,308
Plattsburgh	17,738	16,351
Port Chester	23,970	23,073
Port Jervis	9,372	9,749
Potsdam	7,491	4,821
Poughkeepsie	41,023	40,478
Rensselaer	10,856	10,768
Rochester	332,488	324,975
Rockville Centre	22,362	18,613
Rome	41,682	34,214
Rye	11,721	9,865
Salamanca	8,861	9,011
Saranac Lake	6,913	7,138
Saratoga Springs	15,473	13,705
Scarsdale	13,156	12,966
Schenectady	91,785	87,549
Scotia	7,812	7,960
Seneca Falls	6,634	6,452
Solvay	7,868	8,201
Syracuse	220,583	205,967
Tarrytown	8,851	6,874
Tonawanda	14,617	13,008
Troy	72,311	70,304
Tuckahoe	5,991	6,563
Tupper Lake	5,441	5,451
Utica	101,531	100,518
Valley Stream	26,854	16,679
Watertown	34,350	33,385
Watervliet	15,197	16,114
Waverly	6,037	5,450
NEW YORK—Cont.:		
Wellsville	6,402	5,942
Westbury	7,112	4,524
White Plains	43,466	40,327
Williston Park	7,505	5,750
Yonkers	152,798	142,598
NORTH CAROLINA:		
Albemarle	11,798	4,060
Arlington*	5,085	‡
Asheboro	7,701	6,981
Asheville	53,000	51,310
Belmont	5,330	4,356
Burlington	24,560	12,198
Chapel Hill	9,177	3,654
Charlotte	134,042	100,899
Concord	16,486	15,572
Dunn	6,316	5,256
Durham	71,311	60,195
Elizabeth City	12,685	11,564
Fayetteville	34,715	17,428
Gastonia	23,069	21,313
Goldsboro	21,454	17,274
Graham	5,026	4,339
Greensboro	74,389	59,319
Greenville	16,724	12,674
Hamlet	5,061	5,111
Henderson	10,996	7,647
Hendersonville	6,103	5,381
Hickory	14,755	13,487
High Point	39,973	38,495
Kannapolis*	28,448	‡
Kings Mountain	7,206	6,547
Kinston	18,336	15,388
Laurinburg	7,134	5,685
Lenoir	7,888	7,598
Lexington	13,571	10,550
Lincolnton	5,423	4,525
Lumberton	9,186	5,803
Mills—East Rockingham*	5,180	‡
Monroe	10,140	6,475
Mooresville	7,121	6,682
Morehead City	5,144	3,695
Morganton	8,311	7,670
Mount Airy	7,192	6,286
New Bern	15,812	11,815
Newton	6,039	5,407
Oxford	6,685	3,991
Raleigh	65,679	46,897
Reidsville	11,708	10,387
Roanoke Rapids	8,156	8,545
Rocky Mount	27,697	25,568
Salisbury	20,102	19,037
Sanford	10,013	4,960
Shelby	15,508	14,037
Smithfield	5,574	3,678
South Gastonia*	6,465	‡
Spray*	5,542	‡
Statesville	16,901	11,440
Tarboro	8,120	7,148
Thomasville	11,154	11,041
Washington	9,698	8,569
Waynesville	5,295	2,940
Wilmington	45,043	33,407
Wilson	23,010	19,234
Winston-Salem	87,811	79,815
NORTH DAKOTA:		
Bismarck	18,640	15,496
Devils Lake	6,427	6,204
Dickinson	7,469	5,839
Fargo	38,256	32,580
Grand Forks	26,836	20,228
Jamestown	10,697	8,790
Mandan	7,298	6,685
Minot	22,032	16,577
Valley City	6,851	5,917
Wahpeton	5,125	3,747
Williston	7,378	5,790
OHIO:		
Akron	274,605	244,791
Alliance	26,161	22,405
Ashland	14,287	12,453
Ashtabula	23,696	21,405
Athens	11,660	7,606
Barberton	27,820	24,028
Bay	6,917	3,356
Bedford	9,105	7,390
Bellaire	12,573	13,799
Bellefontaine	10,232	9,808
Bellevue	6,906	6,127
Berea	12,051	6,025
Bexley	12,378	8,705
Bowling Green	12,005	7,190
Brooklyn	6,317	1,108
Bryan	6,365	5,404
Bucyrus	10,327	9,727
Cambridge	14,739	15,044
Campbell	12,882	13,785
Canton	116,912	108,401
Celina	5,703	4 841
Cheviot	9,944	9,043
Chillicothe	20,133	20,129
Cincinnati	503,998	455,610
Circleville	8,723	7,982
Cleveland	914,808	878,336
Cleveland Heights	59,141	54,992
Columbus	375,901	306,087

Footnotes at end of table.

Place	1950	1940
OHIO—Cont.:		
Conneaut	10,230	9,355
Coshocton	11,675	11,509
Cuyahoga Falls	29,195	20,546
Dayton	243,872	210,718
Deer Park	7,241	3,510
Defiance	11,265	9,744
Delaware	11,804	8,944
Delphos	6,220	5,746
Dover	9,852	9,691
East Cleveland	40,047	39,495
Eastlake	7,486	‡
East Liverpool	24,217	23,555
East Palestine	5,195	5,123
Elyria	30,307	25,120
Euclid	41,396	17,866
Fairborn	7,847	‡
Fairview	9,311	4,700
Findlay	23,845	20,228
Fostoria	14,351	13,453
Franklin	5,388	4,511
Fremont	16,537	14,710
Galion	9,952	8,685
Gallipolis	7,871	7,832
Garfield Heights	21,662	16,989
Girard	10,113	9,805
Grandview Heights	7,653	6,960
Greenville	8,859	7,745
Hamilton	57,951	50,592
Hillsboro	5,126	4,713
Ironton	16,333	15,851
Jackson	6,504	6,295
Kent	12,418	8,581
Kenton	8,475	7,593
Lakewood	68,071	69,160
Lancaster	24,180	21,940
Lima	50,246	44,711
Lincoln Heights	5,531	‡
Lockland	5,736	5,601
Logan	5,972	6,177
London	5,222	4,697
Lorain	51,202	44,125
Lyndhurst	7,359	2,391
Mansfield	43,564	37,154
Maple Heights	15,586	6,728
Marietta	16,006	14,543
Marion	33,817	30,817
Martins Ferry	13,220	14,729
Massillon	29,594	26,644
Maumee	5,548	4,683
Mayfield Heights	5,807	2,696
Medina	5,097	4,359
Miamisburg	6,329	5,544
Middletown	33,695	31,220
Mount Healthy	5,533	3,997
Mount Vernon	12,185	10,122
Napoleon	5,335	4,825
Newark	34,275	31,487
New Philadelphia	12,948	12,328
Niles	16,773	16,273
North College Hill	7,921	5,231
North Olmsted	6,604	3,487
Norwalk	9,775	8,211
Norwood	35,001	34,010
Oakwood	9,691	7,652
Oberlin	7,062	4,305
Orrville	5,153	4,484
Oxford	6,944	2,756
Painesville	14,432	12,235
Parma	28,897	16,365
Piqua	17,447	16,049
Port Clinton	5,541	4,505
Portsmouth	36,798	40,466
Ravenna	9,857	8,538
Reading	7,836	6,079
Rocky River	11,237	8,291
St. Bernard	7,066	7,387
St. Mary's	6,208	5,532
Salem	12,754	12,301
Sandusky	29,375	24,874
Shaker Heights	28,222	23,393
Shelby	7,971	6,643
Sidney	11,491	9,790
South Euclid	15,432	6,146
Springfield	78,508	70,662
Steubenville	35,872	37,651
Struthers	11,941	11,739
Tallmadge	5,821	3,452
Tiffin	18,952	16,102
Toledo	303,616	282,349
Toronto	7,253	7,426
Troy	10,661	9,697
Uhrichsville	6,614	6,435
University Heights	11,566	5,981
Upper Arlington	9,024	5,370
Urbana	9,335	8,335
Van Wert	10,364	9,227
Wadsworth	7,966	6,495
Wapakoneta	5,797	5,225
Warren	49,856	42,837
Washington Court House	10,560	9,402
Wellston	5,691	5,537
Wellsville	7,854	7,672
Wickliffe	5,002	3,155
Willoughby	5,602	4,364
Wilmington	7,387	5,971
Wooster	14,005	11,543
Wyoming	5,582	4,466
Xenia	12,877	10,633
Youngstown	168,330	167,720
Zanesville	40,517	37,500
OKLAHOMA:		
Ada	15,995	15,143
Altus	9,735	8,593
Alva	6,505	5,055
Anadarko	6,184	5,579
Ardmore	17,890	16,886
Bartlesville	19,228	16,267
Bethany	5,705	2,590
Blackwell	9,199	8,537
Bristow	5,400	6,050
Chickasha	15,842	14,111
Claremore	5,494	4,134
Clinton	7,555	6,736
Cushing	8,414	7,703
Drumright	5,028	4,303
Duncan	15,325	9,207
Durant	10,541	10,027
Edmond	6,086	4,002
Elk City	7,962	5,021
El Reno	10,991	10,078
Enid	36,017	28,081
Frederick	5,467	5,109
Guthrie	10,113	10,018
Henryetta	7,987	6,905
Hobart	5,380	5,177
Holdenville	6,192	6,632
Hugo	5,984	5,909
Lawton	34,757	18,055
McAlester	17,878	12,401
Miami	11,801	8,345
Midwest City	10,166	‡
Muskogee	37,289	32,332
Norman	27,006	11,429
Oklahoma City	243,504	204,424
Okmulgee	18,317	16,051
Pauls Valley	6,896	5,104
Pawhuska	5,331	5,443
Perry	5,137	5,045
Ponca City	20,180	16,794
Sand Springs	6,994	6,137
Sapulpa	13,031	12,249
Seminole	11,863	11,547
Shawnee	22,948	22,053
Stillwater	20,238	10,097
Tulsa	182,740	142,157
Vinita	5,518	5,685
Wewoka	6,747	10,315
Woodward	5,915	5,406
OREGON:		
Albany	10,115	5,654
Altamont*	9,419	‡
Ashland	7,739	4,744
Astoria	12,331	10,389
Baker	9,471	9,342
Bend	11,409	10,021
Coos Bay (Marshfield)	6,223	5,259
Corvallis	16,207	8,392
Eugene	35,879	20,838
Grants Pass	8,116	6,028
Hillsboro	5,142	3,747
Klamath Falls	15,875	16,497
La Grande	8,635	7,747
Lebanon	5,873	2,729
McMinnville	6,635	3,706
Medford	17,305	11,281
Milwaukie	5,253	1,871
North Bend	6,099	4,262
Oregon City	7,682	6,124
Pendleton	11,774	8,847
Portland	373,628	305,394
Roseburg	8,390	4,924
Salem	43,140	30,908
Springfield	10,807	3,805
The Dalles	7,676	6,266
PENNSYLVANIA:		
Aliquippa	26,132	27,023
Allentown	106,756	96,904
Altoona	77,177	80,214
Ambridge	16,429	18,968
Archbald	6,304	8,296
Arnold	10,263	10,898
Ashland	6,192	7,045
Ashley	5,243	6,371
Avalon	6,463	6,155
Bangor	6,050	5,687
Beaver	6,360	5,641
Beaver Falls	17,375	17,098
Bellefonte	5,651	5,304
Bellevue	11,604	10,488
Berwick	14,010	13,181
Bethel	11,324	‡
Bethlehem	66,340	58,490
Blairsville	5,000	5,002
Blakely	6,828	8,106
Bloomsburg	10,633	9,799
Brackenridge	6,178	6,400
Braddock	16,488	18,326
Bradford	17,354	17,691
Brentwood	12,535	7,552
Bridgeport	5,827	5,904
Bridgeville	5,650	4,459
Bristol	12,710	11,895
Brownsville	7,643	8,015
Butler	23,482	24,477
PENNSYLVANIA—Cont.:		
Camp Hill	5,934	3,630
Canonsburg	12,072	12,599
Carbondale	16,296	19,371
Carlisle	16,812	13,984
Carnegie	12,105	12,663
Castle Shannon	5,459	3,970
Centerville	5,845	6,317
Chambersburg	17,212	14,852
Charleroi	9,872	10,784
Chester	66,039	59,285
Clairton	19,652	16,381
Clearfield	9,357	9,372
Clifton Heights	7,549	4,921
Coaldale	5,318	6,163
Coatesville	13,826	14,006
Collingdale	8,443	8,162
Columbia	11,993	11,547
Connellsville	13,293	13,608
Conshohocken	10,922	10,776
Coraopolis	10,498	11,086
Corry	7,911	6,935
Crafton	8,066	7,163
Danville	6,994	7,122
Darby	13,154	10,334
Dickson	8,948	11,548
Donora	12,186	13,180
Dormont	13,405	12,974
Doylestown	5,262	4,976
Du Bois	11,497	12,080
Dunmore	20,305	23,086
Duquesne	17,620	20,693
Duryea	6,655	8,275
Easton	35,632	33,589
East Pittsburgh	5,259	6,079
East Stroudsburg	7,274	6,404
Edgewood	5,292	4,697
Edgewood-Ferndale-Fairview*	8,749	‡
Edwardsville	6,686	7,998
Elizabethtown	5,083	4,315
Ellwood City	12,945	12,329
Emmaus	7,780	6,731
Ephrata	7,027	6,199
Erie	130,803	116,955
Etna	6,750	7,223
Exeter	5,130	5,802
Farrell	13,644	13,899
Ford City	5,352	5,795
Forest Hills	6,301	5,248
Forty Fort	6,173	6,293
Fountain Hill	5,456	4,804
Frackville	6,541	8,035
Franklin (Venango Co.)	10,006	9,948
Freeland	5,909	6,593
Gettysburg	7,046	5,916
Glassport	8,707	8,748
Glenolden	6,450	4,825
Greensburg	16,923	16,743
Greenville	9,210	8,149
Grove City	7,411	6,296
Hanover	14,048	13,076
Harrisburg	89,544	83,893
Hazelton	35,491	38,009
Hellertown	5,435	4,031
Hershey-Swatara*	6,076	‡
Hollidaysburg	6,483	5,910
Homestead	10,046	19,041
Honesdale	5,662	5,687
Huntingdon	7,330	7,170
Indiana	11,743	10,050
Jeannette	16,172	16,220
Jenkintown	5,130	5,024
Jersey Shore	5,595	5,432
Johnstown	63,232	66,668
Kane	5,706	6,133
Kingston	21,096	20,670
Kittanning	7,731	7,550
Kulpmont	5,199	6,159
Lancaster	63,774	61,345
Landsdale	9,762	9,316
Lansdowne	12,169	10,837
Lansford	7,487	8,710
Larksville	6,360	8,467
Latrobe	11,811	11,111
Lebanon	28,156	27,206
Lehighton	6,565	6,615
Lewisburg	5,268	3,571
Lewistown	13,894	13,017
Lititz	5,568	4,840
Lock Haven	11,381	10,810
Luzerne	6,176	7,082
Lyndora-Highfield*	5,410	‡
McKeesport	51,502	55,355
McKees Rocks	16,241	17,021
Mahanoy City	10,934	13,442
Meadville	18,972	18,919
Mechanicsburg	6,786	5,709
Media	5,726	5,351
Middletown	9,184	7,046
Midland	6,491	6,373
Millvale	7,287	7,811
Milton	8,578	8,313
Minersville	7,783	8,686
Monaca	7,415	7,061
Monessen	17,896	20,257
Monongahela	8,922	8,825
Morrisville	6,787	5,493
Mount Carmel	14,222	17,780
Mount Oliver	6,646	6,981
Mount Pleasant	5,883	5,824
Munhall	16,437	13,900
PENNSYLVANIA—Cont.:		
Nanticoke	20,160	24,387
Nanty-Glo	5,425	6,217
Narberth	5,407	5,217
Nazareth	5,830	5,721
New Brighton	9,535	9,630
New Castle	48,834	47,638
New Cumberland	6,204	4,525
New Kensington	25,146	24,055
Norristown	38,126	38,181
Northampton	9,332	9,622
North Braddock	14,724	15,679
Norwood	5,246	3,921
Oakmont	7,264	6,260
Oil City	19,581	20,379
Old Forge	9,749	11,892
Olyphant	7,047	9,252
Palmerton	6,646	7,475
Palmyra	5,910	5,239
Philadelphia	2,071,605	1,931,334
Phoenixville	12,932	12,282
Pitcairn	5,857	6,310
Pittsburgh	676,806	671,659
Pittston	15,012	17,828
Plymouth	13,021	15,507
Pottstown	22,589	20,194
Pottsville	23,640	24,530
Prospect Park	5,834	5,100
Punxsutawney	8,969	9,482
Quakertown	5,673	5,150
Rankin	6,941	7,470
Reading	109,320	110,568
Red Lion	5,119	4,891
Ridgway	6,244	6,253
Rochester	7,197	7,441
St. Clair	5,856	6,809
St. Marys	7,846	7,653
Sayre	7,735	7,569
Schuylkill Haven	6,597	6,518
Scottdale	6,249	6,493
Scranton	125,536	140,404
Sewickley	5,836	5,614
Shamokin	16,879	18,810
Sharon	26,454	25,622
Sharon Hill	5,464	4,467
Sharpsburg	7,296	8,202
Sharpsville	5,414	5,129
Shenandoah	15,704	19,790
Shillington	5,059	4,932
Shippensburg	5,722	5,244
Somerset	5,936	5,430
South Williamsport	6,364	6,033
State College	17,227	6,226
Steelton	12,574	13,115
Stroudsburg	6,361	6,186
Sunbury	15,570	15,462
Swissvale	16,488	15,919
Swoyersville	7,795	9,234
Tamaqua	11,508	12,486
Tarentum	9,540	9,846
Taylor	7,176	9,002
Throop	5,861	7,382
Titusville	8,923	8,126
Turtle Creek	12,363	9,805
Tyrone	8,214	8,845
Uniontown	20,471	21,819
Vandergrift	9,524	10,725
Warren	14,849	14,891
Washington	26,280	26,166
Waynesboro	10,334	10,231
Waynesburg	5,514	4,891
West Chester	15,168	13,289
West Hazleton	6,988	7,523
West Mifflin	17,985	8,694
West Pittston	7,230	7,943
West Reading	5,072	4,907
West View	7,581	7,215
West York	5,756	5,590
Whitehall	7,342	‡
White Oak	6,159	‡
Wilkes-Barre	76,826	86,236
Wilkinsburg	31,418	29,853
Williamsport	45,047	44,355
Wilmerding	5,325	5,662
Wilson	8,159	8,217
Windber	8,010	9,057
Winton	6,280	7,989
Yeadon	11,068	8,524
York	59,953	56,712
RHODE ISLAND:		
Bristol*	10,335	‡
Central Falls	23,550	25,248
Cranston	55,060	47,085
Newport	37,564	30,532
Pawtucket	81,436	75,797
Providence	248,674	253,504
Wakefield-Peacedale*	5,224	‡
Warwick	43,028	28,757
Westerly*	8,415	‡
Woonsocket	50,211	49,303
SOUTH CAROLINA:		
Abbeville	5,395	4,930
Aiken	7,083	6,168
Anderson	19,770	19,424
Beaufort	5,081	3,185
Bennettsville	5,140	4,895
Brandon-Judson*	11,008	‡
Camden	6,986	5,747
Charleston	70,174	71,275

Footnotes at end of table.

CENSUS DATA, U.S.

Place	1950	1940
SOUTH CAROLINA—Cont.:		
Chester	6,893	6,392
Clinton	7,168	5,704
Columbia	86,914	62,396
Conway	6,073	5,066
Darlington	6,619	6,236
Dillon	5,171	3,867
Easley	6,316	5,183
Eau Claire	9,238	3,508
Equinox-Appleton Mills*	5,413	‡
Florence	22,513	16,054
Gaffney	8,123	7,636
Georgetown	6,004	5,559
Greenville	58,161	34,734
Greenwood	13,806	13,020
Greer	5,050	2,940
Hartsville	5,658	5,399
Lake City	5,112	2,522
Lancaster	7,159	4,430
Laurens	8,658	6,894
Marion	6,834	5,746
Newberry	7,546	7,510
Orangeburg	15,322	10,521
Riverside-City View-Woodside*	8,471	‡
Rock Hill	24,502	15,009
Sans Souci-Union Bleachery*	9,337	‡
Shannontown*	5,828	‡
Spartanburg	36,795	32,249
Sumter	20,185	15,874
Union	9,730	8,478
Whites Bridge Road-North Winyah Heights*	5,070	‡
SOUTH DAKOTA:		
Aberdeen	21,051	17,015
Brookings	7,764	5,346
Hot Springs	5,030	4,083
Huron	12,788	10,843
Lead	6,422	7,520
Madison	5,153	5,018
Mitchell	12,123	10,633
Pierre	5,715	4,322
Rapid City	25,310	13,844
Sioux Falls	52,696	40,832
Vermillion	5,337	3,324
Watertown	12,699	10,617
Yankton	7,709	6,798
TENNESSEE:		
Alcoa	6,355	5,131
Athens	8,618	6,930
Bristol	16,771	14,004
Chattanooga	131,041	128,163
Clarksville	16,246	11,831
Cleveland	12,605	11,351
Columbia	10,911	10,579
Cookeville	6,924	4,364
Dyersburg	10,885	10,034
East Ridge	9,645	2,939
Elizabethton	10,754	8,516
Fayetteville	5,447	4,684
Franklin	5,475	4,120
Gallatin	5,107	4,829
Greeneville	8,721	6,784
Harriman	6,389	5,620
Humboldt	7,426	5,160
Jackson	30,207	24,332
Johnson City	27,864	25,332
Kingsport	19,571	14,404
Knoxville	124,769	111,580
La Follette	5,797	4,010
Lawrenceburg	5,442	3,807
Lebanon	7,913	5,950
Lenoir City	5,159	4,373
Lewisburg	5,164	3,582
Lynn Garden-West View-Fort Robinson-Morrison City*	8,627	‡
McMinnville	7,577	4,649
Maryville	7,742	5,609
Memphis	396,000	292,942
Morristown	13,019	8,050
Murfreesboro	13,052	9,495
Nashville	174,307	167,402
Oak Ridge*	30,229	‡
Paris	8,826	6,395
Pulaski	5,762	5,314
Shelbyville	9,456	6,537
Springfield	6,506	6,668
Tullahoma	7,562	4,549
Union City	7,665	7,256
TEXAS:		
Abilene	45,570	26,612
Alamo Heights	8,000	5,700
Alice	16,449	7,792
Alpine	5,261	3,866
Amarillo	74,246	51,686
Aransas Pass	5,396	4,095
Arlington	7,692	4,240
Athens	5,194	4,765
Austin	132,459	87,930
Ballinger	5,302	4,472
Bay City	9,427	6,594
Baytown	22,983	‡
Beaumont	94,014	59,061
Beeville	9,348	6,789
TEXAS—Cont.:		
Bellaire	10,173	1,124
Belton	6,246	3,572
Big Spring	17,286	12,604
Bonham	7,049	6,349
Borger	18,059	10,018
Brady	5,944	5,002
Breckenbridge	6,610	5,826
Brenham	6,941	6,435
Brownfield	6,161	4,009
Brownsville	36,066	22,083
Brownwood	20,181	13,398
Bryan	18,102	11,842
Cameron	5,052	5,040
Childress	7,619	6,464
Cisco	5,230	4,868
Cleburne	12,905	10,558
Cleveland	5,183	1,783
Coleman	6,530	6,054
College Station	7,925	2,184
Colorado City	6,774	5,213
Commerce	5,889	4,699
Conroe	7,298	4,624
Corpus Christi	108,287	57,301
Corsicana	19,211	15,232
Crockett	5,932	4,536
Crystal City	7,198	6,529
Cuero	7,498	5,474
Dalhart	5,918	4,682
Dallas	434,462	294,734
Del Rio	14,211	13,343
Denison	17,504	15,581
Denton	21,372	11,192
Donna	7,171	4,712
Dumas	6,127	2,117
Eagle Pass	7,276	6,459
Edinburg	12,383	8,718
El Campo	6,237	3,906
El Paso	130,485	96,810
Ennis	7,815	7,087
Falfurrias	6,712	‡
Fort Worth	278,778	177,662
Freeport	6,012	2,579
Gainesville	11,246	9,651
Galena Park	7,186	1,562
Galveston	66,568	60,862
Garland	10,571	2,233
Gladewater	5,305	4,454
Gonzales	5,659	4,722
Graham	6,742	5,175
Grand Prairie	14,594	1,595
Greenville	14,727	13,995
Haltom City	5,760	‡
Harlingen	23,229	13,306
Henderson	6,833	6,437
Hereford	5,207	2,584
Highland Park	11,405	10,288
Hillsboro	8,363	7,799
Houston	596,163	384,514
Huntsville	9,820	5,108
Jacinto	6,856	‡
Jacksonville	8,607	7,213
Kermit	6,912	2,584
Kerrville	7,691	5,572
Kilgore	9,638	6,708
Killeen	7,045	1,263
Kingsville	16,898	7,782
Lamarque*	7,359	‡
Lamesa	10,704	6,038
Laredo	51,910	39,274
Levelland	8,264	3,091
Littlefield	6,540	3,817
Lockhart	5,573	5,018
Longview	24,502	13,758
Lubbock	71,747	31,853
Lufkin	15,135	9,567
McAllen	20,067	11,877
McKinney	10,560	8,555
Marlin	7,099	6,542
Marshall	22,327	18,410
Mercedes	10,081	7,624
Mexia	6,627	6,410
Midland	21,713	9,352
Mineral Wells	7,801	6,303
Mission	10,765	5,982
Monahans	6,311	3,944
Mount Pleasant	6,342	4,528
Nacogdoches	12,327	7,538
Navasota	5,188	6,138
New Braunfels	12,210	6,976
Odessa	29,495	9,573
Orange	21,174	7,472
Palestine	12,503	12,144
Pampa	16,583	12,895
Paris	21,643	18,678
Pasadena	22,483	3,436
Pecos	8,054	4,855
Pharr	8,690	4,784
Plainview	14,044	8,263
Port Arthur	57,530	46,140
Port Lavaca	5,599	2,069
Port Neches	5,448	2,487
Raymondville	9,136	4,050
River Oaks	7,097	‡
Robstown	7,278	6,780
Rosenberg	6,210	3,457
Rusk	6,598	5,699
San Angelo	52,093	25,802
San Antonio	408,442	253,854
San Benito	13,271	9,501
San Marcos	9,980	6,006
San Pedro*	8,127	‡
Seguin	9,733	7,006
TEXAS—Cont.:		
Sherman	20,150	17,156
Slaton	5,036	3,587
Snyder	12,010	3,815
Stamford	5,819	4,810
Stephenville	7,155	4,768
Sulphur Springs	8,991	6,742
Sweetwater	13,619	10,367
Taylor	9,071	7,875
Temple	25,467	15,344
Terrell	11,544	10,481
Texarkana	24,753	17,019
Texas City	16,620	5,748
Tyler	38,968	28,279
University Park	24,275	14,458
Uvalde	8,674	6,679
Vernon	12,651	9,277
Victoria	16,126	11,566
Waco	84,706	55,982
Waxahachie	11,204	8,655
Weatherford	8,093	5,924
Weslaco	7,514	6,883
West University Place	17,074	9,221
White Settlement	10,827	‡
Wichita Falls	68,042	45,112
Yoakum	5,231	4,733
UTAH:		
American Fork	5,126	3,333
Bountiful	6,004	3,357
Brigham	6,790	5,641
Cedar City	6,106	4,695
Logan	16,832	11,868
Murray	9,006	5,740
Ogden	57,112	43,688
Orem	8,351	2,914
Price	6,010	5,214
Provo	28,937	18,071
Salt Lake City	182,121	149,934
South Salt Lake	7,704	5,701
Spanish Fork	5,230	4,167
Springville	6,475	4,796
Tooele	7,269	5,001
Washington Terrace*	5,841	‡
VERMONT:		
Barre	10,922	10,909
Bennington	8,002	7,628
Brattleboro*	9,606	‡
Burlington	33,155	27,686
Montpelier	8,599	8,006
Newport	5,217	4,902
Rutland	17,659	17,082
St. Albans	8,552	8,037
St. Johnsbury	7,370	7,437
Winooski	6,734	6,036
VIRGINIA:		
Alexandria	61,787	33,523
Big Stone Gap	5,173	4,331
Bristol	15,954	9,768
Buena Vista	5,214	4,335
Charlottsville	25,969	19,400
Clifton Forge	5,795	6,461
Colonial Heights	6,077	3,194
Copeland Park*	7,115	‡
Covington	5,860	6,300
Danville	35,066	32,749
Emporia	5,664	2,735
Falls Church	7,535	2,576
Ferguson Park*	5,203	‡
Fredericksburg	12,158	10,066
Front Royal	8,115	3,831
Galax	5,248	3,195
Hampton	5,966	5,898
Harrisonburg	10,810	8,768
Hopewell	10,219	8,679
Lexington	5,976	3,914
Lynchburg	47,727	44,541
Marion	6,982	5,177
Martinsville	17,251	10,080
Newport News	42,358	37,067
Newsome Park-Hilton Park*	14,960	‡
Norfolk	213,513	144,332
North Hampton-South Hampton*	5,924	‡
Petersburg	35,054	30,631
Portsmouth	80,039	50,745
Pulaski	9,202	8,792
Radford	9,026	6,990
Richmond	230,310	193,042
Riverview*	14,215	‡
Roanoke	91,921	69,287
Salem	6,823	5,737
South Boston	6,057	5,252
South Norfolk	10,434	8,038
Staunton	19,927	13,337
Suffolk	12,339	11,343
Virginia Beach	5,390	2,600
Waynesboro	12,357	7,373
Williamsburg	6,735	3,942
Winchester	13,841	12,095
Wytheville	5,513	4,653
STATE OF WASHINGTON:		
Aberdeen	19,653	18,846
Ancortes	6,919	5,875
WASHINGTON—Cont.:		
Auburn	6,497	4,211
Bellingham	34,112	29,314
Beverly Park—Laurel Heights—Lowell—Pinehurst*	8,353	‡
Bremerton	27,678	15,134
Centralia	8,657	7,414
Chehalis	5,639	4,857
Clarkston	5,617	3,116
Ellensburg	8,430	5,944
Everett	33,849	30,224
Hoquiam	11,123	10,835
Kelso	7,345	6,749
Kennewick	10,106	1,918
Longview	20,339	12,385
Mount Vernon	5,230	4,278
Olympia	15,819	13,254
Pasco	10,228	3,913
Port Angeles	11,233	9,409
Port Townsend	6,888	4,683
Pullman	12,022	4,417
Puyallup	10,010	7,889
Renton	16,039	4,488
Richland*	21,809	‡
Seattle	467,591	368,302
Spokane	161,721	122,001
Tacoma	143,673	109,408
Toppenish	5,265	3,683
Vancouver	41,664	18,788
Walla Walla	24,102	18,109
Wenatchee	13,072	11,620
Yakima	38,486	27,221
WEST VIRGINIA:		
Beckley	19,397	12,852
Bluefield	21,506	20,641
Buckhannon	6,016	4,450
Charleston	73,501	67,914
Clarksburg	32,014	30,579
Dunbar	8,032	5,266
Elkins	9,121	8,133
Fairmont	29,346	23,105
Grafton	7,365	7,431
Hinton	5,780	5,815
Huntington	86,353	78,836
Keyser	6,347	6,177
Logan	5,079	5,166
Martinsburg	15,621	15,063
Morgantown	25,525	16,655
Moundsville	14,772	14,168
Parkersburg	29,684	30,103
Princeton	8,279	7,426
Richwood	5,321	5,051
St. Albans	9,870	3,558
South Charleston	16,686	10,377
South Parkersburg*	10,808	‡
Vienna	6,020	2,338
Weirton	24,005	‡
Welch	6,603	6,264
Wellsburg	5,787	6,255
Weston	8,945	8,268
Wheeling	58,891	61,099
Williamson	8.624	8,366
WISCONSIN:		
Antigo	9,902	9,495
Appleton	34,010	28,436
Ashland	10,640	11,101
Baraboo	7,264	6,415
Beaver Dam	11,867	10,356
Beloit	29,590	25,365
Chippewa Falls	11,088	10,368
Cudahy	12,182	10,561
De Pere	8,146	6,373
Eau Claire	36,058	30,745
Fond du Lac	29,936	27,209
Fort Atkinson	6,280	6,153
Green Bay	52,735	46,235
Janesville	24,899	22,992
Kaukauna	8,337	7,382
Kenosha	54,368	48,765
La Crosse	47,535	42,707
Madison	96,056	67,447
Manitowoc	27,598	24,404
Marinette	14,178	14,183
Marshfield	12,394	10,359
Menasha	12,385	10,481
Menomonie	8,245	6,582
Merrill	8,951	8,711
Milwaukee	637,392	587,472
Monroe	7,037	6,182
Neenah	12,437	10,645
Oconomowoc	5,345	4,562
Oconto	5,055	5,362
Oshkosh	41,084	39,089
Platteville	5,751	4,762
Portage	7,334	7,016
Prairie du Chien	5,392	4,622
Preble*	5,092	‡
Racine	71,193	67,195
Rhinelander	8,774	8,501
Rice Lake	6,898	5,719
Ripon	5,610	4,566
Shawano	5,894	5,565
Sheboygan	42,365	40,638
Shorewood	16,199	15,184
South Milwaukee	12,855	11,134
Sparta	5,893	5,820

Footnotes at end of table.

Place	1950	1940
WISCONSIN—Cont.		
Stevens Point	16,564	15,777
Sturgeon Bay	7,054	5,439
Superior	35,325	35,136
Two Rivers	10,243	10,302
Watertown	12,417	11,301
Waukesha	21,233	19,242
Waupun	6,725	6,798
Wausau	30,414	27,268
Wauwatosa	33,324	27,769
West Allis	42,959	36,364
West Bend	6,849	5,452
West Milwaukee	5,429	5,010
Whitefish Bay	14,665	9,651
Whitewater	5,101	3,689
Wisconsin Rapids	13,496	11,416
WYOMING:		
Casper	23,673	17,964
Cheyenne	31,935	22,474
Laramie	15,581	10,627
Rawlins	7,415	5,531
Rock Springs	10,857	9,827
Sheridan	11,500	10,529

*Unincorporated place; in some cases part of a minor civil division of the same name.

†Incorporated place, excluding part of civil division of the same name.

‡Not enumerated separately in 1940.

Ceramic Products. By the end of 1951, the volume of building construction in the United States had exceeded that of the previous year, providing peak markets for structural clay products, sanitary ware, enamelled kitchenware and structural and window glass.

Though the shortages of such materials as cobalt, copper and soda ash were felt severely by manufacturers in some phases of the ceramic industry, they were beginning to look for, and find, substitutes.

The U.S. steel industry, outdoing itself in production, could not keep up with demand in the industry, particularly in the special steels for enamelling.

As a whole, the U.S. pottery industry suffered a severe slump. Dinnerware imports from other countries, particularly Japan, were cutting into the home market. The industry shipped substantially less in 1951 than in the previous year.

In the china, glass and giftware fields, the United States threw a spotlight on Italian, French, Swedish and west German merchandise by making major tariff concessions at the Torquay (Eng.) conference. In return, the U.S. received tariff cessions for its own manufacturers.

At trade shows the trend seemed to be toward casual ware, with modernized forms of traditional items in the lead. The shortage of pieces made of critical materials such as copper, brass and certain types of steel was minimized by the ingenious use of ceramic substitutes. These included enamelled silver, pottery and glass.

Pottery and glass buyers in Great Britain reported a flood of glassware for their home market, but a continuing dearth of quality tableware. The greatest demand on the British market was for decorated tableware, but the prospects for delivery were not promising.

The continuing popularity of the "picture" window in the modern home and the trend toward greater window-glass area in automobiles contributed to the need for more flat glass. The steel shortage probably accounted for the fact that the glass-container industry produced approximately one-fifth more pieces than during 1950.

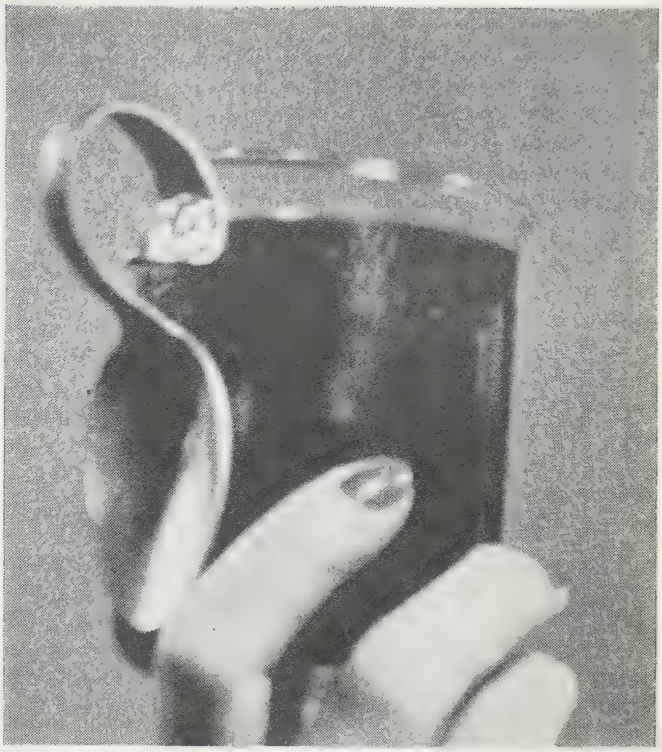
(*See* also GLASS.)

Blocking some manufacturers' plans for greater production in the glass industry was a government ban on the production of tubes for colour television, again to conserve critically short materials needed for armament.

Glass production figures showed that production in most phases of the west German glass industry was as high as in the whole of Germany before the war.

Art and high-quality glass accounted for a substantial share of the exports.

New Developments.—In line with the defense program, ceramic materials began finding their way into the construction of military goods and weapons. An outstanding example was the use of heat-resistant ceramic coatings in the exhaust systems of U.S. jet aircraft. The coatings provided "header" sections with improved protection from the violent heat of gases produced in the jets.



SPOON SOLDERED to a glass by a process for direct joining of glass or ceramics to metal. The process was developed by engineers of the General Electric company in 1951

Designers of power-type capacitors and condensers for electronic equipment and radio and television receivers were finding new uses for an extremely fine glass fibre which was being manufactured. Equipment made of the fibre had lower electrical loss, greater high-temperature stability and greater capacity per unit of weight and size than those made previously. The fibre was said to be smaller in diameter than any glass fibres before manufactured on a commercial basis.

A program advocating the use of porcelain enamelled curtain walls (thin, sandwich-type walls having an inner and outer facing of metal with an insulating core between) was instituted in the United States. The fact that colour can be used to a great competitive advantage in porcelain promised to make these walls superior to aluminum, stainless steel and glass walls.

Porcelain enamelling of aluminum, commercially begun in 1950 but with limited success, was still in the perfecting stage.

For the automotive industry, a graduated glare-reducing glass was developed and put on the market. Stained a deep blue-green at the top to screen out the sun's glare and unwanted heat rays, the glass eliminated the need for sun shields.

In the field of television tube manufacturing, large 26-in. mirror blanks were manufactured. Installed in a reflective optical system, a blank provided pictures large enough to cover an average-size theatre screen.

A process was conceived by which glass could be soldered to metal, making a bond stronger than the glass itself. The method, it was found, could also be used to solder metal to ceramics and carbon.

A device for supplying low-level lighting, called Electroluminescence, was put on the market. The new-type light had a coating which glowed when electricity was applied.

A kind of glass was introduced which could be precision machined by using ultra-violet light, heat and hydrofluoric acid to form intricately cut patterns of any desired shape and depth. The "chemically machined" glass was being used in the manufacture of "printed" electronic circuits.

The functional rather than the decorative was again the keynote in the field of ceramic art.

Films of 1951.—*Simple Ceramics, The Potter's Wheel* (Allen-Moore Productions). (C. S. Pe.)

Cereals: *see* Barley; Corn; Oats; Rice; Rye; Wheat.

Ceylon. A self-governing member of the Commonwealth of Nations, Ceylon lies southeast of the southern extremity of India. Area: 25,332 sq.mi. Pop.: (1946 census) 6,695,605; (Dec. 1950 est.) 7,639,000. Language: mainly Sinhalese (69%) and Tamil (21%). Religion: Buddhist (61%), Hindu (22%), Moslem (9%) and Christian, mainly Roman Catholic (7%). Chief towns (pop. 1946 census): Colombo (cap., 362,000); Jaffna (63,000); Dehiwala-Mt. Lavinia (56.000); Kandy (52,000).

Governor general, Lord Soulbury; prime minister, Don Stephen Senanayake.

History.—The Port of Colombo Administration act, which came into force on Jan. 1, 1951, gave the Colombo Port commission a Ceylonese majority among the nonofficial members for the first time. The increase in the number of Ceylonese employed in commerce and industry engaged the government's attention. A. E. Goonesinha, minister in charge of what was termed "ceylonization," told the house of representatives that more Ceylonese should be employed in the higher posts on estates and in commercial firms and banking institutions. The planting industry was sympathetic but contended that many years of practical experience were required before proficiency in all branches of planting was reached. The criterion should be efficiency, not nationality. The percentage of Ceylonese superintendents to Europeans in the planting industry within the last 12 years had increased from 10% to 19%, and Ceylonese assistant superintendents to Europeans from 10% to 40%.

The budget presented on July 13 showed an estimated revenue for 1951–52 of Rs. 971,000,000 and expenditure Rs. 1,244,000,000. Of this expenditure Rs. 910,000,000 was to be provided from the consolidated fund and the balance, Rs. 330,000,000, from the loan fund. The budget was the largest in the history of Ceylon. The main items of revenue were estimated to be: customs Rs. 553,000,000; income tax, estate duty, excess-profits tax Rs. 202,000,000; railways Rs. 65,000,000; excise and salt Rs. 46,000,000. The chief items of expenditure were estimated to be: food and co-operative undertakings Rs. 176,000,000; health and local government Rs. 131,000,000; education Rs. 140,000,000; agriculture and lands Rs. 79,000,000; labour and social services Rs. 24,000,000.

The total expenditure on defense was estimated at Rs. 22,000,000 as against Rs. 9,000,000 for 1950–51.

The budget provided for an increase in the profits tax from 20% to 25%, and for increases in income tax on incomes of more than Rs. 20,000 a year, ranging from 22% to 24% in the Rs. 20,000 income group and from 66% to 76% at the other end of the scale. Increased family allowances were granted to the middle- and lower-income groups. The tax payable by resident companies was increased from 28% to 38%, and by nonresident companies from 24% to 36%. There was a reduction of import duties on certain consumer goods and on capital goods such as motor vehicles. A sliding scale for export duties on rubber and coconuts took effect from Sept. 10. Reliefs to industry, including exemption from taxation for the first three years on investment in government-sponsored corporations and taxation only on profits exceeding 5% for the first three years on defined industrial undertakings, started after April 1, 1951.

Exchange controls were relaxed from Sept. 19, and travel rations increased.

A trade agreement between Ceylon and Pakistan was signed in Karachi, Pak., on Sept. 14, coming into force retrospectively from July 1, 1951. From Pakistan Ceylon was to receive foodstuffs, bone meal, manure, ash and sulphuric acid. Ceylon was to supply Pakistan mainly with copra and coconut oil. On June 9 the prime minister informed a deputation of Ceylonese rubber producers that Ceylon would continue to be a free market for all buyers. This emphasized Ceylon's decision not to cut off supplies of rubber to China, a decision which was recognized, despite certain criticisms, as in conformity with Ceylon's economic requirements. Radio Ceylon was supplied with radio equipment in return for facilities to broadcast "Voice of America" programs as a result of an agreement concluded with the U.S. government on May 14.

Prime Minister Senanayake attended the Conference of Commonwealth Prime Ministers in London in January. On July 12 S. W. R. D. Bandaranaike, minister of health, resigned because of a difference of opinion with the cabinet. The prime minister took over the health portfolio pending further arrangements. J. R. Jayewardene, minister of finance, led the Ceylon delegation at the Japanese Peace conference (*q.v.*) at San Francisco, Calif., and signed the peace treaty on behalf of Ceylon. (E. Hd.)

Education.—Schools (1949): Sinhalese and Tamil government and assisted 5,610, pupils 1,010,184; central and English 631, pupils 237,678. Technical college (1949–50): students 1,969. Teachers' training colleges (1949) 20, students: primary 1,653, secondary 222, postgraduate 68. University (1949–50): students 1,850.

Finance and Banking.—Budget (1950–51 est.): revenue Rs. 794,000,000, expenditure Rs. 704,000,000. Gross national debt (Sept. 1950): Rs. 561,400,000. Currency circulation (Aug. 1951): Rs. 362,000,000. Bank deposits (July 1951): Rs. 637,000,000. Monetary unit: rupee, with an exchange rate of Rs. 13.33 to the pound and Rs. 4.775 to the U.S. dollar.

Foreign Trade.—(1950) Imports Rs. 1,164,000,000; exports Rs. 1,560,000,000. Main sources of imports: U.K. 20%; Burma 20%; India 16%; Australia 7%. Main destinations of domestic exports: U.K. 24%; U.S. 22%; Australia 8%; Canada 6%. Main imports: rice, cotton piece goods and sugar. Main exports: tea, rubber and coconut oil.

Transport and Communications.—Roads (1949): 6,535 mi. Licensed motor vehicles (Dec. 1950): cars 32,500; commercial 14,800. Railways (1949): 896 mi.; passengers (1949) 26,700,000; freight (1949–50) 1,350,000 metric tons. Air transport (1950): passenger-miles 6,152,000; cargo, ton-miles 73,000. Telephones (1949): 14,884. Radio receiving set licences (1950): 28,000.

Agriculture.—Main crops (metric tons): tea (1950) 138,900; rice, paddy (1949) 295,000; cassava (1948) 150,000; sweet potatoes and yams (1948) 52,000; millet (1948) 10,000. Copra exports (1950) 21,000 metric tons. Livestock (Dec. 1949): cattle 1,249,000; sheep 57,000; pigs 104,000; buffaloes (Dec. 1948) 658,000; goats (May 1950) 370,000. Coconut oil exports (1950) 77,000 metric tons, (1951 est.) 112,000 metric tons.

Industry.—Fuel and power: manufactured gas (1950) 9,000,000 cu.m.; electricity (1950) 81,000,000 kw.hr. Raw materials (metric tons): rubber (1950) 115,302; graphite (exports, 1949) 12,434; salt (1949) 28,775.

Films of 1951.—*Ceylon, Pearl of the Orient* (Films of the Nations Distributors, Inc.).

Chambers of Commerce: *see* Societies and Associations, U.S.

Channel Islands: *see* Commonwealth of Nations; Great Britain & Northern Ireland, United Kingdom of.

Chapman, Oscar Littleton (1896–), U.S. secretary of the interior, was born on Oct. 22 in Omega, Va., and graduated from Randolph-Macon academy in Bedford, Va. He served in the navy in World War I and studied at the University of Denver, Colo., the University of New Mexico, Albuquerque, and at Westminster law school in Denver, where he received a law degree in 1929. He was chairman of the Colorado Child Welfare committee and later president of the Colorado state board of control. In May 1933 he was appointed assistant secretary of the interior. He was a member of Pres. F. D. Roosevelt's so-called "little cabinet," and for a dozen years supervised at one time or another virtually all the interior department activities. In Dec. 1949 he became secretary of the interior. In Feb. 1951 he announced the resignation of the director of the national park service, Newton B. Drury, who had four years until retirement. Drury said Chapman forced him out; he had opposed Chapman's plan to build hydroelectric and irrigation dams in Dinosaur National Monument in Utah and Colorado. In July, to offset the possible loss of production from the Iranian oil fields, Secretary Chapman set up a Foreign Petroleum Supply commission representing 19 oil companies doing overseas business, charged with making plans to increase crude oil production and refining and to improve transportation.

Charge Account: *see* Consumer Credit.
Charles Hayden Foundation: *see* Societies and Associations, U.S.
Cheese: *see* Dairy Products.

Chemistry.

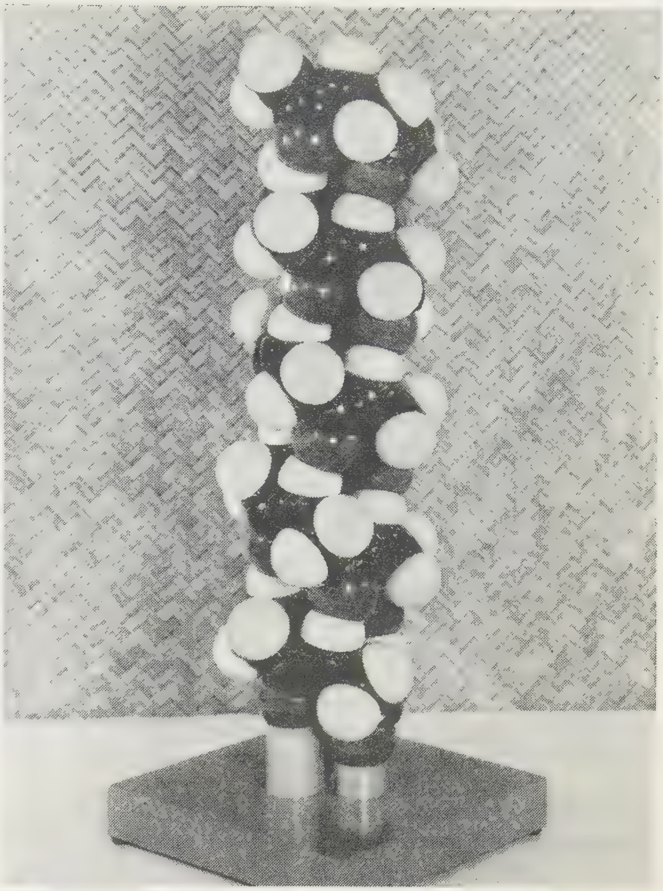
Names of Elements.—At its 1951 meeting the International Union of Pure and Applied Chemistry adopted W as the symbol for wolfram but reinstated the name tungsten as an acceptable synonym. Elements 97 and 98 were named berkelium (Bk) and californium (Cf), respectively.

Hydrogen Isotopes.—The three hydrogen isotopes of atomic weights 1, 2 and 3 are named hydrogen, deuterium and tritium. The availability of 15 c.c. of tritium gas from the reaction of neutrons on lithium of atomic weight 6 made it possible for E. R. Grilly of Los Alamos Scientific laboratory (N.Mex.) to determine vapour pressures of the three isotopes in the temperature range of 14–29° K., using baths of liquid hydrogen (14–24.5° K.) or of liquid neon (24.6–29° K.). The pressure of one atmosphere or 760 mm. of mercury was attained by hydrogen at 20.39° K., deuterium at 23.67° K. and tritium at 25.04° K. At temperature 18.7° K. solid deuterium had a pressure of 127 mm., whereas at 18.9° K. it melted and showed a pressure of 137 mm. At 27.7° K. the pressure was 2,130 mm., about three atmospheres. These are the corresponding data for tritium: solid at 20.5° K., 158 mm.; liquid at 20.6° K., 163 mm., and at 27.2° K., 1,350 mm.

Hydrides of Boron.—Diborane may be prepared by reaction of boron fluoride etherate with lithium hydride: $2BF_3+6LiH \rightarrow B_2H_6+6LiF$. Comparison with ethane, C_2H_6, is inevitable, and there is resemblance in physical properties (diborane, m.p. −165° C., b.p. −92° C.; ethane, m.p. −172° C., b.p. −84° C.), but there are great differences in chemical behaviour. For example, diborane reacts rapidly with water, yielding boric acid and hydrogen. The electron deficiency of diborane is responsible for this reactivity, since carbon has four valence electrons and boron only three. For this reason chemists had long been interested in the structure of boron hydrides. The year 1951 saw major advances on this problem.

Electron diffraction methods were employed by Kenneth W. Hedberg and Verner Schomaker of the California Institute of Technology (Pasadena). Their data eliminated any possibility of the ethanelike model for diborane but confirmed the "bridge model." In the latter the two boron atoms do not hold each other but each is associated with four hydrogen atoms in a tetrahedral arrangement. Thus two of these six hydrogens furnish a hydrogen bridge between the borons as they are held jointly by both boron atoms. The B-H bond distance was measured and found to be 1.19 A, the B-H bridge 1.33 A and the separation of boron atoms 1.77 A. The H-B-H bond angle was 121°. Comparable values for ethane are these: C-H 1.11 A, C-C bond distance 1.54 A, C-C-H bond angle 110°.

At temperatures around 200° C. or below, diborane undergoes pyrolysis into other boron hydrides, especially pentaborane, B_5H_9. The presence of hydrogen seems to assist in giving better conversions. The above work was reported by Lewis V. McCarty and Philip A. Di Giorgio of the General Electric Co. (Schenectady, N.Y.). The kinetics of this pyrolysis were studied by Robert N. Pease of Princeton university (Princeton, N.J.). The reaction was believed to be a radical-type polymerization process complicated by quasi-reversible dehydrogenation.



MODEL showing the fundamental structure of protein molecules of the alpha keratin type (hair, horn, muscle, etc.) as proposed in 1951 by Linus Pauling and Robert B. Corey of the California Institute of Technology, Pasadena

The structure of pentaborane was investigated by V. Schomaker, who used electron diffraction methods, and by W. J. Dulmage and William N. Lipscomb, Jr., of the University of Minnesota (Minneapolis), who used X-ray diffraction methods. In this compound the five boron atoms were found to be attached to each other as at the corners of a pyramid. The B-B distances at the base were 1.77–1.80 A, and the B-B distances on the edges of the pyramid were 1.66–1.70 A. A hydrogen bridge also connected each B-B pair at the base, these B-H distances being 1.35 A. The other B-H bonds (one for each boron atom) were 1.20 A long. Pentaborane, a liquid of b.p. 65° C., is one of the most stable hydrides of boron. It is not spontaneously inflammable in air, and it is not completely hydrolyzed by water even in three days at 90° C.

Plutonium.—Glenn T. Seaborg (*q.v.*) and M. L. Perlman discovered naturally occurring plutonium in 1942 in a sample of Canadian pitchblende concentrate. Seaborg, a Nobel prize medallist for 1951, continued these studies at the University of California, Berkeley. He reported that plutonium, element 94, was isolated from three pitchblende ores (from Canada, the Congo and Colorado), two monazite ores (from Brazil and North Carolina), a Colorado fergusonite and a Colorado carnotite. In the pitchblende and monazite ores the uranium content varied from 50% to 0.24% but the Pu:U ratio was fairly constant at about 10^{-11}. The fergusonite ore (0.25% U) and the carnotite (10% U) contained a substantially smaller plutonium ratio. All the plutonium was of atomic weight 239, probably formed from the U^{238} in the ore through captured neutrons and emission of beta particles: $U^{238} + n \rightarrow U^{239} \xrightarrow{-\beta} Np^{239} \xrightarrow{-\beta} Pu^{239}$.

The neutrons available for capture would be those emitted during spontaneous fission of uranium, those resulting from the action of alpha particles on the near-by light elements and those from cosmic rays.

D. F. Peppard and collaborators of Argonne National laboratory, Chicago, Ill., also reported on studies of a similar nature.

Americium.—Element 95, americium, was discovered in 1946 by G. T. Seaborg, R. James and L. Morgan. It arose from plutonium, irradiated in the chain reacting pile: $Pu^{239} \xrightarrow{n,\gamma} Pu^{240} \xrightarrow{n,\gamma} Pu^{241} \xrightarrow{-\beta} Am^{241}$. Burris B. Cunningham (University of California, Berkeley) first isolated a few micrograms of the pure element in 1949. Two groups of workers studied its chemistry in 1951.

Sherman Fried of Argonne National laboratory prepared the halides, AmF_3, $AmCl_3$, $AmBr_3$, AmI_3, and the sulphide, Am_2S_3, all in the III oxidation state. One compound in the IV state was the black dioxide, AmO_2, which was prepared by igniting the nitrate or hydroxide to 1,000° C. The trichloride was prepared by action of carbon tetrachloride on the dioxide at 900° C.: $AmO_2 + 2CCl_4 \rightarrow AmCl_3 + 2COCl_2 + \frac{1}{2}Cl_2$.

E. F. Westrum, Jr., and L. Eyring also prepared americium trifluoride from the dioxide but they used hydrogen fluoride and a little hydrogen at 650° C. From the fluoride they prepared the element by heating with metallic barium at 1,100° C. Metallic americium is silvery, very malleable and ductile. Its density was 11.7, much less than that of uranium (18.7).

Curium.—First isolation of curium, element number 96, in microgram quantity from neutron-irradiated americium was described by L. B. Werner and I. Perlman of California. Separation from unchanged americium was by means of an ion exchange resin.

Benzene from Petroleum.—Until very recent years the only commercial source of benzene, toluene and xylene was coal tar. Toluene emerged from this category during the World War II years and benzene and xylene emerged during 1951. The new source was petroleum.

In the U.S. coal tar is capable of giving about 175,000,000 gal. of benzene annually, which is used largely in motor fuel. Large increased demands for benzene as a raw material were brought about by present-day production of aniline, phenol, nylon, synthetic detergents and styrene. The last of these represented the biggest increase, because of its use in polystyrene plastic and as an ingredient with butadiene in synthetic rubber. The estimated 1951 U.S. production of benzene was 225,000,000 gal. and higher requirements were predicted.

To obtain this additional benzene, petroleum refiners separate the appropriate cyclohexane or methylcyclopentane (naphthenes) fraction from crude oil and treat it at 850–1,000° F. (455–535° C.) and 200–700 lb. per square inch pressure with an appropriate catalyst for the dehydrogenation. The benzene recovery from unchanged naphthenes essentially makes use of its greater solubility (as in diethylene glycol or liquid sulphur dioxide or by extractive distillation or azeotropic distillation) or of its greater adsorbability as on activated silica. The catalysts used may be platinum or heavy metal oxides on carriers such as molybdena-on-alumina.

Toluene also continues to be made from petroleum, and it is interesting to note that toluene was during 1951 a cheaper chemical than benzene. Coal tar productivity in the U.S. at that time was about 35,000,000 gal. to 40,000,000 gal. per year. Petroleum contributed more than twice that amount.

Xylene (about 10,000,000 gal. per year from coal in the U.S.) also was a new petroleum product. The 1951 U.S. output from the latter source was estimated at 50,000,000 gal. to 60,000,000 gal. The year also saw a new development in coal technology. Union Carbide and Carbon Corp. announced that it was hydrogenating 300 tons of coal per day for a daily output of about 500 bbl. of liquid product. This, therefore, provided a new source of hydrocarbon raw materials.

Somewhat related was a new phenol process announced by the Barrett division of Allied Chemical and Dye Corp. for use in its new Philadelphia, Pa., plant. In this process benzene and propylene were caused to react to form isopropylbenzene. The latter was then oxidized to phenol and acetone.

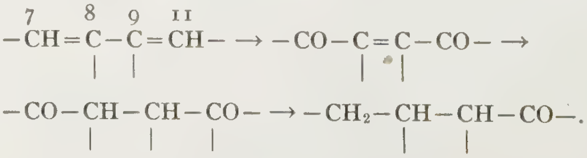
Protein Structure.—2,4-Dinitrofluorobenzene was developed by F. Sanger of Cambridge, Eng., as a reagent to detect free amino groups in proteins. During 1951 he established with its aid that bovine insulin has four free amino groups per molecule, assuming a molecular weight of 12000. This points to four open peptide chains in insulin. Two of the amino groups are on glycine and two on phenylalanine residues. The polypeptide consists of four peptide chains joined by six S-S bridges of cystine residues.

Performic acid oxidation of the dinitrophenyl derivative caused cleavage at the S-S bonds into an acidic fraction and a basic fraction. The latter was studied by methods of partial hydrolysis to a point where Sanger could list the sequence of the 30 amino acid residues comprising it. The order of the last ten was: histidine, serine, glycine, cystine, leucine, histidine, glutamic acid, aspartic acid, valine and phenylalanine.

Sanger believed that any particular protein had a very definite structure with a strict sequence of amino acid residues and that differences among proteins were due to differences in this sequence.

Cortisone.—As would be expected from the medical interest in this steroid, an intensive effort was made in several laboratories for new and simpler syntheses. The difficulty was the insertion of an oxygen at the 11-position, for such an oxygen is missing from the available starting materials such as cholesterol, cholic acid, diosgenin, etc. Some successful advances were reported.

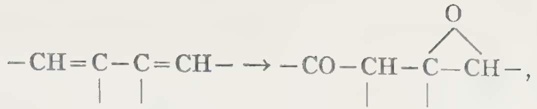
Max Tishler and collaborators of Merck & Co., Inc. (Rahway, N.J.), were successful in making 11-keto steroids starting with ergosterol. The unsaturation between carbons 5,6 was the point of attack for the synthesis, but several steps were involved. A Harvard university group under Louis F. Fieser accomplished this objective also, starting with cholesterol. This compound has one double bond only, between atoms 5,6. The immediate problem was how to remove it and get two double bonds at 7,8 and 9,11. To do this, cholesteryl acetate was oxidized (by chromic acid) to the 7-hydroxy compound, the latter esterified and pyrolyzed thereby placing two double bonds in the molecule, at 5,6 and 7,8. The double bond at 5,6 was saturated by hydrogenation in the presence of nickel catalyst. Then, by dehydrogenation with mercuric acetate, cholestadienol was obtained with two double bonds in the desired positions. Oxidation (by sodium dichromate and acetic acid), reduction (by zinc and acetic acid) and further reduction with hydrazine by the Wolff-Kishner method left carbon 11 with the oxygen which would be necessary in a cortisone structure. These steps are exhibited to show the transformations on atoms 7,8,9,11:



$$-\overset{7}{\mathrm{CH}}=\underset{|}{\overset{8}{\mathrm{C}}}-\underset{|}{\overset{9}{\mathrm{C}}}=\overset{11}{\mathrm{CH}}- \longrightarrow -\mathrm{CO}-\underset{|}{\mathrm{C}}=\underset{|}{\mathrm{C}}-\mathrm{CO}- \longrightarrow$$

$$-\mathrm{CO}-\underset{|}{\mathrm{CH}}-\underset{|}{\mathrm{CH}}-\underset{|}{\mathrm{CO}}- \longrightarrow -\mathrm{CH_2}-\underset{|}{\mathrm{CH}}-\underset{|}{\mathrm{CH}}-\mathrm{CO}-.$$

Carl Djerassi, G. Rosenkranz and co-workers at Syntex, Mexico City, Mex., provided another means of accomplishing this end. Starting with the 7,8:9,11 diene they used performic acid to oxidize it directly:



then by treatment with alkali into

$$-CO-C=C-CHOH-.$$

Then hydrogenation and Wolff-Kishner reduction yielded the sequence

$$-CH_2-CH-CH-CHOH-$$

from which

$$-CH_2-CH-CH-CO-$$

was obtained directly by oxidation with chromic acid.

The Syntex chemists announced a 22-step process for the manufacture of cortisone from diosgenin of Mexican yam, *Dioscorea.* Diosgenin is the most abundant steroidal sapogenin. It has unsaturation between carbons 5,6 as in cholesterol and differs from cholesterol in the structure at C_{17} and beyond. The company was, at the close of the year, processing 500 tons of yams per month for this purpose.

Other laboratories which reported important contributions to this problem were those of R. B. Woodward (Harvard university), Robert H. Levin (Upjohn company, Kalamazoo, Mich.), Percy L. Julian (Glidden company, Chicago, Ill.), Lew H. Sarett, Jr. (Merck & Co., Inc.), R. B. Wagner (Pennsylvania State college, State College, Pa.).

Eight-Membered Ring Compounds.—The availability of cyclo-octatetraene by synthesis from acetylene ($4C_2H_2 \rightarrow C_8H_8$) stimulated many investigations on it and its analogues. Much of this work was done by Arthur C. Cope of the Massachusetts Institute of Technology (Cambridge). Cope and H. C. Campbell found that acetylene and substituted acetylenes could be made to copolymerize to form substituted cyclo-octatrienes. Thus, dimethylacetylene and acetylene heated in tetrahydrofuran solvent at 70–90° C. and 250–300 lb. per square inch in the presence of nickel acetylacetonate and calcium carbide yielded 1,2-dimethylcyclo-octatetraene. Similarly, phenylacetylene was converted into phenyloctatetraene.

In its chemical reactions, Cope found that phenylmagnesium bromide reacted with cyclo-octatetraene at 100° C. to yield biphenyl and cyclo-octatrienes. Phenylsodium or phenyllithium gave rise to phenylcyclo-octatetraene, phenylcyclo-octatriene and cyclo-octatrienes. E. R. Lippincott and Richard C. Lord, also of the Massachusetts Institute of Technology, obtained various thermodynamic functions of cyclo-octatetraene such as entropy, heat capacity, heat of formation and the like.

Dibenzocyclo-octatetraene also was studied by Cope and S. W. Fenton. This hydrocarbon is like anthracene in being tricyclic but differs in that the middle ring is eight-membered rather than six. A tetrahydro derivative of this compound was obtained by hydrogenation with palladium as catalyst. This compound brominated readily when treated with N-bromosuccinimide. The compound obtained, 3,7-dibromo-1,2:5,6-dibenzocyclo-octadiene, underwent an unusual reaction in dehydrobromination by amines. Instead of regenerating dibenzocyclo-octatetraene, the central eight-membered ring underwent contraction to a seven-membered ring with a methylene side chain; namely, 7-methylene-1,2:5,6-dibenzocycloheptatriene.

1,8-Tetramethylenenaphthalene and Related Compounds.—The three radicals, CH_3, CH_2, CH, bear the names methyl, methylene and methylidyne, respectively. From this, $-CH_2CH_2CH_2CH_2-$ is the tetramethylene radical and $-CH=CH-CH=CH-$ the tetramethylidyne radical.

If the tetramethylidyne radical were substituted across the 1,8-positions of naphthalene, a new seven-membered ring would result. This hydrocarbon had never been made, but the analogous one from acenaphthene was prepared and studied by Virgil C. Boekelheide of the University of Rochester (N.Y.). In acenaphthene, the 4,5-positions of naphthalene are substituted by an ethylene (or dimethylene) radical. Thus, the substance in question would be named tetramethylidyneacenaphthene.

It was a fairly simple synthesis. Condensation of acenaphthene with succinic anhydride yielded succinylacenaphthene, a diketone. The two ketone positions were reduced to alcohol groups by means of lithium aluminum hydride. Dehydration of the alcohol groups ($-CHOHCH_2CH_2CHOH-$ to $-CH=CH-CH=CH-$) was effected with hydrogen chloride, thus completing the synthesis.

The compound was less reactive than anthracene but more reactive than phenanthrene. Maleic anhydride formed an adduct but with some difficulty, and bromine reacted by substitution. Hydrogenation (platinum catalyst) yielded tetramethyleneacenaphthene.

1,8-Tetramethylenenaphthalene was prepared in 1951 by R. C. Gilmore, Jr., and Walter J. Horton of the University of Utah, Salt Lake City. Their approach was quite different from that of Boekelheide. Tetralin was changed into tetralone, thence into tetralinbutanoic acid. This was cyclized (dehydration) by means of phosphoric acid which contained phosphoric anhydride to a cyclic ketone, which in turn was reduced to the hydrocarbon by means of amalgamated zinc and hydrochloric acid.

Tropolones.—In 1942 B. Raistrick and collaborators isolated stipitatic acid as a cream-coloured metabolic product of the mould *Penicillium stipitatum* Thom. It was readily established that the compound possessed two phenolic hydroxyls and a carboxyl. A masked ketone group was suspected, since hydrogenation yielded a substance capable of reacting with ketone reagents. There was difficulty of incorporating these and other facts with the empirical formula, $C_8H_6O_5$, until M. J. S. Dewar's suggestion in 1945 that a seven-membered ring system was probably the basis of the structure. This system he regarded as the enol form of α-diketocycloheptadiene, and he coined its name as tropolone to show the seven-membered ring as in tropines, the hydroxyl group as in enols, and the ketone suffix. Stipitatic acid was regarded as 4-hydroxy-6-tropolonecarboxylic acid. Later work substantiated this viewpoint.

A. N. Johnson and A. R. Todd of Cambridge, Eng., showed that this acid is cleaved by alkaline peroxide into malonic and aconitic acids. Another reaction in harmony with the structure is the fusion with caustic potash to yield 5-hydroxyisophthalic acid, the mechanism following the well-known benzilic rearrangement of alpha diketones.

Tropolone was unknown in 1945 when it was suggested by Dewar. It was synthesized in 1951 by W. E. Doering and Lawrence H. Knox of Hickrill Chemical Research foundation (Katonah, N.Y.) by oxidizing tropilidine with alkaline permanganate. They pointed out that this remarkable compound is not only an acid (yielding a sodium salt) but also a base (yielding salts with hydrochloric or picric acids). It behaves like phenol in substitution reactions with bromine, nitrous acid, nitric acid or benzenediazonium chloride. Edgar Heilbronner and Kenneth W. Hedberg of the California Institute of Technology reported that electron diffraction measurements taken on tropolone support its structure unambiguously.

J. W. Cook (Glasgow, Scot.) and co-workers also synthesized tropolone in 1951 but by a different route. From cycloheptanone, they prepared 1,2-cycloheptanedione by oxidation with selenium dioxide. Most of the hydrogens were stripped off by bromine, leaving 3-bromotropolone, the sodium salt of which was converted to tropolone by hydrogen with palladium catalyst.

R. D. Haworth and P. R. Jeffers of Sheffield, Eng., synthesized 4-methyltropolone, using degradation methods on purpurogallin (*see* below) and from it prepared the several isomeric nitro and amino derivatives. The amines were diazotizable but did not decompose into phenolic analogues in the presence of hot acid solution; instead, there was ring contraction to yield methylsalicylic acid.

T. Nozoe and collaborators of Tohoku university, Japan, also observed formation of salicylic acid during diazo treatment of an aminotropolone.

The fifth independent synthesis of tropolone was reported by J. D. Knight and Donald J. Cram (University of California, Los Angeles). Their approach involved an acyloin condensation of ethyl pimelate, followed by a dehydrogenation using bromine.

Tropone (cycloheptatrienone) was synthesized by Hyp J. Dauben, Jr., and H. J. Ringold (University of Washington, Seattle) in 1951 from 2-cycloheptenone by bromination followed by hydrogenolysis. Its substitution reactions resembled those of tropolone, and here again the carbonyl group was indifferent. The same authors prepared cycloheptanone from cyclohexanone by a nitromethane condensation sequence, the last step being ring enlargement of 1-(aminomethyl) cyclohexanol by diazotization with nitrous acid.

Thujaplicin.—Western red cedar (*Thuja plicata* D. Don.) contains compounds removable from its heartwood by steam distillation, which contain the same unusual cycloheptatriene ring system. Apparently these compounds are responsible for the strong resistance shown by this wood against wood-destroying fungi. The work of H. Erdtman and J. Gripenberg (Helsinki, Fin.) demonstrated that the three isomeric thujaplicins (α of m.p. 34° C., β of 52° C. and γ of 82° C.) are simply 2-, 3- and 4-isopropyltropolones. The fourth compound, thujic acid, is 4,4-dimethylcycloheptatrienecarboxylic acid. This structure explains its isomerization to cumic acid by hot acids, its decomposition to dimethylmalonic acid by permanganate oxidation and its reduction to hexahydrothujic acid by hydrogen and platinum.

Colchicine.—This alkaloid had been known for many years but interest in it among geneticists and biochemists had become large since about 1940 because of its capacity to stop cell division at the early metaphase. This makes it valuable in cytological studies, in the bioassay of hormones, in the artificial production of polyploid varieties of animals and plants and possibly also as a chemotherapeutic agent against cancer. It was once thought to have a tricyclic structure like phenanthrene, but after Dewar's suggestion in 1945 that its tricyclic structure contained two seven-membered rings, it was reinvestigated in many chemical laboratories, especially those of J. D. Loudon and J. W. Cook (Glasgow, Scot.), D. Stanley Tarbell (University of Rochester), T. Reichstein and F. Santavý (Switzerland) and Henry Rapoport (University of California, Berkeley). The Swiss workers isolated no less than seven new crystalline alkaloids from the seeds, flowers and corms of the common autumn crocus (*Colchicum autumnale* Linn). At least four of these are closely related to colchicine, the differences being $-NHCHO$ in place of $-NHCOCH_3$, or OH in place of OCH_3 in the formula.

As a result of the recent work the following structure for colchicine may be visualized: a central 1,2:3,4-cycloheptadiene ring holding an acetamido ($-NHCOCH_3$) group at position 5; fused at 1,2 is a benzene ring carrying three methoxy (OCH_3) groups; fused at 3,4 is tropolone methyl ether, the tropolone attachment being at its 4,5 bond. The tropolone structure explains the esterlike properties of the alkaloid revealed by the ease of hydrolysis of the methyl group in this ring, forming colchiceine and methanol, and the nonreaction of the compound with carbonyl reagents. Rapoport degraded colchicine to a simpler compound lacking the amide group on the central ring and lacking the oxygens and the double bonds of the other seven-membered ring.

Rapoport also developed a method for enlarging the central 6-ring of phenanthrene to a 7-ring analogue, which synthesis is valuable in colchicine studies.

Purpurogallin.—This red-coloured compound formed by oxidation of pyrogallol was discovered in 1869 by A. Girard. M. Nierenstein found in 1919 that it occurred naturally as glucosides in the colouring matter of various galls. Its structure was established about 1948 as a benzotropolone by J. Barltrop and J. S. Nicholson (England). Thus, a benzene ring holding three phenolic hydroxyls as in pyrogallol is fused at position 4,5 to the 3,4 bond of tropolone.

Sir Robert Robinson speculated during 1951 on the possible origin of these several tropolone ring systems in nature. He suggested that catechols react with formaldehyde or its biological equivalent so that a quasi-cyclopropane ring arises by attachment of the CH_2 group from formaldehyde to adjacent carbons of the catechol. Opening of the cyclopropane ring and readjustment of hydrogens would give rise to the tropolones. (*See* also BIOCHEMISTRY; CHEMOTHERAPY; PHYSICS; VITAMINS AND NUTRITION.)

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(C. D. HU.)

Chemotherapy.

In 1951, experiments on both humans and animals indicated that hydrocortisone (Compound F), rather than cortisone (Compound E), was the chief hormonal component of the adrenocortical secretion. Hydrocortisone had greater effectiveness than cortisone when injected into local joint spaces of rheumatoid arthritic patients. Both ACTH and cortisone became relatively plentiful but hydrocortisone was in short supply. The possible dangerous effects of the use of these hormones became more evident during the year. Certain infections seem to spread more rapidly if the patient is treated with ACTH, cortisone or hydrocortisone. The hormones also must be used with caution in patients with diabetes, peptic ulcer, high blood pressure and chronic heart disease. Cortisone and hydrocortisone had simplified the control of Addison's disease.

The first total synthesis of a steroid hormone from the relatively simple chemical compound orthotoluidine was reported

SWIRLING WARM WATER treatment for U.S. veterans stricken with frostbite during winter combat in Korea. New treatment concentrated on the use of drugs at the outset to maintain circulation and prevent loss of limbs

by chemists of Harvard university during the year.

The three antibiotics capable of attacking most infections, aureomycin, chloramphenicol and terramycin, gained wider usage during the year and were found to possess antiprotozoan activity against *Endamoeba histolytica,* the organism responsible for amoebic dysentery. The antibiotics were found effective against the malarial parasites, but verification of this work was necessary before these antibiotics would be employed in malarial treatment.

Streptomycin, aureomycin, chloramphenicol and terramycin were reported successful in the treatment of the highly infectious venereal disease lymphogranuloma venereum.

Polymyxin B sulphate was introduced commercially during 1951. It is effective against gram-negative organisms including *Pseudomonas aeruginosa* which is resistant to the other available antibiotics.

Neomycin, which resembles streptomycin in its antibacterial range, showed usefulness in genitourinary infections and septicaemia. Its use, however, is limited by its tendency to cause damage to the kidneys.

Bacitracin, in conjunction with penicillin, showed effectiveness in controlling endocarditis, an inflammation of the lining surfaces of the heart.

Activity in antibiotic research was manifested by the introduction for experimental purposes of Fungicidin, effective against certain fungi which cause histoplasmosis, a disease resembling tuberculosis; of Prodigiosin, effective against *Endamoeba histolytica,* the causative agent of amoebic dysentery; and of Synnematin, effective against salmonella and shigella organisms which are responsible for bacterial dysenteries.

Certain streptococci and many varieties of staphylococci were discovered to be developing resistance to the effects of penicillin. Because of the wide use of penicillin, more cases of severe allergic reactions were encountered in patients. To make possible the use of penicillin in such allergic patients, several varieties of hypoallergenic penicillins were developed and at least two were introduced commercially. It was hoped that these new penicillins would reduce the number and severity of allergic reactions.

Tetraethylthiuram disulphide or Antabuse, a drug which had been extensively studied for the long-term treatment of alcoholism, was released commercially during the year. The drug must not be utilized to treat acute alcoholism but may be used in conjunction with psychotherapy to break the alcohol habit. A patient who has been treated with the compound and imbibes even small quantities of alcohol undergoes an extremely unpleasant cycle of events. The face flushes, the heart rate increases alarmingly, breathing becomes difficult and nausea and vomiting ensue.

This treatment requires the active co-operation of the patient who must be psychologically prepared to accept the method of therapy.

Radioiodine 131, a radioactive isotope, became recognized as a treatment for both thyroid cancer and for hyperthyroidism. Radioiodine 132, because of its extremely short half-life, was advocated as the safer therapeutic form of radioactive iodine. Both isotopes of iodine were recommended for test of thyroid function by measurement of the amount of radioiodine taken up by the thyroid over a period of time. This method seemed to yield results superior to those obtained with the usual methods of computing basal metabolic rates.

Gold 198 was found to localize in ovarian tumours and to inhibit their growth. This form of treatment provides gamma-rays without the necessity of deep X-ray therapy.

Gallium 72 proved valuable in the early diagnosis of cancer spread to the bones. Localization of such tumours was possible with radioactive gallium before the lesions were discernible by skiograms (X-ray negatives).

In the treatment of cancer, triethylene melamine had shown value in leukemia and Hodgkin's disease. First used in the rayon industry, its chemical resemblance to the nitrogen mustards led to its employment. In contrast to the mustards, which must be administered intravenously, triethylene melamine was given orally and produced significantly less nausea and vomiting but had equal therapeutic effect. Progesterone, one of the female sex hormones, given in large doses was reported as exerting at least a temporary ameliorative effect upon cancer of the cervix.

The citrovorum factor, so named because it is essential to the life of the organism *Leuconostoc citrovorum,* showed itself capable of overcoming the adverse effects of the antifolic acid compounds such as pteropterin. This permitted use of larger doses of the folic acid antagonists in cancer treatment.

The enzymes streptodornase and streptokinase, derived from haemolytic streptococcus organisms, were advocated for cleansing infected wounds, thus reducing the amount of scar tissue formed. The combination of enzymes was also said to be valuable in the treatment of sinusitis, pleurisy and osteomyelitis.

Another enzyme, trypsin, from animal sources, was made available in highly purified form and was reported effective in dissolving necrotic (dead) tissue and pus, especially in tuberculous empyema. It apparently possesses the advantage of attacking only dead tissue without affecting viable cells.

The penta-, hexa- and decamethonium bromides showed ability to reduce blood pressure in hypertensive patients, but tolerance to the drugs develops rapidly. It was also disclosed during the year that the effects of a hypertensive factor, apparently secreted in the brain, were overcome by a new compound 1-hydrazinophthalazine.

In 1951 increased hope for patients with myasthenia gravis, a chronic disease with characteristically progressive muscular weakness, resulted from the introduction of octamethyl pyrophosphoramide, an anticholinesterase with longer protective action than formerly attainable.

Ethyl vanillate was reported fairly effective in the treatment of disseminated histoplasmosis, a serious illness which attacks vital internal organs.

Xenon, one of the rare gases, in 80% concentration with 20% oxygen, was shown to be an effective anaesthetic agent producing unconsciousness in five minutes and anaesthesia of the surgical plane in ten minutes. No unpleasant side effects were noted.

Two new drugs of the quaternary ammonium series, 3-hydroxy-trimethyl-phenyl-ammonium bromide and 3-hydroxy-phenyl-dimethyl-ethyl-ammonium bromide, successfully overcame overdosage effects of curare. Curare is of value in securing adequate muscle relaxation during surgery but may cause paralysis of respiration.

Banthine, an anticholinergic quaternary amine previously successful in the therapy of peptic ulcer and conditions complicated by nausea and vomiting, was reported to quickly abort herpes zoster, the painful skin and nerve condition familiarly known as shingles.

Selenium sulphide was introduced in a suspension form as an agent for the relief of the itching and burning of seborrhoeic dermatitis, especially of the scalp (dandruff).

Depressed psychotic patients were reported to respond favourably to d-lysergic acid diethylamide, an ergonovinelike compound. It apparently induced a state of well-being and permitted recall of provoking experiences without causing confusion or the distressing convulsions of insulin and electroshock therapy.

The carboxylic resins, originally developed for shipwrecked sailors and used to make drinking water out of sea water by removing the salt, were shown after several years of intensive experimental research to be valuable adjuncts in the treatment of heart disease. They also were of value in hypertension because of their ability to remove sodium ion from the system. The commercial grades of the resins proved unsuitable for therapeutic use. The carboxylic resins are combined with some potassium ion to prevent development of potassium deficiency since the resins tend to remove all cations. The resins are of extremely small mesh, almost resembling an impalpable powder. Their chief value is in controlling the quantity of sodium in the body and thus indirectly controlling the amount of water in the tissues and blood.

Drug Production.—The total output of synthetic medicinals in the United States in 1950 was 46,100.000 lb., which was a rise of 11% over 1949 production. The production of antibiotics was 852.900 lb. Total production of synthetic vitamins was 3,500.000 lb., compared with 2,900,000 lb. in 1949. The output of sulfa drugs was 5,000,000 lb. compared with 4,900,000 lb. in 1949. Production of aspirin in 1950 totalled 11.000,000 lb. compared with 10,400.000 lb. in 1949. Barbituric acid derivative production was 688,500 lb., or 8,700 lb. greater than in 1949. (*See* also Allergy; Bacteriology; Chemistry; Malaria; Medicine; Surgery; Veterinary Medicine; Vitamins and Nutrition.) (P. L. W.)

Chemurgy. A new substitute for jute made its first extensive appearance on United States soil during 1951. The newcomer was kenaf (*Hibiscus cannabinus*). A 700-ac. crop from muckland areas in the Okeechobee section of Florida was harvested in November.

Jute, grown mostly in Pakistan and India, had become highly essential to the economy of the U.S. for bagging and cordage and for certain uses in floor coverings. Defense authorities had asked the department of agriculture to develop nearer sources so that supplies might be obtained despite possible future interruptions of overseas commerce.

Kenaf was chosen as the most promising plant, since jute itself appeared not to be adaptable to the western world. Kenaf apparently had oriental origins, and was produced to some extent in the Italian colonies before World War II. During recent years the office of foreign agricultural relations of the U.S. department of agriculture had fostered experiments with kenaf in Cuba and Central America. Cuban seed was therefore available for the 1951 Florida plantings. The Commodity Credit corporation contracted with three companies for production, offering 30 cents per pound for top-quality fibre. Yields upward from 1,500 lb. per acre were expected. At the year's end kenaf fibre was being offered in generous sample quantities for industries which desired to experiment with it.

The plant grows 8 to 12 ft. high. Stalks measure from one-half to three-fourths inch in diameter. Kenaf matures in 100 to 125 days. About 200 varieties were being tested by the Everglades Experiment station of the University of Florida.

Defense requirements had demanded extraordinary increases in production of castor beans for oil. The 1950 plantings had been 9,000 ac., and the munitions board requested that 90,000 ac. be harvested for 1951. This was accomplished, and the goal for 1952 was stepped up to 200,000 ac. In midsummer Pres. Harry S. Truman requested by special message to congress that $200,000 be set aside to hasten castor-bean research and to seek substitutes for other oils which were essential to the defense program and which had to be imported. In lubricants and brake fluids castor oil retains its fluidity at temperatures either extremely low or extremely high. The increased demand was related in part to developments in jet planes. For more than a decade public and private research had sought to overcome difficulties incident to establishing castor beans as a new crop for U.S. farmers. While 150,000,000 lb. of the beans were imported in 1939, mostly from Brazil, demand had grown until 250,000,000 lb. annually was expected to be normal.

To fit U.S. farming practices, varieties of castor beans that were adapted to machine harvesting had to be bred. This required a short stalk, four to eight feet high, the characteristic of retaining the seeds so that all could be gathered at one time, larger yields and less foliage. These objectives were accomplished, although further improvements were being sought. A suitable harvesting machine had also to be devised, which was done. Chemical defoliants were used successfully in situations where frost did not remove the leaves naturally.

California, Arizona, Oklahoma and Texas were growing most of the castor beans. Under irrigation, yields were obtained which exceeded 2,500 lb. per acre, while 500 to 1,500 lb. per acre were produced without irrigation. Growing costs compared favourably with those of corn, peanuts and cotton. The 1951 guaranteed price was ten cents per pound. Castor oil is an ingredient in many plastics, in types of synthetic rubber, protective coatings, nylon, cosmetics, linoleum and many other items. Its complicated molecular structure gives it unusual versatility.

Antibiotic manufacture, which leaped to huge dimensions after World War II, emerged in 1951 with a by-product sale estimated at nearly $50,000,000. Considerable notice was given during the year to APF (animal protein factor), which stimulates the growth rate of young animals by 15% to 20%. APF is produced from the crude dried solubles in the fermentation broths from which pharmaceutical antibiotics are manufactured. Since these broths are compounded of corn steep water and milk sugar, the new material is wholly chemurgic. It was marketed to livestock-feed manufacturers as a free-flowing powder, added to feeds at rates of from 5 to 50 g. per ton.

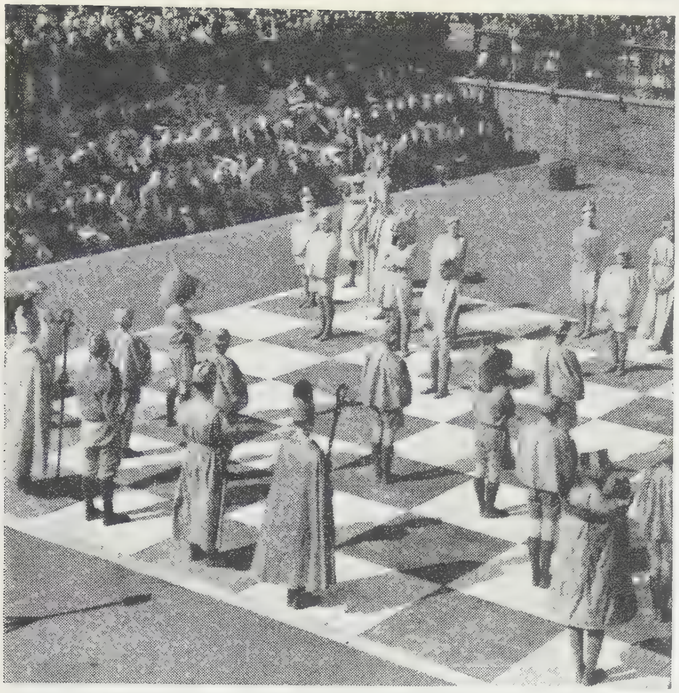
Substitutes and extenders for blood plasma were the subject of considerable 1951 chemurgic research. Dextran, a polysaccharide derived from cane or beet sugar, showed substantial promise, and was shortly to be in production. A plant for this purpose, costing $1,500,000, was being erected at Terre Haute, Ind. Its output was to go exclusively to meet military requirements. (W. McM.)

Cherries: *see* Fruit.

Chess. Larry Evans, 19-year-old student at the College of the City of New York, became the youngest player ever to win the United States Chess federation closed title when he placed first ahead of 11 rivals at New York city in August. Evans finished with a score of 9½–1½ points. Evans had already captured national open laurels and retained his U.S. speed title at Ft. Worth, Tex., in July. Mrs. Mary Bain, Miami, Fla., triumphed in the U.S. women's championship at the Marshall Chess club, New York city, in November.

Visits by international masters added interest to the American scene. Samuel Reshevsky of New York city topped a field of 12 in the Wertheim Memorial tournament at the Manhattan Chess club, but only by a narrow margin. Another meeting of six masters at the Marshall club resulted in a tie between young Evans and Reuben Fine, New York city.

James T. Sherwin, Columbia university, won New York state laurels at Syracuse in September, dethroning Eliot Hearst, another Columbian, who was runner-up. Sherwin took another title from Hearst on Dec. 30 at Philadelphia when he led 23 players in the biennial session of the National Intercollegiate Chess league. Sherwin finished with 6–1, with Hearst again second with 5½–1½. Columbia won the intercollegiate league team honours and Boston college triumphed in the Jesuit league tourney.



LIVING CHESSMEN at the 1951 Festival of Britain demonstrating a match between the British and French champion players R. J. Broadbent and Nicholas Rossolimo

The challenge match for the world title held by Mikhail Botvinnik of the U.S.S.R. and David Bronstein, another soviet star, was staged in Moscow, and the prolonged battle ended in a deadlock with each player being credited with 12 points. However, under a ruling of the International Chess federation, Botvinnik retained his championship. B. Ivkov of Yugoslavia won the world junior title at Birmingham, Eng.

Miguel Czerniak of Israel starred in international competition with triumphs in the Schlechter Memorial tournament at Vienna, Aus., in July, when Erik Lundin of Sweden was second, and in the masters' tourney at Venice. Wolfgang Unzicker of Munich, Ger., came out on top in the first major tournament of 1951 when he won the annual competition of the Hastings Chess congress in England early in January. Honours at Madrid, Sp., in June were taken by Lodewijk Prins of Amsterdam, Neth.

(T. V. H.)

Chiang Kai-shek (1887–), virtual ruler of China for more than two decades before the national government was driven to Taiwan (Formosa) in 1949 by the Communists, regained some of his lost prestige and popularity with the Chinese people during 1950 and 1951, particularly after the Peking regime's intervention in the Korean war and its suppression and execution of the "counterrevolutionists." To the western democracies which were fighting Communist aggression as well as to the political parties and social groups in the United States which were debating the U.S. far eastern policy, Chiang remained a controversial figure and a storm centre of international politics. Nevertheless Chiang was firm in his fight against the Chinese Communists and the soviet domination of China. Early in May 1951 he urged the Chinese on the mainland to unite and expand their underground activities, and shortly afterward said that his forces could hamper if not halt the Chinese Communist aggression in Korea by invading the mainland.

The exclusion of China from the Japanese Peace conference at San Francisco, Calif., in September caused bitter disappointment to Chiang, who insisted on nationalist China's right to participate. On the 40th anniversary of the Chinese republic on Oct. 10, Chiang expressed confidence that free China would not fail to recover its national territory and sovereignty. In his message of Oct. 25, observing United Nations day, he said: "We, the freedom-loving people of China, will always stand for the cause of the United Nations. . . . We will continue this fight until freedom is restored to our compatriots on the mainland and peace prevails on earth." (*See* also CHINA.) (H. T. CH.)

Chicago. Second largest U.S. city, a port of entry and the county seat of Cook county, Ill., Chicago lies at the southwest corner of Lake Michigan. Its population in the 1950 census was 3,620,962, an increase of 6.6% over the 1940 population. For the six-county Chicago metropolitan area the 1950 census showed 5,495,364, a 13.9% increase. The mayor in 1951 was Martin H. Kennelly.

The city in 1951 enjoyed a year of exceedingly high business activity, setting all-time records in many industries, including steel production, foods, fabricated metals, machinery, chemical and petroleum products and in the output of electric power. Employment rose to an all-time high and unemployment dropped to a low level. During the year production for defense purposes expanded greatly, partly through a shift from manufacture of civilian goods and partly through the use of new facilities and additions to the labour force.

Bank clearings for 1951 increased 11.1% to $44,780,176,838 from $40,674,982,625 in 1950. New investment in industrial plants in 1951 amounted to $401,586,000, compared with $325,347,000 in 1950. The 1951 figure was the largest for any year except 1942.

Production of the Chicago area's manufacturing plants amounted to $17,300,000,000 in 1951, a record volume. Steel production in the Chicago metropolitan area, second only to that of Pittsburgh, amounted to 18,890,000 net tons in 1951, an increase of 7% over the previous record of 17,590,000 tons produced in 1950.

Retail sales in 1951 were estimated at $4,800,000,000 for the year 1951, an increase of 4% over the 1950 retail sales. Chicago continued to be the world's largest centre of rail and air traffic.

There were no major labour difficulties in Chicago during the year. The total number of workers involved in strikes was 18,000 in 1951 as against 22,700 in 1950.

Passengers carried on the lines of the Chicago Transit authority continued to decline. In 1951 the total passengers carried numbered 736,987,283, a decline of 6.6% from 790,230,981 passengers carried in 1950.

All types of construction in the first 11 months of 1951 involved an outlay of $482,132,552, a decline of 10.6% from the first 11 months of 1950 when similar expenditures amounted to $539,767,688.

In the first 11 months of 1951 permits for the building of individual homes in Chicago totalled 6,401; in suburban towns 15,023; and in unincorporated areas 4,591—a total of 26,015. At the same time there were constructed within the city limits 4,365 apartment units and in the suburbs 841 apartment units for a grand total of 31,221 dwelling units in the period.

The total public assistance burden in Cook county in 1951 approximated $66,000,000, with an average of 133,300 persons on relief rolls throughout the year. The December total for persons obtaining some form of assistance in Cook county was down to 130,000.

The 1952 total budgets of the six governments that cover Chicago in whole or in part follow: city of Chicago $326,502,975; Cook county $72,183,779; Cook county forest preserve $5,596,192; Chicago board of education $274,838,905; Chicago sanitary district $29,281,347; Chicago park district $40,487,805.

(L. LN.)

Child Labour.

United States.—According to estimates of the U.S. bureau of the census, an average of 2,500,000 minors 14 through 17 years of age were employed full time or part time during the first ten months of 1951, an increase of approximately 200,000 over the same period in 1950. Of these, 900,000 were 14 or 15 years of age, and 1,600,000 were 16 or 17 years of age. One-third of all young workers were employed in agriculture; the two-thirds in nonagricultural employment were concentrated mainly in trade and service occupations.

The program of the U.S. department of labour for the administration of the child-labour provisions of the Fair Labor Standards act was extended further to give protection to children brought under the child-labour coverage by the amendments which became effective in Jan. 1950. Special attention was given to the application of the 16-year minimum age to children employed in agriculture during school hours, to spreading understanding of the provision and to stimulating action aimed to get children under 16 years of age into school.

Comparatively little legislation relative to child labour or employment standards for young workers was enacted by the individual states during 1951. Delaware passed a law requiring that age certificates be obtained for employed minors of 16 and 17 years of age. Formerly the law required employment certificates for minors under 16, while age certificates were issued only upon request for minors of 16 and 17 years of age. New Hampshire extended the 14-year minimum age standard in that state to include all occupations except agriculture and domestic service, instead of only specified occupations. California provided 50% additional compensation under the workmen's compensation act for minors injured while illegally employed.

Compulsory school-attendance provisions, closely related to the employment of children, were strengthened or clarified in Illinois, Indiana, Wisconsin and Oregon.

A significant trend in the U.S. was the continued increase in the number of minors enrolled in school who worked outside school hours. In Oct. 1950, 83% of the population 14 through 17 years of age were enrolled in school. Approximately 25% of these young persons, or one out of every four, were working outside school hours.

The needs for expanding guidance and counselling facilities in schools, employment offices and youth-serving agencies and for further protection of young workers were given national emphasis by the Midcentury White House Conference on Children and Youth. The conference also recommended recognition of the emotional factors involved in vocational adjustment, the establishment and enforcement of standards on minimum age, working conditions and wages, and stressed the importance of good standards for part-time employment outside school hours.

National concern over the lack of adequate educational provisions for the children of agricultural migrants found expression in the report of the president's Commission on Migratory Labor. The commission made recommendations for development of a plan to provide an adequate program of education for migratory workers and their children, for vigorous enforcement of the child-labour provisions of the Fair Labor Standards act, for raising the standards of state child-labour laws and making them fully applicable to agriculture and for action along many other lines to improve conditions for migratory workers.

Great Britain.—About 536,625 young persons under 18 years of age entered employment in Great Britain during the 12-month period ending Jan. 31, 1951, after terminating full-time school. The majority, both boys and girls, left school at the legal 15 years of age, and entered employment before 16 years of age. In general the interval between leaving school and entering employment was short.

A permanent program was developed by the Youth Employment service to assist young people with special aptitudes for skilled occupations for which there were no suitable training facilities within daily travelling distance of their homes. The program provided financial assistance through grants to cover travelling expenses and maintenance away from home. In the first nine months of operation more than 700 applications from individual young people for assistance were approved.

Other Countries.—During 1951, four countries—Ceylon, France, Iraq and Pakistan—ratified International Labour organization conventions dealing with child labour. Ceylon ratified convention no. 5, fixing the minimum age at 14 for industrial employment; convention no. 15, fixing the minimum age for the admission of young persons to employment as trimmers or stokers; and convention no. 16, concerning compulsory medical examinations of children and young persons employed at sea. Pakistan ratified convention no. 90, prohibiting night work for young persons in industrial undertakings. France ratified convention no. 10, establishing a 14-year minimum age for employment in public or private agricultural undertakings during hours fixed for school attendance; and convention no. 78, concerning medical examinations of children and young persons for employment in nonindustrial occupations. Iraq and France ratified convention no. 77, concerning medical examinations for fitness for employment in industry of children and young persons.

(E. S. J.)

Children's Books.

The emphasis in children's books of 1951 was notably on realism, on informational and historical books, on easy-to-read material, on lavish colour in picture books and on a generally high level of book design. The picture books ranged from pastels to startling colours. The Caldecott winner, Leo Politi, reminisced in *Little Leo* and that intrepid pair William Lipkind and Nicolas Mordvinoff produced *Finders Keepers*. *Me and the Bears* by Robert Bright and *Jeanne-Marie Counts Her Sheep* by Françoise were appealing; originality of plot, vigour of illustration and humour characterized *The Camel Who Took a Walk* by Jack Tworkov, *Polly's Oats* by Marc Simont and *Mr. T. W. Anthony Woo* by Marie Hall Ets. Enjoyable stories to be read to the six- to eight-year-old were *The Horse Who Had His Picture in the Paper* by Phyllis McGinley, the delicately imaginative *The Mousewife* by Rumer Godden and the account of the New Year's Mummer's parade in *Patrick and the Golden Slippers* by Katherine Milhous. This younger age also was introduced to space through *Ups and Downs* by Ethel S. Berkley and to movement in art in *What's in a Line?* by Leonard P. Kessler. Easy-to-read pioneer books included *Caroline and Her Kettle Named Maud* by Miriam E. Mason and *Broncho Charlie* by Henry V. Larom. Several nature books were Olive L. Earle's *Thunder Wings* (ruffed grouse) and Robert M. McClung's *Stripe* (chipmunk). Stories in sequel were Ruth S. Gannett's *The Dragons of Blueland* (about Elmer Elevator) and Maude Crowley's *Azor and the Blue-Eyed Cow*. Girls in the third grade sympathized with *Ellen Tebbits* by Beverly Cleary and with *Ginnie Joins In* by Catherine Woolley.

Boys and girls of 10 to 12 enjoyed *The Wishing Pear* by Elizabeth Coatsworth (New Amsterdam, 1664) and the family story of *The Golden Root* by William O. Steele (Tennessee, post-Revolution). Biography and legend for this age was represented by *Andrew Jackson* by Genevieve S. Foster and *The Apple and the Arrow* (William Tell) by Mary and Conrad Buff. Humour characterized *Miss Pickerell Goes to Mars* by Ellen MacGregor and *Gertie, the Horse Who Thought and Thought* by Margarite Glendinning. Stimulating to inquiring minds were *The Great Whales* by Herbert S. Zim and *Minn of the Mississippi* by Holling C. Holling. Equally interesting were *People Are Impor-*

tant by Eva K. Evans, *Patterns in the Sky* by William M. Reed, *Everyday Weather and How It Works* by Herman Schneider and *Easy Puppets* by Gertrude Pels. Noteworthy for characterization and integrity were Valenti Angelo's *The Marble Fountain,* a story of post-World War II Italy, and *Little Vic* by Doris Gates, about a Negro stable boy. The contributions of different racial groups provided the theme of *Tansy for Short* by Ruth L. Holberg (Norwegians), *The Quarry Adventure* by Lee Kingman (Finns), *Elder Brother* by Evelyn S. Lampman (Chinese) and *Carol's Side of the Street* by Lorraine Beim (Jews).

Books with a historical setting for older boys and girls ranged from prehistoric times in *Fire-Hunter* by James Kjelgaard, to biblical Persia in *Behold Your Queen!* by Gladys Malvern, to 14th-century England in *Three Golden Nobles* by Christine Price and to the American scene as in *Unwilling Pirate* by West Lathrop (1720) and *Indian Fur* by Glenn Balch (Shoshone and Blackfeet, 1832). There were several unusual animal stories for the mature reader, including one by a Russian-American, Nicholas Kalashnikoff, *The Defender* (a shepherd and his rams). Kenneth C. Randall wrote of hunting dogs in *Wild Hunter* while William M. Rush did an above-average story in *Wild Horses of Rainrock*. Boys kept abreast of some of the latest developments in science through *Rockets, Jets, Guided Missiles and Space Ships* by Fletcher Pratt and *Aircraft U.S.A.* by H. E. Huntington, and enjoyed *Experiments in Optical Illusion* by Nelson F. Beeler and F. M. Branley. Worth-while books were Elizabeth C. Baity's *Americans Before Columbus;* Katherine B. Shippen's *Leif Eriksson* and James H. Daugherty's *Of Courage Undaunted* (Lewis and Clark); while younger teenagers read *America's Robert E. Lee* by Henry S. Commager. Older girls enjoyed *Ride Out Singing* by Alice F. Loomis and boys found *Pong Choolie, You Rascal!* by Lucy H. Crockett a gripping story of a South Korean boy today.

There were several enjoyable translations, notably *The Saucepan Journey* of Edith Unnerstad (Swedish), the highly original picture book *The Blue-Eyed Pussy* by Egon Mathiesen (Danish), *The Wonderful Farm* of Marcel Aymé (French) and a tale of epic quality laid in Greenland, *Eskimo Boy* by Pipaluk Freuchen. Folk literature was preserved through an account of Charlemagne, *Huon of the Horn* (André Norton) and by some Northwest Indian legends, *Nine Tales of Raven* (Frances G. Martin). The ethnic contributions of the Indians of the Pacific northwest were found in *The Story of the Totem Pole* by Ruth Brindze and *Before the White Man Came* by Mildred Jenkins.

Christmas stories were numerous and books for family enjoyment were represented by *Famous Paintings,* edited by Alice E. Chase; *This Is the Way,* edited by Jessie M. Jones, showing the universality of worship; and *An Album of Horses,* compiled by Marguerite Henry and illustrated by Wesley Dennis. A new edition of *The Story of a Bad Boy* by Thomas B. Aldrich appeared, also freshly illustrated old favourites in the Macmillan New Children's classics. Librarians and teachers welcomed two valuable reference books, *The Oxford Dictionary of Nursery Rhymes,* edited by Iona and Peter Opie and the new edition of *The Junior Book of Authors,* edited by Stanley J. Kunitz and Howard Haycraft. (*See* also BOOK PUBLISHING; LITERARY PRIZES.) (E. A. Gs.)

Great Britain.—During 1951 fairy stories, original and traditional, continued to cast their spell. Children delighted in the imaginative qualities of *The Faun and the Woodcutter's Daughter* by Barbara Leonie Picard and the Chinese tales in *The Peach Blossom Forest* by Robert Gittings and Jo Manton. They found fantasy and adventure ingeniously blended in *The Dark Sailor of Youghal* by Patricia Lynch, *The Valley of Song* by Elizabeth Goudge, *Prince Caspian* by Clive S. Lewis and *The Flag from the Isles* by William Croft Dickinson. They appreciated the droll Finnish humour in *Comet in Moominland* by Tove Jansson and the animal characters in *Doctor Dolittle and the Green Canary* by Hugh Lofting.

PHOTOGRAPHING BIRDS in full colour in 1951 for a series of plates to appear in *Britannica Junior.* The plastic cage was especially built for the project and set up in the Chicago Zoological park at Brookfield, Ill.

English history was re-created in several stories with good characterization and interesting detail, including *Jockin the Jester* by Ursula Moray Williams and *The Gauntlet* by Ronald Welch (both 14th century), *The Wool-Pack* by Cynthia Harnett (15th century) and *The Armourer's House* by Rosemary Sutcliff (16th century). *Knave-go-by* by C. Fox Smith, *The Lintowers* by Elisabeth Kyle and *The Young Inverey* by John Niven were vigorous adventure stories with a period setting.

Among several stimulating career stories, mining was depicted with accuracy and understanding against a background of mystery in *The Whinstone Drift* by Richard Armstrong, journalism in *The Monday Story* by James Leasor and teaching in *First Year Up* by Doris W. Hackman.

Boys read about the wanderings of a poor lad and his cat in *The Cat Did It* by Brian Fairfax-Lucy, day school life in *Barry's Exciting Year* by A. Stephen Tring and country pursuits in *Rough Water* by Roland Pertwee. They found humour in *Timpetill* by Manfred Michael and stark realism in *The Long Arctic Night* by Kurt Schmeltzer, both originally published in Switzerland. Adventure and suspense at sea was the theme of *Thunder in the Bay* by Adrian Seligman. Modern science provided thrills in *Sunday Adventure,* by John Pudney.

Girls appreciated the building up of atmosphere in *The Dark Lantern* by Viola Bayley, the happy family relationships and Scottish background of *The House at Kilmartin* by Ann Bridge, and the vicissitudes of an early Victorian theatrical touring company in *Family Playbill* by Pamela Brown. They enjoyed the sensitive study of a child artist in *Picture Come True* by

Priscilla Warner and the activities of amateur detectives in *The Jennifer Jigsaw* by Shirley and John Newton Chance. Gardening formed a satisfying background to *The Dog-Leg Garden* by Dorothea Street and skating was featured in *White Boots* by Noel Streatfeild. *Four Rode Home* by Primrose Cumming and *Cargo of Horses* by Monica Edwards were outstanding among pony stories with human as well as equestrian interest.

Much thought and artistry went into children's picture books. Colour lithography was effectively used in Edward Ardizzone's *Tim and Charlotte,* Sergei Prokofiev's *The Story of Peter and the Wolf* and Clarke Hutton's *A Picture History of France.*

Informative books were popular and helped to satisfy curiosity on many subjects. Younger children were attracted by the clear, colourful drawings and simple text of *How the First Men Lived* by Marie Neurath and J. A. Lauwerys. *Come out of Doors* by C. D. Dimsdale and *Pond Life* by Richard L. E. Ford, were well-illustrated contributions to nature study. A revised edition of *The Animal's World* by Doris L. Mackinnon presented simple facts on zoology. *Flip* by Joan Wanklyn told the story of an otter. Children with a taste for travel books read *The Young Traveller in China* by C. E. Roberts and *Wall of Spears* by Mildred Cable and Francesca French. Interesting facts were assembled in *London Adventure,* a guide to London by Margaret M. Pearson. Practical books on sports and hobbies included *The Junior Woodworker* by Charles H. Hayward, *Cooking is Exciting* by Lady Peacock and *Soccer for Boys* by F. N. S. Creek.

Among biographical works were *Sir Walter Raleigh* by Hugh Ross Williamson, and Lord Mountevans' own story of his early career in *Happy Adventurer.*

Fine poetry was represented by Eleanor Farjeon's selection of her best verse in *Silver-Sand and Snow* and drama by *Beauty and the Beast* by Nicholas Stuart Scott. Geoffrey Trease helped children to appreciate good books in his *Enjoying Books.*

Several classics appeared in attractive new editions, including *Lorna Doone,* illustrated by Lionel Edwards, and *Fairy Tales from the Arabian Nights,* illustrated by Joan Kiddell-Monroe. The Library association Carnegie medal was awarded to Elfrida Vipont for *The Lark on the Wing.*

FILMS OF 1951.—*Children's Tales* (6 films) (Sterling Films); *Fox and the Rooster* (Encyclopædia Britannica Films Inc.); *Hansel and Gretel* (Austin Productions); *Wonderland Tales* (13 films) (Cornell Film Co.). (D. D. Ct.)

Child Welfare. The cost of child care and child welfare services was higher in 1951 than in other recent years. Consequently there was a testing of the willingness and ability of families and organizations, including governments, to increase the amounts spent in behalf of children. In some situations the results might be measured in terms of ground lost, but in most countries there were expansions and improvements in response to demands of the increased child population and the organized planning for children generated after World War II.

International Services.—"Health for Your Child and the World's Children" was the central theme for the observance of World Health day on April 7, 1951. A practical step toward realization of this goal was the development of a world-wide coordinated program, one of the principal achievements of the fourth World Health assembly held in Geneva, Switz., May 7 to 25. Regardless of the sources of funds available, the integration of services in 1952 was to include activities of three of the specialized agencies of the United Nations, the U.N. International Children's Emergency fund (U.N.I.C.E.F.), the Program of Technical Assistance for Economic Development and the World Health organization (W.H.O.). The W.H.O. fixed its effective working budget for 1952 at $7,700,000, in contrast with the $6,300,000 available in 1951.

SIDEWALK AUDIENCE watching the Whittier Boys' club house in Jersey City, N.J., get a new coat of paint in May 1951. One hundred union painters donated their work and completed the project in 7 min. 2 sec.

The W.H.O. and related organizations added in 1951 impressive gains in their campaigns against malaria, syphilis, tuberculosis, typhoid, typhus, yaws and other communicable diseases. Environmental sanitation, essential as a basis for the prevention of many diseases, was promoted in many parts of the world.

Among the efforts to supply the personnel needed was the first international project sponsored by the W.H.O. for field training of nurses, health visitors and midwives, started in Feb. 1951 in a rural area near New Delhi, India. The organization of four maternal and child health centres and the training of a substantial number of Indian health visitors were among the first year's achievements. The three-member W.H.O. team in charge, led by a Finnish pediatrician, operated with a local health unit established in 1937 by the Rockefeller foundation and continued for several years by the Indian health services. The area served consisted of 160 sq.mi. with a population of about 55,000 living in 70 villages.

The W.H.O. organized its regional committee for the western Pacific and established its temporary office for this region in Hong Kong. The region extended from Japan to New Zealand and, with the exception of China (not participating in the work in 1951) reached all areas with large populations and even some of the thinly populated islands.

The U.N.I.C.E.F. completed in 1951 its fifth year of operation and the first year under policies revised in accordance with a resolution adopted by the general assembly of the United Nations Dec. 1, 1950, and a budget which was a small fraction of the amount spent annually during the first years of the fund's existence. The resolution approved use of the fund's resources for the purpose of meeting, through the provision of supplies, training and advice, emergency and long-range needs of children and their continuing needs particularly in underdeveloped countries, with a view to strengthening, wherever this may be appropriate, the permanent child health and child welfare programs of the countries receiving assistance.

Typical of the program of the U.N.I.C.E.F. was its provision of supplies and equipment for a two-year maternal and child health project in Burma, begun in 1951, in collaboration with the W.H.O., which provided a team of 12 international experts, and the government of Burma, which provided Burmese counterparts for the international personnel, necessary auxiliary staff, necessary materials and services available locally, and office and living accommodations for the international staff.

The aims of the Burma project were: (1) establishment of a pediatric department in the Rangoon General hospital; (2) increasing the diagnosis and treatment of syphilis in mothers and children, including improved facilities for laboratory diagnosis, and supplies of penicillin for treatment on the most modern lines; (3) reorganization of the children's ward of the Rangoon General hospital and improvement of equipment at that hospital, at the Dufferin hospital and at the Mother's and Children's Welfare clinics; (4) improvement of facilities for teaching maternal and child care to doctors, nurses, midwives and other public health workers; (5) expansion of school health services; (6) a general strengthening of the Burmese health services by the provision of fellowships for study abroad, and by training given to nurses and other health personnel by the international staff.

The first four years of U.N.I.C.E.F. operations included provision of food and clothing as well as health supplies to children in war-devastated countries, the equivalent of about $150,000,000. A major and historic achievement was the antituberculosis campaign conducted under the joint auspices of U.N.I.C.E.F., the Danish Red Cross, Norwegian Relief for Europe and the Swedish Red Cross. This service, provided in 22 countries on five continents, included the testing of 37,000,000 children and young adults and vaccination with BCG (Bacillus-Calmette Guérin) of nearly 17,000,000 whose test reactions were unfavourable. Upon withdrawal of the Scandinavian organizations in 1951, this work was to be carried on by the W.H.O. with the assistance of U.N.I.C.E.F.

The International Refugee organization (I.R.O.) included hundreds of thousands of children among the 1,500,000 persons aided during the period 1947–50. Of these, nearly 900,000 were resettled and about 75,000 repatriated. Nearly 500,000 were still receiving legal protection or other types of assistance when the U.N. discontinued the I.R.O. in 1950 and established as its successor a high commissioner's office, located in Geneva, which began operations Jan. 1, 1951. This agency, with an annual budget of only $300,000, compared with the millions required to operate the I.R.O., had no responsibility for care and maintenance of refugees or for their repatriation or emigration. It ensured legal protection for many children and adults in various countries.

International conferences in 1951 significant to the welfare of children included the International Catholic Child bureau, Madrid, Sp., April 26–30; the fourth World Health assembly, Geneva, May 7–25; the World Assembly of Youth, Ithaca, N.Y., Aug. 5–16; the second International Poliomyelitis conference, Copenhagen, Den., Sept. 3–7; and the fifth World congress of the International Society for the Welfare of Cripples, Stockholm, Swed., Sept. 9–14.

National Developments.—Most of the countries devastated during World War II were able to restore many of the educational, health and welfare services which had been in existence before the war. Their continued provision of family allowances assured an economic basis for child care, especially in those countries least affected by inflation. The United States was the only large industrial country without a plan for family or children's allowances in 1951. Widespread improvement of nutrition and expansion of health services to children and mothers helped to lower the rates of morbidity and mortality.

The infant mortality and stillbirth rates in England and Wales were lower in 1950 than ever before. The infant mortality rate was 29.8 per 1,000 live births, approximately one-half the rate (60) that prevailed in 1941. In the United States the infant mortality rate also hit an all-time low of 29.2. (*See* INFANT MORTALITY.)

Typical of national developments in 1951 was the opening of the first children's hospital in Bolivia, which was to serve as a training centre for nurses and other professional personnel. The scarcity of physicians and nurses had become apparent as governments and voluntary organizations throughout the world sought the staffs necessary for their expanding health services. Hence the establishment of more training centres, expansion of existing training schools and recruitment of men and women for these and related professions constitute basic measures in

KOREAN ORPHANS clothed in outsized G.I. wear at a "collection station" in Seoul, where scores of homeless children were brought after being picked up by U.N. troops

nation-wide health programs affecting children.

Mental health was receiving increased attention in all countries where resources were needed for the development of child guidance clinics or other facilities for treatment of the emotionally disturbed. A study of the mental health aspects of the needs of homeless children by John Bowlby, made in France, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States, was the subject of a W.H.O. report in 1951. The Child Welfare League of America concluded its study of residential treatment centres for emotionally disturbed children.

Children, often separated from their families, were victims of warfare in Korea. In behalf of them and adults deprived of homes and left without resources a voluntary organization, American Relief for Korea, was established.

Nearly 1,000,000 refugees living in camps in the Arab countries bordering Israel, many of them children, found life better in 1951 than in the preceding years. The International Committee of the Red Cross, League of Red Cross Societies, American Friends Service committee and agencies of the U.N. provided food, health supplies and various services. The plight of the children in these camps at the end of the year remained one of the world's most severe unsolved child welfare problems.

Child welfare planning in the United States was advanced during 1951 by federal, national, state and local organizations, several of which were created to carry out objectives of the Midcentury White House Conference on Children and Youth. On May 28 a new National Midcentury Committee for Children and Youth held its first meeting. Several state committees, most of them previously engaged in planning for the Midcentury White House conference in 1950, released reports of child welfare needs and resources within their states. Outstanding among these were the findings published by state committees in Illinois and New York and the Ohio Commission on Children and Youth.

Day care of children of working mothers received the attention of many organizations. Late in 1951 nearly 5,000,000 mothers with children under 18 years of age were employed outside the home. The Child Welfare League of America, co-operating with other national and federal agencies, completed a nationwide review of day care resources. Special studies of the need for this type of child care were made in several communities where defense industries sought large numbers of women workers. The Child Welfare league expanded its staff of day care consultants, using for this purpose funds obtained through the United Community Defense services, a project whereby several voluntary welfare agencies sought support for emergency activities developed after the Korean war made so many demands upon the United States.

Aid to dependent children, with larger grants than in 1950, constituted the country's most effective single measure for prevention of family breakdown and severe neglect of children. In June 1951 there were 1,617,893 children whose 632,649 families thus were spared distress or complete disruption. The grants for this purpose by the states, supplemented by federal funds authorized under the Social Security act, as amended in 1950, were available for the expenses of the mother or other relative providing care for the child, as well as for the child himself.

Increased narcotics addiction among youth in large cities received widespread attention of child welfare and law-enforcement authorities during 1951. Many organizations issued statements on the subject and participated in efforts to combat the illicit sale of narcotics and to develop services for treating young addicts. (*See* also Birth Statistics; Child Labour; Juvenile Delinquency; Marriage and Divorce; Red Cross; Social Security.)

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(H. W. Hk.)

Chile.

A republic extending along the southern Pacific coast of South America, with a coast line of 2,653 mi., and varying in width from 50 to 250 mi., Chile is bounded by Peru on the north, the Antarctic ocean on the south, Argentina and Bolivia on the east and the Pacific ocean on the west. It has an area of 286,323 sq.mi. and a population of 5,877,000 (1951 est.). Santiago, the capital, has 1,200,754 inhabitants (1950 est.). Other leading cities are: Valparaíso (198,068), Viña del Mar (98,156), Concepción (87,620), Antofagasta (47,326), Talca (44,859), Temuco (37,105), Iquique (34,864), Chillán (31,687) and Valdivia (30,308). Religion: Christian, mostly Roman Catholic. President in 1951: Gabriel González Videla.

History.—During 1951 Chile remained politically stable, continued its economic improvement and reaffirmed its democratic principles. The government was faced with strikes among the white-collar workers in February and in the copper industry in June. A six cents per pound increase in the price of copper, to 30½ cents per pound, as a result of trade negotiations with the United States made it possible to pay better wages in the copper industry. This increase was expected to produce an additional income of $77,500,000 per year.

Early in the year at a meeting of the United Nations Economic and Social council held in Santiago, the Chilean delegate, Eduardo Cruz Coke, suggested that Latin-American deposits in U.S. banks estimated at $800,000,000 be used to guarantee loans to the governments of the American republics in order to relieve the dollar shortage. At the same meeting another Chilean delegate, Francisco Labbe, praised the Point Four program for the economic development of backward areas and recognized the fact that the United States was contributing 55% of the funds for this program.

Eugene Black, president of the International Bank for Reconstruction and Development, visited Chile early in the year and agreed to make a complete study of Chilean industry and economy. Previously, President González Videla had attacked the bank publicly in a speech for its failure to assist in national economic development. Later the bank agreed to recommend a $10,000,000 loan for the mechanization of the coal industry and another $2,000,000 loan for power development. Another $10,000,000 loan for irrigation in north central Chile was postponed.

In his message to congress in May, President González Videla expressed confidence in Chile's political and economic future. He announced that the steel mill at Huachipato, built at a cost of $87,425,000, was producing 236,000 tons of steel ingots yearly; a large ore smelter at Paipote would start operating shortly; and the nitrate industry would use a solar evaporation process for treating low-grade nitrate. This would increase the exploitable reserves and lower production costs. The only menace he saw to the nation's safety was from Communist infiltration.

Diplomatic relations were renewed with Venezuela, after a break of three years. Political parties started preparations for the presidential election in Sept. 1952; former Interior Minister Pedro Enrique Alfonso won the Radical party nomination in the primary over Marcial Mora, formerly ambassador to the United States, and a five-party right-wing coalition nominated Arturo Matte. There were rumours that Gen. Carlos Ibáñez del Campo might also be a candidate. (J. Mc. Ad.)

Education.—In 1948 the public primary schools had 518,446 pupils and the private and municipal primary schools 149,802 pupils. Secondary

TIBETAN DELEGATES signing an agreement at Peking, China, May 23, 1951, giving the Chinese communist government control of Tibetan foreign and military affairs

schools had 70,622 pupils. University education was available at the state university of Chile (5,287 students), the Catholic university of Santiago (1,528 students) and the University of Concepción. In 1951 there were 410 motion-picture theatres with seating capacity of 300,000.

Finance.—The monetary unit is the peso, valued at $0.0108 U.S. currency, free market rate, on Oct. 31, 1951. The rate for imports into Chile was $0.0166 (provisional commercial), $0.0322 (official), $0.0232 (banking market), $0.02 (special commercial) or the free market rate, depending upon their relative importance to the economy. The 1952 budget, as submitted to congress, balanced revenue and expenditure at 27,832,000,000 pesos (1951 as enacted: revenue 23,257,087,125 pesos; expenditure 23,259,070,480 pesos). Actual revenue in 1950 was 18,887,000,000 pesos; expenditure, 20,637,000,000 pesos. Notes and coin in circulation on Sept. 30, 1951, totalled 7,350,000,000 pesos; gold reserve $45,100,000; sight and current deposits 14,833,000,000 pesos; time deposits 5,520,000,000 pesos; government deposits 2,240,000,000 pesos.

Trade and Communications.—Exports in 1950 (excluding gold) amounted to $282,000,000; imports were $248,000,000. Leading exports were copper bars (50%), nitrate of soda (25%) and wool (3%); leading imports, machinery and vehicles (28%), textile fibres and cloth (13%), iron and steel and manufactures (9%) and sugar and derivatives (9%). Chief customers were the U.S. (52%), Argentina (6%), the United Kingdom (5%), France (5%) and Egypt (5%); chief suppliers, the U.S. (48%), the United Kingdom (12%), Peru (7%), Argentina (5%) and Germany (2%).

The railway system totalled 5,434 mi. in 1949, of which 3,859 mi. were owned by the government. Highways (Dec. 31, 1947) included 1,785 mi. of international highway, 3,815 mi. of national highway and 26,300 mi. of provincial roads. Motor vehicles (Dec. 31, 1950) included 40,098 automobiles, 27,507 trucks and 4,164 buses. According to *Lloyd's Register of Shipping*, the merchant marine had 88 vessels (100 tons and over) aggregating 169,349 gross tons on June 30, 1950.

Agriculture.—Production of the principal crops in the crop year 1950–51 was estimated as follows (in short tons): wheat 1,080,000; barley 97,000; oats 98,000; rice (paddy) 44,000; potatoes 396,000; (1949–50) beans 69,000; chick-peas 41,000. Production of wine in 1950 totalled 86,300,000 U.S. gallons. Livestock (1950) included 2,331,000 cattle, (1949) 585,000 pigs, 636,000 goats and 6,345,000 sheep. Wool production averages 17,000 short tons a year, lumber production about 275,000,000 bd.ft. a year and landings of fish (including shellfish) about 70,000 short tons.

Manufactures.—Manufacturing establishments were reported to number 5,585 in 1948, with capital of 1,466,587,000 pesos and 296,000 employees. There were about 375 textile mills in 1950, including 43 cotton mills, 220 knitting mills and 46 silk and rayon mills. Production figures (1950) included steel 61,655 tons; pig iron 120,688 tons; cement 565,312 tons; and woven cotton fabrics 39,500,000 yd. The index for manufacturing industries averaged 155 in 1950 and employment in manufacturing averaged 134 (1937=100). Electrical energy is used extensively; production in 1950 was 1,520,465,075 kw.hr. The cost of living index stood at 778 in Aug. 1951 (1937=100).

Mineral Production.—Chile is the leading mineral-producing country in South America. Production in 1950 included copper 399,867 tons; nitrate of soda 1,779,273 tons; mercury 23,886 lb.; manganese 37,240 tons; iron ore 3,255,349 tons; silver 740,832 troy ounces; gold 185,538 oz. Petroleum production on Tierra del Fuego totalled 100,152 cu.m. (about 550,000 bbl.) in 1950.

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China.

Situated on the southeastern part of the continent of Asia and bordering the U.S.S.R. and Outer Mongolia for more than 6,000 mi., China has an area of 3,876,956 sq.mi. with 475,000,000 people (1950 official est.). Under the national government China had been divided into 35 provinces plus Tibet. The Central People's (Communist) government, which was inaugurated in Oct. 1949, divided China into six administrative districts plus the Inner Mongolian autonomy and Tibet. Under these political divisions there were 29 provinces and 8 administrative areas with provincial status plus 13 special municipalities. The Central People's government in Peking, which controlled practically all the Chinese mainland, and the national government in Taipei, Formosa, continued during 1951 to contend for the loyalty of the Chinese people and for international recognition and position.

Mao Tse-tung (*q.v.*) was chairman of the Central People's government; Chiang Kai-shek (*q.v.*) was president of the national government.

Cities with more than 1,000,000 population totalled eight, and the late 1950 official figures were: Peking, 1,940,290; Shanghai, 5,406,644; Tientsin, 1,785,813; Mukden, 1,551,317; Canton, 1,495,694; Port Arthur, 1,054,466; Chungking 1,038,683; Nanking, 1,020,000.

History.—The problem of China continued in 1951 to be a focal point in the struggle between the east and west, as the Central People's government became more involved in Korea and in soviet strategy and policy, and particularly after the United States took a firmer attitude toward Communist expansion in Asia. An invasion of Formosa by the People's Liberation forces became less likely than a year earlier and there were signs of political and economic improvement in Formosa. On the Chinese mainland, only two years after the inauguration of the Central People's government in Peking, complete organization of a new society based on the ideologies of Marx, Lenin and Mao Tse-tung to replace the traditional Chinese life of Confucian cultural pattern was virtually accomplished. The important activities and policy of the Peking government in 1951 may be reviewed under the following related and interlocked issues: resisting the United States and aiding the North Koreans; suppressing and liquidating "counterrevolutionists"; land reform; strengthening Sino-soviet friendship; eliminating imperialistic influence in China.

Following Peking's rejection of the appeal of the United Nations committee seeking a cease-fire in Korea in Dec. 1950, and to allay Communist suspicion as well as to reassure United Nations members, which feared a spread of the Korean war, Pres. Harry S. Truman declared early in January that the United States would not bomb China without U.N. authority and probably not without a declaration of war. Later in the month, against the objection of both the soviet and Chinese nationalist delegations, the political committee of the U.N. general assembly, with the United States' affirmative vote, approved a five-

"TIME TO READ THE FINE PRINT," a cartoon by Pratt published in the *Sacramento Bee* (Calif.) in 1951

point plan for arranging a cease-fire and convening a Four-Power conference, including Peking, to achieve an over-all settlement of far eastern problems. In reply Peking insisted on negotiations first and suggested adding France, India and Egypt to the conference, to be held in China. Sen. Tom Connally, chairman of the U.S. senate foreign relations committee, protested that his committee had not been consulted on such a major foreign policy decision as the latest cease-fire proposal, and U.S. Secretary of State Dean Acheson turned down and denounced Peking's counterproposal. Then the United States moved swiftly to present a resolution branding Peking an aggressor. After passage of house and senate resolutions on Jan. 19 and 23, respectively, calling on the U.N. to denounce Peking at once as an aggressor and to keep it out of the United Nations, President Truman said that his country was solidly behind him in condemning Peking. Despite India's emphatic warning, the general assembly adopted a resolution naming Peking an aggressor in Korea and requesting the collective measures committee to submit recommendations on additional measures to meet the aggression unless a new good offices committee made progress with a cease-fire proposal. Peking denounced the resolution and declared that it would have nothing to do with the good offices committee. When the general assembly's political committee met in early May to consider the fruitless efforts of the good offices committee and the recommendations of the additional measures committee, the tide of battle in Korea had been changed with the U.N. forces once more across the 38th parallel. On May 18 the general assembly adopted a resolution with a vote of 47 to 0 calling all governments to impose an arms embargo against Communist China and North Korea.

No matter how effective the arms embargoes might be, the resolution virtually barred the entrance of Peking into the U.N. for the time being. The special committee on the representation of China under the leadership of the Indian delegate established by the fifth session of the general assembly on Sept. 19, 1950, reported in Oct. 1951 that in the existing circumstances it could not make any recommendation on the question. Meanwhile, the U.S. attitude toward the national government and the Peking government became more definite. In April Robert A. Lovett, deputy secretary of defense, said Formosa ranked with western Europe in terms of priority of shipment of arms and ammunition, and the next day the state department revealed that under the Mutual Defense Assistance program aid had gone to the Chinese nationalists. Maj. Gen. William C. Chase, head of a permanent military commission, arrived in Formosa in May. In his message to congress on May 24 asking for foreign military aid, President Truman included military assistance to Formosa. About $307,000,000 was proposed for Formosa, $90,000,000 of which would go for economic aid. In defending its position, the U.S. state department released a memorandum dated Aug. 20 stating that to prevent the seizure of Formosa by a hostile force had been an unwavering policy of the United States and that U.S. aid to Formosa was expanded to include military measures. Likewise, the United States' firmer opposition to the admission of Peking into the U.N. was evidenced by Gen. George C. Marshall's statement in May before the senate hearings on the dismissal of Gen. Douglas MacArthur, Ambassador Philip C. Jessup's testimony in early October before a senate subcommittee, and statements of nine other presidential nominees for the U.S. delegation to the general assembly. In November the general assembly adopted a resolution with a vote of 37 to 11 shelving the question of seating Communist China.

The MacArthur episode revealed the U.S. strategy and policy concerning the bombing of Communist bases in Manchuria and the question of blockading the China coast and accepting the Chinese nationalist forces to fight in Korea or allowing them to invade the mainland.

On June 23, almost the anniversary of the start of the Korean war, the soviet delegate to the U.N., Jacob A. Malik, stated in an unusual radio broadcast that as a first step toward a settlement of the Korean war, discussions should be started between the belligerents for a cease-fire and for an armistice providing for the mutual withdrawal of forces from the 38th parallel. On June 25 Peking officially endorsed Malik's statement. Negotiations started in Kaesong, Korea, on July 10 but were suspended on Aug. 23. In the meantime the Communist military losses were staggering and on Oct. 23 Mao Tse-tung stated that if the United States was willing to seek a settlement in Korea on the basis of justice and reasonableness the armistice negotiations could be worked out. Two days later cease-fire talks in Korea were resumed at Panmunjom and on Nov. 27 agreement was reached on a cease-fire line, mostly above the 38th parallel, to be effective in 30 days provided agreements could be reached on the inspection-enforcement issue and the exchange of prisoners. (*See* KOREAN WAR.)

The exclusion of China from the preparation and signing of a Japanese peace treaty at the San Francisco conference in September caused bitter disappointment to the national government and brought strong protests from both the nationalists and Communists. On Sept. 3, the national government declared that any peace treaty with Japan without equal Chinese participation would not be binding on China, while Peking charged the treaty a threat to peace and an "American plot to enslave the peoples of Asia." Because the Anglo-U.S. draft peace treaty failed to include Peking and to provide the return of Formosa to it, India did not attend the conference for the signing of the treaty. The soviet proposal, before the San Francisco conference, for a Japanese treaty by the Big Four including Peking, which had the official endorsement of Peking, and the soviet unexpected representation and argument for Peking's cause at the conference produced no favourable results. Since the Anglo-U.S. compromise formula, leaving China's participation to Japan to decide after the signing of the treaty, was interpreted by the Japanese premier as granting him no actual authority to choose between the two Chinese governments, the question of China's signature to the treaty was shelved. (*See* Japanese Peace Conference.)

Peking's policy of "liberating" Tibet was carried out without a major fight. In mid-Jan. 1951 the People's Liberation army reached Chamdo, gateway to Lhasa, and in early March Peking promised the dalai lama, spiritual and temporal ruler of Tibet, who had fled to Yatung in Dec. 1950, internal autonomy for his country. Late in May it was announced that a 17-point agreement giving Peking military and political control of Tibet had been signed. In early October the People's Liberation army took full control of the roads from Lhasa to India and in November entered Gyantse, an important trading centre near India. Also in November the Tibet national assembly ratified the agreement transferring the control of foreign affairs, defense and currency to Peking. (*See* Tibet.)

Peking's endeavour in Tibet, interest in Indochina, designs on Formosa and particularly its adventure in Korea hampered reconstruction and imposed a heavy burden on China's strained economy. Furthermore, the land reform program and high taxes and the drive for donations for purchasing tanks and aeroplanes for the Chinese troops in the Korean war created discontent among various groups of the population. As a result the initial popularity of Mao Tse-tung's government began to dwindle and the country became a police state with its expanded public security bureaus, people's courts, re-education camps and family police. To tighten control and to liquidate nationalist elements, the state council promulgated in February a decree on the punishment of "counterrevolutionaries" which extended the penalties of death or life imprisonment to virtually any kind of antigovernment offense. Mass trials and wholesale executions took place in many cities. During 1951, the Peking authorities stated that from Oct. 1949 to Oct. 1950 more than 1,000,000 "counterrevolutionaries" were liquidated, while the nationalist officials in Formosa admitted that they had lost many valued agents and supporters in the purge on the mainland. On Nov. 12, 1951, T. F. Tsiang, China's chief delegate to the U.N. general assembly, formally charging the Communist rule by murder on the mainland a threat to world peace, requested the U.N. to help rid China of the new barbarism.

A dual campaign of solidifying the Sino-soviet friendship on the one hand and of eliminating the influence of imperialism (meaning most frequently the United States) on the other was intensified. The membership of the Sino-Soviet Friendship association, one of the social and cultural organizations of the Communist party, increased from 3,000,000 in 1949 to 17,000,000 in 1951. It was reported that the ranks of soviet advisers, technicians and military units in China had expanded. On the other hand, to eliminate "imperialism masquerading under the cloak of religion" the Peking government assumed in January the role of direct supervisor of all foreign-supported educational, cultural, charitable and religious institutions in China, and in July ordered all Chinese Christian churches and organizations to sever immediately relations with foreign missions. Many missionaries were forced to leave and a number of Europeans, Americans and Japanese were arrested on charges of spying for the United States.

For security reasons disclosure of any information which might be regarded as confidential was subject to punishment. Practically speaking, neutral sources of information became nonexistent, and financial and economic statistics became guarded state secrets. (*See* also Communism; Formosa; India; Korea; Union of Soviet Socialist Republics; United Nations.)

Education.—Official figures placed the numbers of schools and their enrolments on China's mainland in 1951 as follows: 227 colleges and universities with 134,000 students; 4,115 secondary schools with approximately 1,300,000 students; 400,000 primary schools with about 37,000,000 pupils. A new educational system with special emphasis on workers' and peasants' education was adopted in 1951 under which a five-year elementary education course together with various supplementary schools replaced the six-year process in the old system, more vocational and technical schools were provided for rural and labouring students, and the intellectuals of the old regime were to be reoriented with revolutionary education.

Defense.—About 200,000 of the nationalist forces on Formosa, estimated to total 500,000 to 750,000, were believed to be well trained and equipped. The nationalist navy had about 100 small vessels with 43,000 men, and the nationalist air force consisted of more than 300 mostly worn out and obsolescent planes. The Communist air force grew steadily and by the end of 1951 it was estimated to have more than 1,000 soviet-made planes. The People's Liberation army totalled about 5,000,000, of which more than 2,500,000 were well-trained standing forces. Military expenditure occupied a greater part of the nationalist and Communist budgets in 1951.

Finance.—Neither the size nor the composition of the 1951 budget was revealed by the Peking government and even 1950 percentage figures were missing from the year's budget announcement. It was believed that the 1950 actual budget deficit was 58% instead of 18.7% as officially announced. High taxes and campaigns for contributions and donations including ransom money from the overseas Chinese could meet only a small fraction of the 1951 deficit. However, basic living costs were fairly stable. In Formosa, final returns of the national treasury for 1950 showed a deficit of about 26% as compared with the 85% deficit of 1949. Despite economic and financial improvements, Formosa had to depend on Economic Cooperation administration aid from the U.S. to maintain its economy and offset the budget deficit. The official rates of exchange of the Formosa dollar and the People's bank dollar were about 15 and 35,000 to U.S. $1, respectively.

Trade and Communication.—On the mainland, state enterprises had a complete monopoly of the export of bristles, soybeans, metals and ores, and handled a large part of the export of such principal commodities as salt, coal, silk, tea, oils and fats, furs and skins. Imports of machinery, equipment and materials needed by government organizations and private factories were largely handled by state organizations. After 1949 statistics on the total value of trade had not been available. It was officially claimed that trade in 1950 increased over that of 1949. A greater favourable balance of trade was achieved with exports exceeding imports by more than 9% for the first nine months of 1951. In 1950 imports from the U.S.S.R. were about 20% of China's total foreign imports and by Sept. 1951 they had increased to more than 44%. China's exports to the U.S.S.R. increased from about 26% in 1950 to about 51% in the first nine months of 1951. Imports from "capitalist countries," which were still as high as 78% in 1950, had declined to about 29% by Sept. 1951.

Nearly all the railway lines on the mainland and on Hainan Island, totalling about 14,000 mi., were open to traffic. The Nanning-Chennan-Kuan line of more than 100 mi. was completed and the construction of new lines included the Chungking-Chengtu railway of about 300 mi. and the Tiensui-Lanchow railway of about 200 mi. Highway transportation and the telephone and telegraph systems had not resumed their prewar position.

Agriculture, Manufactures, Mineral Production.—Redistribution of land under the land reform program, which was regarded as a necessary counterpart of the process of revolution, was completed in areas with a total rural population of more than 300,000,000. According to the official report, China's grain production increased from 112,000,000 tons in 1949 to 120,000,000 tons in 1950, and the total food output in 1951 was expected to exceed the 1950 record. The Peking authorities claimed that China had achieved self-sufficiency in grain and for the first time could export large quantities of surplus grain. Major industries were mainly state enterprises. It was officially declared that 1950 production of heavy industry was greater than that of 1949 and that during the first half of 1951 the heavy industries showed a 44% increase over the same period in 1950.

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(H. T. Ch.)

Chiropractic: *see* Medicine.
Chloromycetin: *see* Medicine.

Christian Science.

Christian Science is the religion discovered and founded by Mary Baker Eddy in 1866. It is represented by the Church of Christ, Scientist, and consists of the Mother Church, the First Church of Christ, Scientist, in Boston, Mass., and its branches in the U.S. and 41 other countries throughout the world. Organizations established in accordance with the bylaws of the Mother Church were in 1951 also located at more than 100 universities and colleges.

Steady growth of the denomination for more than half a century was indicated at the year's annual meeting when the all-time peak of 3,049 branch churches and societies was announced.

Relief activities conducted on a world-wide scale during 1951 helped to alleviate food and clothing shortages in disaster areas. Substantial relief went to 15 nations, not including a gift of plows to India from churches in the U.S.

The Communist authorities of east Germany banned Christian Science and closed the churches in March 1951.

To keep pace with increased military preparedness in the U.S., Christian Science camp welfare activities were expanded. By Aug. 1951 there were 12 Christian Science chaplains on active duty with the armed forces, including one in the Korean combat zone. Civilian workers were assigned to call at many military posts and hospitals.

Growing public interest in religion was reflected in increased demand for Christian Science books and periodicals. Sale of the Christian Science textbook, *Science and Health with Key to the Scriptures,* by Mrs. Eddy increased 25% in a year's time. The total demand for all her writings was double that of ten years earlier. Daily, weekly, monthly and quarterly publications also reached new circulation peaks.

Christian Science lecturers, members of the board of lectureship of the Mother Church, toured the orient, Alaska, Australia, New Zealand, Africa, continental Europe, the British Isles, Mexico, Cuba, Bermuda, the West Indies, the Canal Zone, South America, the United States and Canada. They reported healings of lameness, deafness, blindness, cancer, sin, sorrow and other problems as taking place at lectures. (GE. C.)

Christian Unity. Progress toward organic union, most convincing evidence of vital unity, though retarded in 1950, bettered in 1951 the century's average rate of one per year. New unions were the Federacao Sinodal (four Lutheran bodies), Brazil; and the Presbyterians, merging Northern and Southern Churches in Formosa. In the Netherlands, the Evangelical Reformed and Restored Lutheran Churches united. The two first-mentioned united bodies, likewise the newly formed Anglican Church of the Province of West Africa and the Russian Orthodox Greek Catholic Church in North America, all applied for membership in the World Council of Churches which by the close of the year enrolled 158 churches in 43 countries. (The Anglican Chinese Church withdrew under Communist pressure.)

Negotiations for administrative or organic union progressed elsewhere: in Australia, between the United Evangelical Lutheran and the Evangelical (Missouri synod); in Tanganyika, between several Lutheran churches; in Nigeria, a joint union committee sought merger of Anglicans, Methodists and Presbyterians; in Ceylon, Anglicans, Methodists and Baptists neared final agreement; in India, following much the same plan, the Church of North India, itself embracing merged Anglicans, British and Australian Methodists, proposed a United Church with Congregationalists, Presbyterians and other Methodists, with Baptists as observers, on the basis of a definite constitution drawn in 1948. Elsewhere in India, Lutherans neared reunion. Indonesian Protestants of four types in May decided formally to continue a close union and to work for a united church of all Indonesia. South Indian Baptists and Lutherans were considering joining the Church of South India, already the most diverse union in existence and the largest non-Roman body in Asia. The Netherlands reported an all-but-completed merger of two Lutheran Churches. In the United States, three major Presbyterian bodies were presented a new proposal for merger by the Cincinnati assembly of the Presbyterian Church in the U.S.A. (northern). Also in the U.S., full consultation officially contemplating union brought together five Lutheran bodies—the American, Augustana, Evangelical, Free and United. U.S. Baptists and Disciples of Christ planned simultaneous national conventions in Chicago in 1952 as an aid to merger.

Elsewhere negotiations for mutual recognition not involving organic union progressed: in Australia, Anglicans, Congregationalists, Methodists and Presbyterians continued conversations; in Canada, the Anglicans and the United Church (originally Congregational, Methodist and Presbyterian) resumed consideration of intercommunion; in the United Kingdom, on the proposals embraced in "Church Relations in England" (Anglican-Free Church); and in Scotland, where a new plan of unified ministries was published. Likewise in London, a solemn covenant of fellowship was officially signed by Congregationalists and Presbyterians. In the U.S., eight Protestant bodies of major significance continued at Cincinnati the definite planning for a United Church of Christ proposed by the so-called "Greenwich (Conn.) conference" of 1949. A federation of the Hungarian, Slovak, Croatian and Slovenian Lutheran groups in Yugoslavia was formed. The Universalists and Unitarians (U.S.) reported more progress toward merger.

United facilities for theological education were set up in a number of places around the world, continuing a growing trend. The united Japan Christian university, supported by 13 North American denominations, elected its faculty and completed its central buildings at Mitaku near Tokyo.

National church councils everywhere recorded progress. A new one embracing Anglicans and Presbyterians was launched in Iran, and the one in Japan expanded its work. Two-thirds of the Protestants in Japan were represented in the United Church which was linked by the National Church council to nonmember bodies. Indonesia also announced a new National Church council with 30 member bodies. The North Celebes Regional council of five churches, and an Indonesian council of Chinese churches, with 11 denominations participating, also made their bows.

The National Council of the Churches of Christ in the U.S.A., launched in late 1950, began its task of integrating the work of the antecedent dozen agencies which it consolidated, and held its first annual meeting in Atlanta, Ga., in November. The total number of autonomous local, state and regional councils related to it functionally was 927, of which 217 had paid staffs.

Even the National Christian council of China continued to function, although, under extreme nationalist and Communist pressure, it ceased to have communication with similar bodies in other lands.

The Protestant churches inside and outside the ecumenical movement in America were aroused and united by U.S. and Canadian government moves toward Vatican diplomatic representation. In each nation, the Council of Churches took immediate and strong official action, the National Council of the Churches of Christ in the U.S.A. calling a special session for the purpose and organizing a nation-wide move to block the action sought by the government.

In the Netherlands, an eighth denomination—the Moravians—joined the Dutch Council of Churches; and in India, the Missouri Lutherans and certain Holiness and Pentecostal groups came into the National council. Even the conservative Evangelical Fellowship of India permitted its fundamentalist constituency to remain in the provincial and national ecumenical organizations.

In Woudschoten, Neth., a new world body known as the World Evangelical fellowship was organized. It largely comprised individuals concerned for a certain conservative type of theology. While at points highly critical of the ecumenical movement, at other points it approved ecumenical action for a higher degree of Christian unity.

While not involving church union, a great expression of unity was seen in the Kirchentag in Berlin, attended by 400,000 persons from all non-Roman churches and all zones (*see* RELIGION), and the same was true of the celebration in Greece of the 1,900th anniversary of St. Paul's arrival in Athens. Broadly inclusive plans made by the Greek Church brought together many Eastern Orthodox, Old Catholic, Anglican and Protestant leaders from many lands and stressed the growing community of interest uniting diverse churches.

The World council's central committee met in Rolle, Switz., in August. Plans were consummated at that, and at a succeeding meeting in Clarens, Fr., of its Commission on Faith and Order, for a third world conference on the theme "Faith and Order" at Lund, Swed., in 1952. The World Council of Churches and the International Missionary council sponsored a consultation in Beirut on the plight of Arab refugees and produced notable recommendations to the United Nations and to the churches.

The annual consultation sponsored by the World Council of Churches' department of interchurch aid and service to refugees met in Geneva in October and laid plans for meeting acute need in six critical areas—Trieste, Greece, Palestine, Turkey, Shanghai and Samar. Because of the imminent termination of the International Refugee organization, new burdens were seen forced on the united voluntary agencies of the churches.

The World Council of Churches' first European Laymen's Study conference met at Bad Boll, Ger.

Anglican orders were granted to the Aglipayan Church in the Philippines, a nationalist split from Roman Catholicism. This church belongs to the Federation of Christian Churches (P.I.). (*See* also RELIGION.) (H. S. LR.)

Chromium and Chromite: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Chronology: *see* CALENDAR OF EVENTS, 1951, pages 1–16.

Churchill, Winston Leonard Spencer

(1874–), British statesman, was born at Blenheim palace, Oxfordshire, Eng., on Nov. 30. For his biography and political career during World Wars I and II, see *Encyclopædia Britannica.* After the defeat of his government in the general election of 1945 he led the Conservative opposition in the house of commons.

In a party political broadcast on March 17, 1951, Churchill said that the Conservative party had decided, on national rather than party grounds, to bring about a general election as soon as possible. He signed the Conservative party election manifesto which was issued on Sept. 29 and gave an election broadcast on Oct. 8. He was re-elected for Woodford, Essex, with a majority of 18,579.

Churchill was received by King George VI on Oct. 26 and kissed hands on his appointment as prime minister and first lord of the treasury; his cabinet was announced on Oct. 26, 27 and 30 (*see* CABINET MEMBERS); he retained for himself the post of minister of defense. When parliament opened on Nov. 6 Churchill underlined the gravity of the country's economic position. In the defense debate in the house of commons a month later he said that the theme of the government's policy would be the idea of deterrents rather than the idea of danger. He visited Paris with Anthony Eden, Dec. 17–19, to explain to the French ministers the point of view he would put forward in talks that had been arranged for him in Washington, D.C., in Jan. 1952. Discussions with René Pleven and Robert Schuman dealt with the North Atlantic Treaty organization, Germany, the near east and the far east. He sailed from Southampton on the "Queen Mary" on Dec. 31 for his talks with Pres. Harry S. Truman and for a visit to Ottawa, Ont.

The fourth volume of his memoirs of World War II, *The Hinge of Fate,* was published in London in August. (R. JAN.)

Church Membership.

The latest information concerning church membership in the 256 religious bodies in continental United States, appearing in the *Yearbook of American Churches* (New York, 1951), indicates that there were 86,830,490 persons in 281,511 local churches or congregations. The figures were mainly for years ending in 1950. This compared with 81,862,328 members reported by the *Christian Herald,* New York city, about a year earlier. There were 66 religious bodies reporting more than 50,000 members in 1951

Table I.—*Church Membership in Continental United States, as Reported in 1951, for Religious Bodies with More than 50,000 Members*

Body	Members 1951	Members 1950
Adventists, Seventh Day	237,168	229,945
Assemblies of God	318,478	275,000
Baptist Bodies:		
American Baptist Convention	1,561,073	1,583,360
Southern Baptist Convention	7,079,889	6,761,265
National Baptist Convention, U.S.A., Inc.	4,445,605	4,385,206
National Baptist Convention of America	2,645,789	2,594,521
American Baptist Association	240,315	313,817
Free Will Baptists	220,000	255,127
National Baptist Evangelical Life and Soul Saving Assembly of U.S.A.	70,843	56,934
National Primitive Baptist Convention of the U.S.A.*	79,000	43,897
Primitive Baptists	72,000	69,157†
United American Free Will Baptist Church	75,000	75,000
Buddhist Churches of America	70,000	70,000
Christian and Missionary Alliance	58,347	45,348
Church of the Brethren	186,201	185,088
Churches of God:		
Church of God (Cleveland, O.)	174,960	106,490
Church of God (Anderson, Ind.)	107,094	105,022
Church of God in Christ	316,705	340,530
Church of the Nazarene	226,684	220,042
Churches of Christ	1,000,000	814,200
Congregational Christian	1,204,789	1,184,661
Disciples of Christ	1,767,964	1,738,605
Eastern Orthodox Churches:		
Armenian Orthodox	100,000	110,000
Greek Orthodox (Hellenic)	1,000,000	300,000
Russian Orthodox	400,000	300,000
Serbian Eastern Orthodox	75,000	80,000
Syrian Antiochian Orthodox	75,000	20,300
Evangelical and Reformed	726,361	714,583
Evangelical United Brethren‡	717,531	711,537
Federated Churches	88,411	88,411†
Religious Society of Friends (Five Years Meeting)	68,612	69,595
Independent Fundamental Churches of America	65,000	65,000
International Church of the Four-Square Gospel	74,689	59,897
Jewish congregations	5,000,000	5,000,000
Latter Day Saints:		
Church of Jesus Christ of Latter Day Saints	1,111,314	980,347
Reorganized Church of Jesus Christ of Latter Day Saints	124,925	121,745
Lutherans:		
American Lutheran Conference:		
American Lutheran	692,484	692,567
Evangelical Lutheran Augustana Synod of N.A.	440,244	439,231
Evangelical Lutheran Church of America§	813,837	757,352
Lutheran Free Church	59,860	54,608
Lutheran Synodical Conference of N.A.:		
Lutheran Church, Missouri Synod	1,674,901	1,569,364
Evangelical Lutheran Joint Synod of Wisconsin and other states	307,216	297,922
United Lutheran Church in America	1,954,342	1,814,172
Mennonite Church	56,480	56,746
Methodist Bodies:		
African Methodist Episcopal	1,166,301	1,066,301
African Methodist Episcopal Zion	530,116	520,175
Colored Methodist Episcopal	381,000	381,000
Free Methodist Church of N.A.	50,033	49,104
Methodist	8,935,647	8,792,569
Pentecostal Assemblies:		
Pentecostal Assemblies of the World, Inc.	50,000	5,713
Pentecostal Church of God of America	63,000	60,000
United Pentecostal Church	100,000	19,136
Polish National Catholic	250,000	250,000
Presbyterian Bodies:		
Cumberland Presbyterian	81,086	80,236
Presbyterian Church in the U.S.	678,206	653,594
Presbyterian Church in the U.S.A.	2,318,615	2,401,849
United Presbyterian Church of North America	213,810	213,810
Protestant Episcopal	2,540,548	2,297,989
Reformed Bodies:		
Christian Reformed	151,881	142,818
Reformed Church in America	183,178	179,085
Roman Catholic	28,634,878	26,718,343
Salvation Army	209,341	215,094
Scandinavian Evangelical Bodies:		
Evangelical Mission Covenant Church of America‖	50,679	51,009
Spiritualists:		
International General Assembly of Spiritualists	150,000	157,000
Christ Unity Spiritual Science Church	656,800¶	...
American Unitarian Association	75,389	74,447
Totals:	85,254,619	80,085,864

Sources: "Church Membership," *Christian Herald* (July 1950); *Yearbook of American Churches* (1951).

*Formerly Colored Primitive Baptists. †As of 1936. ‡A merger of the Evangelical Church and the United Brethren in Christ, Nov. 1946. §Name changed from Norwegian Lutheran Church. ‖Formerly Swedish Evangelical Mission Covenant. ¶No report prior to 1951.

Table II.—*Estimated Memberships of the Principal Religions of the World, 1951*

Religion	North America	South America	Europe	Asia†	Africa	Oceania‡	Total
Total Christians:	129,877,789	93,611,765	441,084,739	29,751,705	28,182,215	24,524,407	747,032,620
Roman Catholic	74,320,949	91,346,667	215,064,926§	13,235,242	13,465,233	17,303,715	424,736,731
Eastern Orthodox	1,449,800	...	112,447,669	8,106,071	5,868,089	...	127,871,629
Protestant	54,107,040	2,265,098	113,572,145	8,410,392	8,848,893	7,220,692	194,424,260
Jewish*	5,198,000	621,930	3,550,000	1,374,350	702,400	44,000	11,490,680
Mohammedan	32,600	139,156	3,866,000	251,227,847	60,359,000	75,000	315,699,603
Zoroastrian	...	...	...	124,890	...	...	124,890
Shinto	...	...	...	25,000,000	...	...	25,000,000
Taoist	15,000	17,000	12,000	50,000,000	1,200	8,000	50,053,200
Confucian	86,000	95,000	50,000	300,000,000	7,500	52,000	300,289,500
Buddhist	165,000	135,000	...	150,000,000	...	...	150,300,000
Hindu	10,000	275,000	...	255,030,506	300,000	100,000	255,715,506
Primitive	50,000	1,000,000	...	45,000,000	75,000,000	100,000	121,150,000
Others or none	79,389,611	9,868,149	81,577,261	163,763,702	22,941,685	6,707,593	364,248,001
Grand total	214,824,000	105,763,000	530,140,000	1,271,272,000	187,494,000	31,611,000	2,341,104,000

*Includes all Jews whether or not members of a synagogue.
†Includes Indonesia but not the Philippine Islands.
‡Includes the Philippine Islands.
§This figure includes Asiatic U.S.S.R. and Turkey.

(*see* Table I), and their total membership was 85,254,619, or more than 98% of all members of religious bodies.

The remaining 2% was thus found in the 190 smaller bodies of the nation.

Church membership, officially reported, had been increasing for many years, as had also the proportion of church membership in the total population. Church members were about 57% of the population. Since 1926, the date of the last adequate census of religious bodies made by the bureau of the census, church membership had increased more than 50%, while the estimated population increased about 30%. However, nothing was known about church attendance or other participation, or the proportion of church members contributing.

The Church of Christ, Scientist, does not report membership because a regulation of that body forbids the numbering of the people and the reporting of such statistics for publication.

In 1950 about 58.5% of church members were classified as Protestant, 33.2% Roman Catholic, 5.8% in Jewish congregations and 2.5% in all other bodies including Eastern Orthodox and Old Catholic. (B. Y. L.)

Principal Religions of the World.—Statistics of the world's religions are only very rough approximations. Aside from Christianity, few religions, if any, attempt to keep statistical records; and even Protestants and Catholics employ different methods of counting members. All persons of whatever age who have received baptism in the Catholic Church are counted as members, while in most Protestant Churches only those who "join" the church are numbered. The compiling of statistics is further complicated by the fact that in China one may be at the same time a Confucian, a Taoist and a Buddhist. In Japan, one may be both a Buddhist and a Shintoist. (C. S. B.)

Cigars and Cigarettes: *see* TOBACCO.
C.I.O.: *see* LABOUR UNIONS.
Circuses: *see* SHOWS.
City and Town Planning: *see* TOWN AND REGIONAL PLANNING.
City Manager Plan: *see* MUNICIPAL GOVERNMENT.

Civil Aeronautics Administration.

During 1951 there was an improvement in the safety record of scheduled U.S. international air carriers. The combined international and domestic record equalled the one set in 1950, but the domestic record did not. There was a decided increase in the number of revenue passenger-miles, both domestic and international, as well as in the number of all types of pilot certificates issued, but a decline in the number of civil aircraft manufactured.

The fatality rate in 1951 for every 100,000,000 passenger-mi. of domestic and international flying by the scheduled air carriers was estimated at 1.3, the same as the rate for 1950. In domestic operations the estimated fatality rate was 1.4, compared with 1.1 in 1950. In international operations the rate decreased from 2.1 in 1950 to an estimated 1.2 in 1951.

Revenue passenger-miles flown by domestic scheduled carriers increased 32%, from 8,002,825,000 in 1950 to an estimated 10,564,000,000 in 1951. Revenue passenger-miles flown by international scheduled carriers increased 16%, from 2,206,396,000 in 1950 to an estimated 2,559,000,000 in 1951.

Ton-miles of freight carried by domestic scheduled carriers decreased by an estimated 6% while ton-miles of express increased by an estimated 32% in 1951. Express and freight ton-miles in international operations increased by an estimated 17%.

During 1951 an estimated 55,000 student pilot certificates were issued, an increase of 23% over 1950. Private certificate issuances totalling an estimated 27,000 were greater by 4%, commercial certificate issuances totalling an estimated 5,600 were greater by 9% and air line transport pilot certificate issuances numbering an estimated 1,220 were greater by 50%.

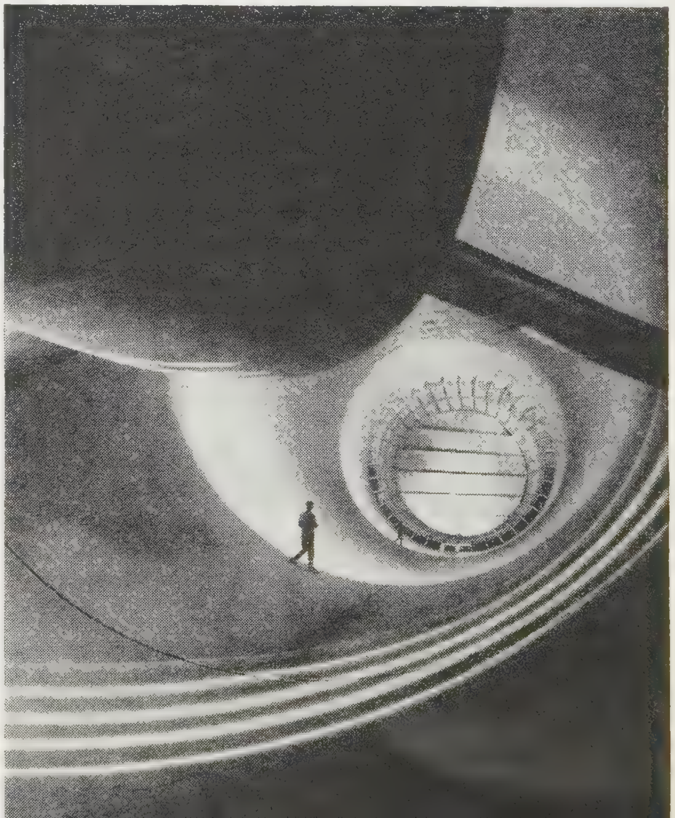
An estimated 2,700 civil aircraft were manufactured in 1951 as compared with 3,520 in 1950.

There were no fatal accidents in irregular air carrier operations during the first ten months of 1951.

On June 30, 1951, the end of the fifth year of the Federal Aid Airport program, a total of $166,537,603 in federal funds had been programmed, of which $162,194,067 had been put under contract. Funds had been granted to 1,952 projects, of which 410 were under construction, 1,295 had been completed and 247 were being processed for construction.

Substantial progress was made in implementing the common system of air traffic control and navigation. At midyear, of the

AIR-RETURN PASSAGE in the 16-ft. trans-sonic wind tunnel at Langley Aeronautical laboratory near Hampton, Va., one of three research centres maintained by the National Advisory Committee for Aeronautics in 1951



approximately 400 VOR (very-high-frequency omnirange) facilities required to cover the United States, 305 had been fully commissioned and 11 others were operating on a test basis. Ninety-eight instrument landing systems (ILS) were in operation. Nine airport surveillance radar (ASR) systems and nine precision approach radar (PAR) facilities were in operation at Boston, New York International and LaGuardia, Newark, Washington National, Atlanta, Chicago Midway, Cleveland and Los Angeles airports.

The two types of radar, when used together, constitute a ground controlled approach system.

International implementation of the United States-developed common system also made good progress. More than 30 instrument landing system installations were in operation in the European area. VOR facilities had been commissioned at London and Wales. DME (distance measuring equipment) was operating at London, Paris and Ostia, near Rome. The Lorenz company of Berlin was building eight military VOR installations in Germany, one of which was in operation at Stuttgart.

Technical aviation assistance under economic and military aid programs was furnished to 11 foreign countries, thus contributing to Point Four and Economic Cooperation administration program objectives of economic development.

Fire testing of XR60-1 and XB-45 engine installations was completed which provided design requirements for fire detecting and extinguishing systems and established correct crew procedures in the event of fire in flight. A miniature omnirange, suitable for installation at an airport and to serve as a terminal aid, was developed and successfully tested at a number of airports.

Assistance was given to the Federal Civil Defense administration in formulating plans for the use of civil aircraft in civil defense.

Discussion was carried on with aircraft manufacturers concerning certain turbine-type engines which they were considering for use in civil transport aircraft. One civil transport aircraft was equipped with a turbine-propeller power plant and was flying on an experimental basis. Twenty-four new engine models ranging in power from 90 h.p. to 3,500 h.p. were approved. Major type certification projects during the year included the Douglas DC-6A and DC-6B models.

Work on the agricultural aeroplane, AG-1, which was completed and successfully test flown in Dec. 1950, continued. The aeroplane was demonstrated over much of the United States and many aerial applicator pilots flew it for evaluation purposes. The design, construction and testing of the dispensing equipment was to be completed at Texas Agricultural and Mechanical college.

The federal government adopted a policy of intensified support of commercial transport helicopter development, as the result of a study and report made by Pres. Harry S. Truman's air co-ordinating committee during the year. It was found that the military development and use of transport helicopters had advanced to the point where effective utilization of large multi-engined rotary wing aircraft on short-haul air line routes could be foreseen. The report called upon the post office department to continue the use of helicopters in expediting terminal handling of mail in the Los Angeles and Chicago areas. (*See* also AIRCRAFT MANUFACTURE; AVIATION, CIVIL.)

FILMS OF 1951.—*Behind the Scenes at the Airport* (Carl F. Mahnke Productions). (B. M. St.)

Civil Defense, U.S.

Civil defense is a major part of the United States national defense program. Operated by civilians under civilian authority, its mission is to minimize casualties and damage from enemy attack and to preserve maximum civilian support of a war effort. It is based on the principles of self-protection and of mutual assistance as they apply to individuals, groups, communities, states and even nations.

After World War II Pres. Harry S. Truman instructed the department of defense to study the subject of civil defense. Upon its recommendation, responsibility for planning civil defense was transferred to the national security resources board. This board, after writing a basic national plan, recommended that a separate agency be established to carry it out.

The Federal Civil Defense administration (FCDA) was created and established in the executive branch of the government by the Federal Civil Defense act of 1950, approved by the president Jan. 12, 1951 (public law 920).

The Federal Civil Defense administration is charged with planning the details of the civil defense of the nation and giving assistance to the states in carrying out the plan. This assistance includes funds for equipment and supplies needed in a disaster on a 50% matching funds basis. The federal agency also provides guidance, advice, technical training material and materials for public education.

Other responsibilities of the FCDA are: warning state and local civil defense organizations of impending attack; the stockpiling of medical, engineering, welfare and other supplies needed for postdisaster operations; the operation of schools for training civil defense administrators and instructors in techniques required for operations; and establishing standards for equipment and supplies.

In event a state of civil defense emergency is declared by congress or the president, the administrator and his deputy have broad emergency powers. They can press into service such federal and private facilities and manpower as are required for emergency operations.

Civil defense operations are a state responsibility to be conducted with volunteer workers supervised by full-time civil defense staffs. During 1951 all states and most major cities had established civil defense directors and staffs and recruited more than 1,000,000 volunteer workers. It was estimated that 15,000,000 volunteers were required for a full-scale civil defense program.

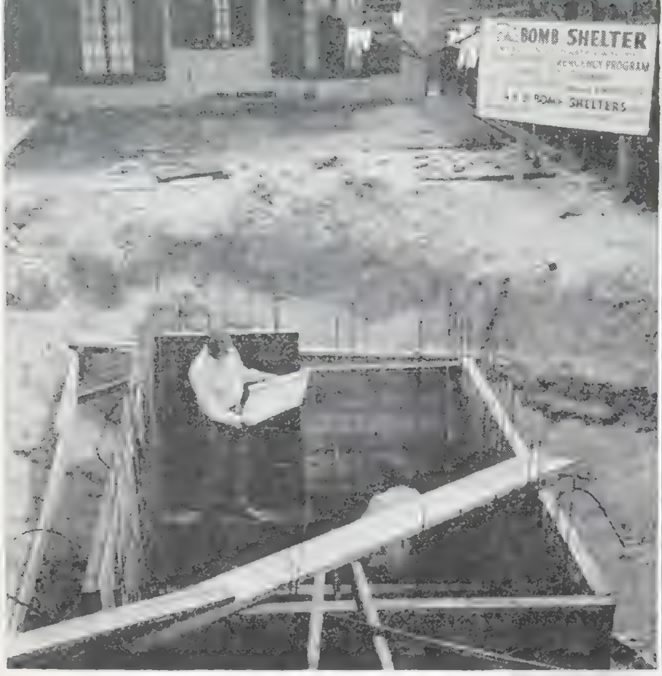
In this period the states and territories appropriated $177,285,221 for civil defense, $64,792,459 of which sum was for matching federal contributions. In the same period congress appropriated $111,650,000, of which sum $32,750,000 was for matching purposes.

The year saw the signing of pacts among 13 states for mutual assistance in the event of an emergency. Forty-one states had statutory authority to sign pacts with other states. The United States and Canada signed an agreement whereby the facilities of each would be available to the other for civil defense purposes.

During 1951 the FCDA operated three schools: the Staff college at Olney, Md., the Central Training centre at Stillwater, Okla., and the Western Training centre at St. Mary's college, Calif. Numerous technical manuals and bulletins were issued to assist the states in the organization of their defense. Comprehensive public education programs were carried on through the publication of more than 30,000,000 copies of booklets on self-protection; through information carried by the press, magazines, television shows and radio programs; and through liaison with national organizations.

Civil defense operations would be carried on by ten services: rescue, staff, transportation, communications, welfare, engineers, fire fighting, police, health and warden.

The FCDA administrator in 1951 was Millard Caldwell, former congressman and governor of Florida. His deputy was James

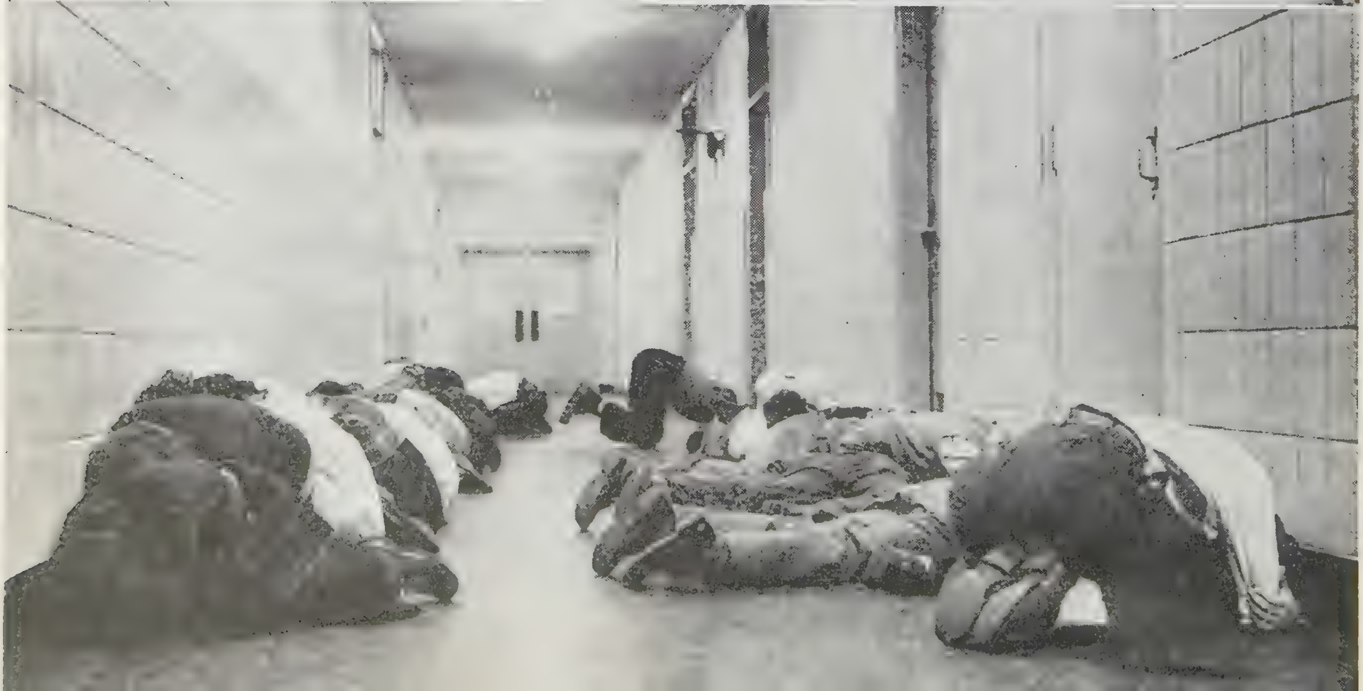


Above, left: **ATOMIC BOMB SHELTER** being manufactured for sale to U.S. west coast residents in 1951. The shelter sold for $1,800 and had its own water supply, oxygen tank, Geiger counter and reinforced concrete roof

Above, right: **PLANE SPOTTER** for the Aircraft Warning service on outpost duty in Wausau, Wis. Half a million such volunteers were needed in 1951 to fill the gaps in the radar network covering strategic air approaches to the U.S.

Right: **EMERGENCY TEAM** demonstrating radiation detection work in 1951; they were part of a defense network sponsored by the Atomic Energy commission covering key U.S. industrial laboratories. The man at left is radio-telephoning findings to a central plotting point

Below: **FIRST ATOMIC BOMB** safety drill for New York city school children being staged in Feb. 1951. In the event of air attack children were instructed to drop to the floor under any near-by covering, with backs to windows and bare areas of skin covered as much as possible



J. Wadsworth, former member of the New York state legislature and government executive. (*See* also Civil Aeronautics Administration; Municipal Government.) (M. F. Cl.)

Civil Service.

United States.—During 1951, events in the public service were influenced by two dominant forces—the accelerated program of national defense and the attendant impact of inflation on the cost of living. As these forces gained momentum during the year, their effects were felt in all government circles, largely in terms of increased difficulty in recruiting, higher rates of turnover and insistent demands by public employees for pay increases.

In the executive branch of the federal service, where the stepped-up defense program created large demands for staff, employment figures climbed steadily during the first half of the year. At the beginning of the year, total civilian employment was 2,181,000. By midyear this number had increased to 2,506,000. During the remainder of the year, federal employment levelled off at the midyear mark, however, partly because of budgetary limitations imposed by congress.

Of the numerous federal departments and agencies, the three largest were the department of defense, the post office and the Veterans administration. Together these three accounted for more than 75% of all federal employees. (*See* also Government Departments and Bureaus.)

In comparison with the federal service, public employment in state, county and municipal governments throughout the United States remained fairly stable throughout the year. Losses to the armed forces and to expanding war industry increased turnover rates in these quarters, and citizen pressure for budgetary economies largely offset demands for expansions in functions or staffs.

Many government legislative bodies approved pay increases for public employees during the year. This was particularly true in state governments, where state legislatures meeting in biennial sessions during 1951 had their first opportunity to act on pay increases for state employees since the Korean war began. The general average of these pay increases was in the neighbourhood of 8%, although in some instances the percentage increase was somewhat higher. During the year congress voted salary increases for federal employees, ranging from a minimum of $300 to a maximum of $800 a year. A separate measure provided a flat $400 per year increase for postal employees, together with increases up to $800 per year for postal officials in the higher brackets.

At the same time congress revised and reduced the amount of annual leave of federal employees. The new leave plan provided a basic yearly allowance of 13 days of vacation leave, with graduated increases based on length of service. The new plan also provided a separate allowance of up to 13 days per year for sick leave. The former policy gave employees 28 days of leave annually to be used both for vacation and sickness.

Mounting labour shortages over the country caused government personnel agencies to revise World War II recruiting policies and personnel utilization programs in many localities. Periodic civil service examinations were replaced by "spot" examinations as applicants became available. Several public jurisdictions experimented in the employment of women in jobs traditionally filled by men, and increased attention was given to the employment of persons with physical handicaps.

New civil service legislation adopted during the year extended the merit system in some localities, and in others revised existing civil service systems. The new Philadelphia, Pa., city charter adopted during the year strengthened and extended the city's civil service system. Consolidation of city and county government functions in Atlanta and Fulton county, Ga., included provision for the establishment of a single uniform pay schedule for city and county employees. In Rhode Island the previous independent civil service agency was replaced with a new department of administration which consolidated the personnel agency with the state's finance agency. In Arlington county, Va., and St. Louis county, Mo., new legislation provided for the establishment of civil service programs for county employees, and in Omaha, Neb., two separate city personnel boards were consolidated. (*See* also Municipal Government.)

(J. J. Dn.)

Great Britain.—In January and July 1951 two important changes were made in the structure of government. First, certain functions of the ministry of health relating to local government were taken from that ministry and combined with those of the ministry of town and country planning, which was renamed the ministry of local government and planning. Second, the ministry of materials was created by the transfer of certain responsibilities from the board of trade and the ministry of supply.

When Winston Churchill formed his government after the general election of Oct. 1951, the following further changes were made: The lord president of the council was given general oversight over the activities of the ministry of food and the agriculture departments, and a new post was created of secretary of state for the co-ordination of fuel and power and transport. A minister of state was appointed to assist the secretary of state for Scotland. The home secretary was given special responsibility for Wales; the paymaster general was given responsibility for the supervision of atomic energy research and production. The title of the minister of local government and planning was changed to minister of housing and local government and one minister was appointed to take charge of the ministry of transport and the ministry of civil aviation.

Two committees reviewed the pay and organization of engineers, architects, surveyors and allied professions in the civil service, and the pay and organization of medical officers. The total nonindustrial staff of the civil service rose from 675,400 in Oct. 1950 to 685,447 in Oct. 1951. (E. E. Bs.)

Clay Products: *see* Ceramic Products.

Cleveland.

Cleveland, O., had a population of 914,808 by the federal census of 1950. Its area is 73.1 sq.mi.

Winning his fourth consecutive two-year term as mayor, Thomas A. Burke (D.) outran Juvenile Court Judge William J. McDermott (R.) in the Nov. 6, 1951, election. Democrats also retained control of the city council. Voters endorsed amendments to the city charter which removed the police chief from civil service job protection and changed the method of hiring unskilled labour.

Sworn in on Nov. 12 for his new term, Mayor Burke announced his decision to proceed with an extensive urban rehabilitation program without waiting for a court test of the law under which land for housing projects could be acquired. Work was begun in December on the long-planned rapid transit system for the city after the Reconstruction Finance corporation lent $29,500,000 for that project and for modernization of the entire transit system. Announcement was made that a $34,000,000 supersonic wind tunnel would be built at the Lewis Flight Propulsion laboratory at Cleveland Hopkins airport, increasing the federal government's investment there beyond the $150,000,000 mark.

The city council unanimously voted pay increases totalling more than $1,000,000 annually for large groups of city employees, including police and firemen. Cleveland, according to the International City Managers association yearbook, operated more utilities in 1951 than any other city in the United States.

The utilities were a public auditorium, bus system, street railway, light plant, incinerator, sewage treatment plant, waterworks and airport.

Gen. Douglas MacArthur was welcomed by 250,000 persons when he visited the city in September and 10,000 heard him speak in Public hall. Bingo halls were closed by the mayor after Common Pleas Judge Frank J. Merrick ruled the city's bingo licensing law was unconstitutional. The demand for electrical power continued to grow and on Nov. 8 the peak load of the Cleveland Electric Illuminating company went over 1,000,000 kw. for the first time. The community chest raised $6,504,113, largest amount in its history, for city charities. A need for parking spaces for an additional 12,275 automobiles in the downtown section was found in a survey made by the City Planning commission.

Estimated expenditures of the city for 1951 were $37,329,140. The provisional budget for 1952 was $39,523,998. (P. By.)

Climate: *see* METEOROLOGY.

Clothing Industry.

The year 1951 was one of recession in the clothing industry. Consumer resistance to high prices, particularly in men's wear, caused unit sales to drop with a consequent fall in production at factory levels. Many factories operated only part time, especially in the work clothing field. Military orders were not of a scale substantially to affect the industrial picture.

Price controls held textile costs in hand but minor wage increases were granted. The world-wide wool shortage was reflected in the high price of woollens and worsteds, and there was a shortage of tropicals. Synthetics took an increasing share of the market; new fibres such as orlon and dacron entered the men's suitings field strongly competitive on a price basis. Despite shortages, the wool industry endeavoured to keep its traditional place in men's wear by active publicity campaigns. At the end of the year this consisted of an industry-wide drive to sell quality clothing.

Despite reluctance on the part of clothing manufacturers to expand, several large highly efficient factories were opened during the year. Machinery sales fell drastically throughout the entire world. Manufacturers of apparel hesitated to invest in new machinery as product sales declined. Nevertheless machinery research continued with new models being offered in sewing, cutting, pressing, creasing and cloth laying machines. These included a new powerful, fast self-sharpening cutting machine; automatically lubricated special sewing machines for a variety of purposes on work, dress and woollen clothing; a new button sewing machine of British make; and a number of new air operated pressing and creasing machines. Special sewing machines made in England and Italy were offered in the United States in competition with machines of United States manufacture. The Singer Manufacturing company celebrated its 100th anniversary commemorating the introduction of the first practical sewing machine.

The sale of embroidery machines spurted as that decorative art again came into fashion.

Style changes in men's dress tended in two directions. On the one hand, colour was widely used, a trend toward plaids receded somewhat but figures and solid colours gained. On the other hand, a conservative trend in regular men's clothing was noted, with narrower shoulders and narrower trouser cuffs. Colour was the keynote in sportswear, and sportswear was a larger factor than ever. Late in the year brushed rayon sweater sets appeared, highly combustible garments, which led to widespread investigation.

COCKTAIL DRESS shown to U.S. buyers at Florence, It., in July 1951, during the first large-scale showing staged by Italian fashion designers

Changes appeared in military garments. Following research, the United States armed forces adopted highly specialized clothing for various purposes. A sponge type undergarment was in the final stages of perfection. New developments, stressing dead air space, were used in cold climate garments. Pressure flying suits for high altitudes were used.

The industry became exceedingly price conscious because of the high cost of labour and materials and high taxes. Manufacturers attempted to cut costs, but often found it difficult to maintain quality. Such minor items as the substitution of pressed-on heat-sealed labels in lieu of sewed-on labels were indicative of the trend.

In France and the Low Countries, production dropped abruptly in midyear, for the first time since World War II. In Britain production was held down by the austerity program. Canada's clothing industry boomed along with all Canadian industry. New factories were set up in Korea by the United Nations to clothe military personnel.

A shortage of dollars held down sales of United States machinery and finished clothing abroad.

The women's wear industry stressed cotton and synthetic garments with eye appeal at low consumer prices. Suits in woollens and synthetics were in demand for high style as well as mass markets.

(*See* also FASHION AND DRESS.) (S. L. S.)

Coal. World production of coal increased 6% in 1950 to the highest level attained since 1944. All of the major producers and most of the intermediate group shared in the increase; the declines were relatively small and had little effect on the total. Almost half the total increase was in the United States. Table I shows the production in countries whose outputs are in excess of 10,000,000 tons as reported by the U.S. bureau of mines; these 19 countries account for about 96% of the world total, and the four major producers (United States, Germany, U.S.S.R. and United Kingdom) account for nearly three-quarters.

Table I.—*Coal Production of the World*
(Millions of short tons—all grades)

	1944	1945	1946	1947	1948	1949	1950
Canada	17.03	16.51	17.81	15.87	18.45	19.11	19.13
United States	683.27	632.55	594.43	687.81	656.65	480.57	556.39
Belgium	14.91	17.45	25.19	26.89	29.41	30.70	30.10
Czechoslovakia	54.31	29.84	37.01	42.53	45.56	47.98	50.66
France	29.30	38.60	54.34	52.16	49.75	58.47	57.88
Saar	?	?	8.69	11.56	13.85	15.72	16.44
Germany	403.60	164.22	251.95	271.49	294.41	327.44	344.52
Hungary	10.42	4.73	7.00	9.71	11.68	13.04	?
Japan	51.64	26.47	25.05	33.13	40.14	44.26	43.79
Netherlands	9.48	5.80	9.77	11.66	12.47	13.13	13.71
Poland	96.33	30.17	53.07	70.43	82.98	82.11	90.70
Spain	12.88	13.32	13.33	3.08	13.25	13.19	12.71
United Kingdom	215.88	204.71	214.81	221.14	233.44	239.38	242.28
U.S.S.R.	130?	160?	178?	193?	222?	249?	291?
Yugoslavia	?	3.98	7.50	10.24	11.82	13.36	14.3?
China	71?	19?	14?	17?	11?	19.45	41.96
India	29.26	32.67	33.27	31.81	33.40	35.23	35.83
South Africa	25.34	25.96	26.02	26.25	26.47	28.16	29.18
Australia	20.99	20.43	21.94	23.48	24.05	24.05	26.67
Total	1,946	1,495	1,621	1,808	1,888	1,822	1,976

United States.—Table II covers the salient features of the coal industry in the United States and Table III the output by states, as reported by the U.S. bureau of mines.

Production increased by 16% in 1950, but failed by a large margin to offset the 30% drop from the high of 1947. In 1951 bituminous production continued to increase but at a reduced rate, and anthracite declined. Output through Dec. 8, 1951, was 501,814,000 tons of bituminous and 38,865,000 tons of anthracite, a total of 540,679,000 tons, as compared with 479,066,000 tons of bituminous, 41,684,000 tons of anthracite and a total of 520,750,000 tons in the corresponding period of 1950.

Table II.—*Data of the Coal Industry in the United States*
(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Production, total	632,551	594,429	687,814	656,658	480,570	556,077
Anthracite	54,934	60,507	57,190	57,140	42,702	44,077
Soft coals	577,617	533,922	630,624	599,518	437,868	512,000
Bituminous	574,949	536,254	627,750	596,432	434,776	?
Lignite	2,668	2,668	2,874	3,086	3,092	?
Anthracite						
Open-cut	10,056	12,859	12,603	13,353	10,377	11,834
Underground	44,878	47,648	44,587	43,787	32,325	32,243
Used locally	6,391	6,398	6,138	6,657	5,012	5,047
Shipped	48,542	54,109	51,052	50,483	37,690	39,030
Exports	3,691	6,507	8,510	6,676	4,943	3,982
Imports	0.1	10	10	1	—	18
Stocks	130	251	702	964	975	1,268
Consumption	51,600	53,900	48,200	50,200	37,700	39,900
Bituminous and lignite						
Open-cut	109,987	112,964	139,395	139,506	106,045	122,000
Underground	467,630	420,958	491,229	460,012	331,823	390,000
Used locally	18,120	15,934	17,680	16,329	11,651	?
Shipped	559,497	517,988	612,943	583,189	426,217	?
Exports	27,956	41,209	68,667	45,925	27,842	25,468
Imports	467	435	290	291	315	347
Stocks	50,751	52,783	57,787	76,662	48,373	78,723
Consumption	559,567	500,352	557,243	519,909	445,538	453,830
Railroads	125,120	110,166	109,296	94,838	68,123	60,969
Coke ovens	95,349	82,999	104,800	107,306	91,176	103,496
Power utilities	71,603	68,739	86,009	95,620	80,610	88,261
Steel mills	10,084	8,603	10,048	10,046	7,451	7,698
Cement mills	4,215	6,969	7,938	8,554	7,988	7,921
Other industrial	131,391	122,290	139,989	113,798	98,957	98,164
Retail dealers	121,805	100,586	99,163	89,747	90,299	86,604

Table III.—*United States Production of Coal, by States*
(Millions of short tons)

	1944	1945	1946	1947	1948	1949	1950
Alabama	18.8	18.2	16.2	19.0	18.8	12.9	15.1
Colorado	8.2	7.6	5.9	6.4	5.6	4.6	4.3
Illinois	76.8	73.0	63.5	67.9	65.3	47.2	55.3
Indiana	28.0	25.2	21.7	25.4	23.8	16.6	20.4
Kentucky	71.4	69.6	66.6	84.2	82.1	62.6	77.9
Ohio	33.9	32.7	32.3	37.5	38.7	31.0	36.9
Pennsylvania	146.1	133.0	125.5	147.1	134.5	89.2	102.5
Tennessee	7.3	6.3	5.6	6.3	6.5	4.2	5.1
Utah	7.1	6.7	6.0	7.4	6.8	6.2	6.3
Virginia	19.5	17.2	15.5	20.2	18.0	14.6	17.7
West Virginia	164.7	152.0	144.0	176.2	168.9	122.6	145.6
Wyoming	9.5	9.8	7.6	8.1	6.4	6.0	5.9
Others	28.3	26.2	23.5	24.9	26.9	20.3	19.0
Total Bituminous	619.6	577.6	533.9	630.6	599.5	437.9	512.0
Anthracite	63.7	54.9	60.5	57.2	57.1	42.7	44.1
Grand Total	683.3	632.6	594.4	687.8	656.6	480.6	556.1

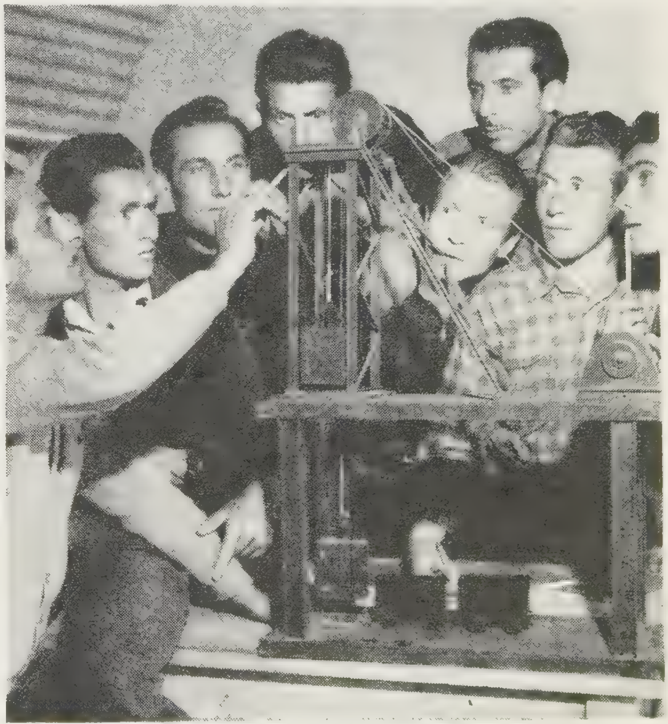
Canada.—Coal production increased from 19,120,040 short tons in 1949 to 19,135,430 tons in 1950, and heavy demand raised imports from 20,044,619 tons to 27,228,803 tons.

(G. A. Ro.)

Great Britain.—The production of deep-mined coal in 1950 was 204,100,000 metric tons and of opencast coal 12,200,000 metric tons, making a total of 216,300,000 metric tons. For 1951 the totals were: deep-mined coal 211,100,000 metric tons and open-cast 10,990,000 metric tons, a total of 222,100,000 metric tons. The National Coal board was, on several occasions during 1951, subjected to severe criticism, the chief complaint being that the board itself with its headquarters staff retained too tight a control on operations in the divisions and tended to stifle initiative. Other comments were that the powers of the colliery manager were being undermined by the creation of too many advisers at all levels.

Several large new ventures were started during the year, of which the following are examples. A new colliery designed to raise 1,000,000 tons a year from seams lying under the Firth of Forth was started. It would replace the Kinneil colliery, which for many years had worked the shallower portions of the seams. Approval was given to spend £7,500,000 on a new anthracite colliery near Swansea. It was expected that 1,000,000 tons of high-grade anthracite would be raised yearly from a depth of 2,000 ft. and that reserves would be available to last 100 years. It was believed that much of this coal would be exported to the United States and Canada. One large coking and by-products plant came into operation during the year and orders were placed for another, costing £8,000,000, to carbonize 750,000 tons a year near Chesterfield. It was intended that this plant should incorporate all the most recent European and U.S. innovations. When completed it was expected to be the most up-to-date coking and by-products plant in the world.

Pit head prices moved upward twice during 1951 and coal was



ITALIAN MINERS learning English technical terms from a model of a lift shaft and cages. They went to England in 1951 to work in British coal mines and are shown at a National Coal board instruction centre

8*s.* to 10*s.* per ton dearer at the pit head than in 1950. Bunker coal was also increased by £1 per ton. These pit head increases were largely the result of increased wages and benefits to miners which had not been counterbalanced by increased production or better attendance.

During 1951, the output of deep-mined coal rose slightly and the output per man shift was improving. On the other hand, great difficulty was being experienced in maintaining the level of manpower. Attempts were made to introduce foreign labour, of which there was a fair supply available, but some of the British miners objected to this system of recruitment. Some Poles and a few Italians were absorbed and were proving satisfactory. Coal was being imported into Great Britain during 1951 from the U.S., India and Nigeria, and the cost was high.

(J. A. S. R.)

Coast and Geodetic Survey, U.S.

During 1951, this bureau of the department of commerce continued the survey of coastal waters, the production of nautical and aeronautical charts for marine and air navigation, and the establishment of the basic geodetic network in the United States and Alaska for general mapping and large-scale engineering projects. Conditions in the far east brought new military demands for the bureau's products.

Sixteen ships and two shore-based parties were engaged in hydrographic surveys along the Atlantic, Gulf and Pacific coasts and in Alaska during the year.

High priority was given to work in Alaska, where surveys were extended in southeast Alaska, along the south coast of the Alaska peninsula, in the eastern Aleutians, in the Bering sea and along the arctic coast. The electronic position indicator, developed by the bureau for locating a survey vessel's position in hydrographic surveying, was used in Alaska for the first time to extend accurate surveys offshore beyond the line-of-sight range of shoran. The equipment was also used to tie in to the mainland, by a system of trilateration, islands in the Bering sea located several hundred miles from shore, thus co-ordinating their positions for the first time with the continent of North America.

Tidal observations were continued along the coasts of the United States and, under co-operative arrangements, along the Central and South American coasts. These observations furnished information for the prediction of tides and currents, for the establishment of mean sea level and for other engineering and scientific uses. A comprehensive current survey of the Aleutian Island passes was in progress during the year and valuable information of importance to navigation was obtained in this exposed area.

The basic network of geodetic control was further expanded. Priority was given to work in western Alaska and in various areas of the United States where surveys are required by the department of defense and other federal, state and local agencies. The adjustment of special geodetic earthquake surveys in southern California was completed. These surveys were part of a long-range program which would aid in determining the movement of the earth's crust in earthquake areas of the United States, with a view to forecasting an earthquake in advance of a major break.

The magnetic survey of the United States was continued and observations were made at 67 new stations and at seven observatories to provide information on magnetic declination, intensity and dip for use in navigation and in land surveying. The year witnessed the first important work of magnetic field surveying using an air-borne magnetometer, developed for surveying ocean areas and other regions inaccessible by ordinary magnetic methods. Thousands of miles of continuous magnetic profiles were obtained on flight lines in the United States and adjacent ocean areas to improve the magnetic data shown on aeronautical charts.

As part of its engineering seismology program, the bureau operated 53 strong-motion seismographs in the western areas of the United States for recording ground motions of destructive earthquakes, and maintained seismographs at 7 bureau field stations and co-operatively at 14 other stations for mapping earthquake areas. The system for warning the Hawaiian Islands against destructive seismic sea waves was extended during the year to include 16 reporting tide stations, 9 seismograph stations and a widespread communications network.

The aerial photographic coverage of coastal areas of the United States and Alaska was extended using the nine-lens camera. Aerial photographs of 149 airports were also taken for use in preparing airport obstruction plans.

More than 28,500,000 copies of the bureau's nautical and aeronautical charts were published during the year. At the end of the year 915 nautical charts and 1,028 aeronautical charts were available in different series to meet the various needs of marine and air navigation. (*See* also CARTOGRAPHY; GEOGRAPHY; OCEANOGRAPHY; SEISMOLOGY.)

(R. F. A. S.)

Coast Guard, U.S.

The primary functions of the U.S. coast guard are to (1) protect life and property at sea, including search and rescue; (2) enforce maritime laws and regulations; (3) maintain aids to navigation; (4) regulate merchant marine safety; and (5) maintain a state of military readiness. The coast guard lent its support during 1951 to a proposal to establish new minimum safety standards for the boating industry and to legislation to require far-reaching safety standards for vessels that carry passengers for hire.

For its program of military preparedness and defense mobilization, the coast guard received a supplemental appropriation of $30,875,000 to increase personnel by 5,900 and expand its activities in support of the other armed services. An additional responsibility of the coast guard in 1951 was the conduct of the new port security program authorized by the Magnuson act. The purpose of this program was to prevent subversives and other poor security risks from serving aboard U.S. merchant marine vessels or having access to sensitive waterfront facilities or vessels in port. It called for the security clearance of all seamen, longshoremen, dock workers and others who had access to waterfronts or vessels.

More than 5,000 persons were rescued by the coast guard in 1951. In March, when the 8,170-ton U.S. freighter "Andrea F. Luckenbach" struck a reef 3 mi. off the Hawaiian island of Kauai, the coast guard cutter "Iroquois" rescued 38 passengers and crew as coast guard planes hovered overhead, setting off flares to light the rescue scene.

In April two tankers collided in the Gulf of Mexico and burst into flames. Only 5 of 42 crew members on one of the tankers were found alive when coast guard rescue cutters arrived. Three crew members of the other tanker died.

The cutter "Cherokee" stood by to extinguish the fires and rescue survivors on May 14, 1951, after a collision between a collier and the navy seaplane tender "Valcour," loaded with high-octane gasoline, off Cape Henry, Va. Thirty-six lives were lost.

In July a four-engined Korean air-lift transport plane disappeared with 38 aboard along the rugged Alaska panhandle coast while en route to Anchorage on the first leg of its trip to Tokyo. The cutters "Citrus" and "Cahoone" scoured the icy mouth of the Gulf of Alaska northward from Cape Spencer, directing the hunt for the missing plane. Off its course, the plane would have encountered the 14,000-ft. peaks of the Barbazon mountain range, where several other planes were lost earlier in the year.

On Aug. 27, 1951, a ship's doctor, aboard a homeward-bound troopship 870 mi. out of San Francisco, Calif., radioed that a young corporal, stricken with either polio or meningitis, could not live without a respirator. Within a few hours a coast guard plane parachuted the needed equipment to the troopship.

On Sept. 1, 1951, the 45-ft. pleasure fishing boat "Pelican" capsized off Montauk point. Coast guard vessels picked up 13 survivors, but 35 persons were lost.

When floodwaters in April and July hit eastern Kansas and western Missouri, coast guard personnel and equipment, including helicopters and other aircraft, were used to evacuate persons, livestock and perishables. They also transported workers and guarded against looting.

Ice breaking on the Great Lakes started on March 12, 1951. The coast guard icebreaker "Mackinaw" and other cutters got the first commercial vessels through by March 30. More than 700 vessels were assisted through the ice.

The 1951 International Ice Patrol off the Grand Banks, Nfd., designed to warn transatlantic liners of the presence of icebergs, was inaugurated on Feb. 17, 1951, by aerial reconnaissance. By May 24, 1951, no menace from icebergs to recognized steamer lanes was found and the patrol was discontinued.

The icebreaker "Northwind" cruised 14,716 mi. during the summer in the Bering sea and Arctic ocean, protecting life and property, the seal herds and other wildlife; transporting a floating court; and furnishing medical and dental assistance to natives and others in remote localities.

Coast guard vessels manned eight ocean weather stations in the Atlantic and Pacific, providing search and rescue, communications, air navigation facilities and meteorological services in ocean areas regularly traversed by aircraft of the U.S.

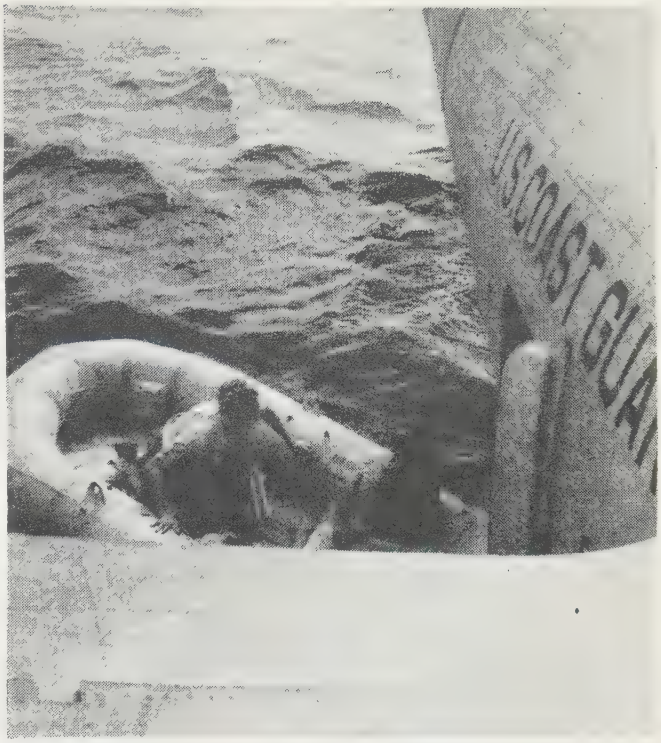
During the year, a total of 37,791 aids to navigation were maintained by the coast guard. Eight coast guard loran stations in the U.S. and 25 others from Greenland to the Philippines provided surface vessel and aircraft navigators with means for accurate and quick determination of their positions at all times regardless of weather conditions.

Port security forces boarded 22,827 vessels, and issued 990 explosive loading and discharge permits involving 2,353,839 tons of explosives. They also enforced the federal laws including the Oil Pollution act, anchorage regulations and laws relating to internal revenue, customs, immigration, quarantine and conservation of wildlife and fisheries.

The membership of the coast guard auxiliary increased to 13,076 with affiliated ownership of 6,838 boats, 404 planes and 206 radio stations. Members gave courtesy motorboat and small boat seamanship training to the general public, provided safety patrols for regattas and carried out a program of safety education and self-help.

Merchant marine safety inspectors conducted 6,535 annual inspections, 5,763 drydock examinations and 2,682 reinspections, as well as making numerous special surveys. There were 461,535 undocumented motorboats in the United States at the end of the fiscal year, an increase of 9,208. Of 2,427 marine casualties reported, 1,000 were investigated in detail. Merchant marine personnel officers issued 91,591 documents (licences and certificates), 24,453 of which were to new officers and men in the merchant marine. Shipping commissioners supervised the execution of 14,532 sets of shipping articles. Hearing units in the U.S. and merchant marine details at London, Antwerp, Bremerhaven, Naples, Trieste and Piraeus investigated 7,026 cases involving negligence, incompetence and misconduct of merchant marine personnel, and hearings were held by civilian examiners in 808 cases.

Coast guard personnel, floating and shore unit strength on June 30, 1951, was as follows: Military personnel: 2,632 commissioned officers, 448 commissioned warrant officers, 467 warrant officers, 362 cadets, 25,375 enlisted men. Civilian personnel: 874 at headquarters, 1,542 field (salaried), 3,088 field (wage board), 627 field (lamplighters), total 6,131. Floating units: 181 cutters, 58 patrol boats, 37 lightships, 42 harbour tugs, 10 buoy boats, total 328 large craft; 171 motor lifeboats, 1,370 motorboats, 2,024 nonpowered craft, total 3,565 small boats. Shore establishments: 13 captain of the port offices, 15 port security units, 9 air stations, 12 bases, 170 lifeboat stations, 416 manned light stations, 83 attendant light stations, 38 loran transmitting stations, 1 receiving centre, 41 depots, 1 shipyard, 2 supply centres, 10 supply depots, 1 academy, 49 marine inspection offices, 12 primary radio stations, 2 training stations, total 875.



COAST GUARD RESCUE plane taking on a critically ill seaman (left), who was transferred by life raft from the Swedish motorship "Jon Gorthon," July 20, 1951; the vessel was 205 mi. offshore

In addition, the coast guard had 113 fixed and rotary-wing aircraft deploying from nine air stations and ten air detachments, to make 11,565 sorties and fly 31,386 hours. (M. O'N.)

Cobalt: *see* Mineral and Metal Production and Prices.
Cochin-China: *see* French Union; Indochina.

Cockcroft, Sir John Douglas (1897–), British physicist, was born at Todmorden, Yorks., Eng., May 27. He was educated at Todmorden Secondary school, at Manchester university and at St. John's college, Cambridge, of which he was a fellow, 1928–46, and an honorary fellow from 1947. He was Jacksonian professor of natural philosophy in the University of Cambridge, 1939–46. From 1941 to 1944, however, he served as chief superintendent, air defense research and development establishment, ministry of supply, and from 1944 to 1946 was director of the atomic energy division, National Research council of Canada. In 1946 he became director of the atomic energy research establishment, ministry of supply, at Harwell, Eng. It was at a meeting of the Royal society on April 28, 1932, that Lord Rutherford made the dramatic announcement that two of his workers at the Cavendish laboratory, Cambridge—Cockcroft and E. T. S. Walton (*q.v.*)—

"had successfully disintegrated the nuclei of lithium and other light elements by protons entirely artificially generated by high electric potentials." On Nov. 15, 1951, the Royal Swedish Academy of Sciences announced the award of the Nobel prize for physics jointly to Cockcroft and Walton for "their pioneer work on the transmutation of atomic nuclei by artificially accelerated atomic particles." Cockcroft had been elected a fellow of the Royal society in 1936 and had been knighted in 1948.

Cocoa (CACAO). World cacao bean production for 1951–52 was forecast at 1,672,000,000 lb., about 3% less than the record output of 1950–51 (1,724,000,000 lb.), but well above the pre-World War II average (1,578,541,000 lb.).

World Cacao Production by Leading Areas

(In thousands of pounds)

Area*	1951–52	1950–51	Average 1935–36 to 1939–40
Gold Coast	585,000	590,000	609,363
Brazil	310,000	300,000	263,980
Nigeria	235,000	247,000	216,318
French West Africa	110,000	133,000	109,937
French Cameroons and Equatorial Africa	108,000	111,000	60,221
Dominican Republic	60,000	66,140	54,049

*Some countries named include production of smaller nearby producers.

Prices reached a peak of about 38 cents per pound in June and thereafter fluctuated at considerably lower levels. It appeared that U.S. civilian consumption was on a level of 4.4 lb. per person, slightly more than in the previous year.

United States imports (about two-fifths of the world supply) in 1950–51 reached the highest level in six years, 674,000,000 lb., as compared with 654,000,000 lb. in the previous year. The value was $215,700,000, a 62% increase over the year before.

(J. K. R.)

Coffee. Civilian consumption of coffee in the U.S. during 1951, all from imported supplies, was indicated at 16.6 lb. per capita, as compared with 16.1 lb. in 1950 and 14.0 lb. before World War II.

The world exportable coffee crop of 1951–52 was estimated at 31,700,000 bags (of 132 lb.), an increase of 6% above the 1950–51 exportable output of 29,900,000 bags, but far below the pre-World War II average of 35,000,000 bags. It was estimated that producing countries would consume 8,300,000 bags, thus accounting for an estimated total world crop of about 40,000,000 bags. There were more uncertainties than usual regarding the size of the Brazilian exportable crop and possible action by Brazilian groups, price-wise.

A maximum ceiling price was placed on coffee at retail early in the year; the price continued generally somewhat above 50 cents per pound wholesale at New York city, a level at which supply and demand were in close balance and high enough, probably, to encourage new planting, especially in Africa, and some improvement in care of the trees and harvesting of the crop.

Exportable Coffee Production of the Principal Producing Countries

(In thousands of bags—132 lb. each)

Country	1951–52	1950–51	Average 1935–36 to 1939–40
Brazil	15,800	15,550	21,740
Colombia	5,700	4,500	4,202
Mexico	1,010	900	609
Guatemala	900	800	922
El Salvador	890	1,112	1,011
French West Africa	790	700	207
Angola	665	775	273
Uganda	660	650	222

(J. K. R.)

Coinage. The three U.S. coinage mints located at Philadelphia, Pa., San Francisco, Calif., and Denver, Colo., manufactured a total of 1,179,870,778 domestic and foreign coins during the government fiscal year 1951.

United States coin production was valued at $53,494,591 and consisted of the denominations given in the table.

Denomination	Number of pieces produced
Half dollars	17,229,837
Quarter dollars	72,013,352
Dimes	161,741,557
Five-cent pieces	40,845,462
One-cent pieces	865,990,570
Total domestic	1,157,820,778

The composition of the half dollars, quarter dollars and dimes was 90% silver and 10% copper; five-cent coins, 25% nickel and 75% copper; and one-cent coins, 95% copper and 5% zinc and tin, in conformity with U.S. coinage laws.

Foreign coinage during the fiscal year 1951 totalled 22,050,000 pieces of various denominations and alloys for governments of the Dominican Republic, El Salvador, Honduras and Syria.

In addition to the coinage mints, four other mint service institutions comprising the bureau of the mint were in operation in 1951—the assay offices at New York city and Seattle, Wash., the gold bullion depository at Fort Knox, Ky., and the silver bullion depository at West Point, N.Y. The entire mint service is administered by the director of the mint, with offices in Washington, D.C.

The principal functions of the bureau of the mint, other than the manufacture of domestic and foreign coins, include the safeguarding of the government's holdings of monetary metals; acquisition of gold and silver bullion; the refining of gold and silver; administration of the issuance of treasury licences for the acquisition, ownership, possession, use and exportation of gold for industrial, professional and artistic purposes; the manufacture of medals for the department of defense and medals of historic interest.

At the close of the government fiscal year 1951 the mint institutions held in their custody 67,300 tons of gold and silver bullion valued at $23,400,000,000.

(N. T. R.)

Coke. World production of coke advanced each year after the postwar low of 1945. The outputs of the major producing countries, as reported by the U.S. bureau of mines and listed in Table I, account for about 95% of the world total.

Table I.—*World Production of Coke**

(Thousands of short tons)

	1945	1946	1947	1948	1949	1950
Australia	1,188	1,194	1,479	1,550	1,984	1,984?
Belgium	2,071	2,646	3,380	4,116	3,828	3,575
Canada	3,333	2,857	2,973	3,435	3,352	3,417?
Czechoslovakia	2,095	2,480	4,238	4,518	5,175	5,375
France	3,009	5,677	6,616	6,886	7,462	7,729
Saar	426	902	1,998	3,020	3,667	3,557
Germany	5,935	11,468	17,807	22,603	28,015	30,461
Great Britain	15,664	15,665	15,473	17,274	17,350	17,240
Poland	1,921	3,382	4,148	5,714	6,339	6,530
India	1,830	1,876	1,874	1,836	2,247	2,205?
Italy	43	491	1,063	1,442	1,666	1,655
Japan	2,646	1,019	1,283	2,130	2,844	1,475
Netherlands	943	1,442	1,956	2,469	2,728	3,091
U.S.S.R.	14,300?	16,000?	18,800?	22,000?	26,500?	29,800?
United States	67,308	58,498	73,446	74,861	63,637	72,718
Total	124,500	128,200	159,800	177,700	181,100	195,800

*Not including gashouse coke.

United States.—The domestic coke output in 1950 was only 3% short of the 1948 record high.

Table II.—*Coke Production in U.S.*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Production	67,308	58,498	73,446	74,862	63,637	72,718
By-product	62,094	53,929	66,759	68,284	60,222	66,891
Beehive	5,214	4,568	6,687	6,578	3,415	5,827
Breeze made	4,721	4,308	5,602	5,874	4,989	5,263
Coal charged	95,672	83,527	105,062	107,562	91,409	104,015
Consumption, total	66,074	57,322	72,611	73,756	63,191	73,417
By iron furnaces	50,653	43,098	57,636	59,286	51,515	61,039

Increased demand in the rearmament program kept the output high in 1951, with a total of 59,170,632 tons in the first three quarters, against 53,009,800 tons in the same period of 1950.

(G. A. Ro.)

Cold, Common: *see* Ear, Nose and Throat, Diseases of.

Coldwell, Major James (1888–), Canadian member of parliament, was born at Seaton, Eng., on Dec. 2. He was educated at University college, Exeter, and emigrated to Canada in 1910. He first settled in Edmonton, Alta., but soon moved to Regina, Sask.

He spent 20 years as an educationist in Regina, and during the latter years was a school principal. In 1922 he entered the political arena, and won a seat on the Regina city council, which he held until 1932. He joined the Saskatchewan Farmers Political association, and was provincial leader of the Saskatchewan Farmer-Labour party, 1932–35. In 1935 he won the federal riding Rosetown-Biggar (Sask.) for the Co-operative Commonwealth federation, and held it at the 1940, 1945 and 1949 elections. In 1942 Coldwell became president of the C.C.F.

Despite heavy parliamentary responsibilities, he was active in international affairs in the 1940–50 decade, as delegate to such gatherings as the Empire parliamentary conference, the Institute of Pacific Relations, the San Francisco United Nations conference and the United Nations assembly at Lake Success.

In the 1951 sessions of parliament, Coldwell led his group in several spirited attacks upon the Liberal government of Louis St. Laurent, but in the main supported Liberal legislative proposals. (C. Cy.)

Colleges and Universities: *see* Universities and Colleges.

Collins, J(oseph) Lawton (1896–), U.S. army chief of staff, was born on May 1 in New Orleans, La., and entered the U.S. Military academy at West Point, N.Y., in 1913. After World War I he served with the occupation forces in Germany until 1921, when he began a four-year period as an instructor at West Point. Early in World War II he was given duty in the Pacific, and he won the nickname of "Lightning Joe" in the recapture of Guadalcanal. Assigned to Europe in 1943, he led the U.S. 7th corps in the invasion of France, the capture of Cherbourg, the breakthrough at St. Lô and the liberation of Belgium, and finally to the Elbe. He was named deputy chief of staff in 1947, vice-chief of staff in 1948 and chief of staff, U.S. army, Aug. 1949.

In Feb. 1951 General Collins revealed that the U.S. would shortly have both atomic artillery shells and guided missiles. He was one of the high U.S. military officials who opposed any restriction on the right of the president to dispatch troops to Europe. Following the dismissal of Gen. Douglas MacArthur, General Collins testified before a joint U.S. senate armed services and foreign policy committee that MacArthur's dispatching of U.S. troops to the Manchurian frontier had been a violation of a "clearcut directive" to let only South Korean troops go all the way. He said the chiefs of staff had agreed that MacArthur should be removed to prevent "more serious" violations of policy.

Colombia. A republic situated in northwestern South America adjoining the isthmus of Panamá, Colombia is the only South American country with both Caribbean and Pacific coast lines. Area: 439,714 sq.mi.; pop. (1950 U.N. est.): 11,260.000. Approximately 68% of the population is classified as mixed blood, 20% as "white," 7% as Indian and 5% as Negro. Most Colombians live in the highlands and mountain valleys of the interior. The capital is Bogotá (1947 pop.: 482,480). Other major cities are Barranquilla (225,430), Bucaramanga (71,240), Cali (147,160), Cartagena (106,820), Cúcuta (77,480), Ibagué (84,840), Manizales (117,760), Medellín (237,220), Neiva (39,490), Pasto (63,430), Popayán (35,960), Santa Marta (43,950) and Tunja (27,080). Language: Spanish; religion: predominantly Roman Catholic. President in 1951: Laureano Gómez.

History.—During 1951, bitter strife between the incumbent Conservative and opposition Liberal parties brought Colombia close to civil war. The state of siege originally proclaimed in Nov. 1949 remained in force, and guerrilla clashes between Conservatives and Liberals, occurring primarily in rural areas, persisted. Under the state of siege, constitutional guarantees remained suspended. Censorship of radio news broadcasts was installed in April as an addition to the previously existing press censorship. Congressional elections, originally scheduled for June, were postponed until September. In explaining that action, President Gómez declared that there would be little point in holding an election so long as the Liberal opposition clung to its policy of electoral abstention, and that he hoped the Liberals would abandon that position by September. This did not prove to be the case; when the congressional elections were held on Sept. 16 there were no Liberal candidates, with the result that the party composition of the national legislature became 100% Conservative.

An attempt to achieve reconciliation between the two major parties was launched by the Liberals in early summer, when that party elected former Pres. (1934–38, 1942–45) Alfonso López Pumarejo to a two-year term on the Liberal party council. Further steps toward interparty harmony were taken in August, when moderate members of both parties met to discuss a project to call a constituent assembly for the purpose of restoring constitutional government. That project failed. In October, however, the Conservative and Liberal parties agreed to attempt to eliminate violence by political "bandit" gangs, and at the end of the year some Colombians saw hope of eventual domestic peace.

The Colombian government announced in February that it would send a "hand-picked battalion" of 1,080 officers and men to assist the United Nations forces in Korea. Considerable publicity attended the battalion's preparation for departure, but by the end of the year it had not yet appeared in combat zones. However, a Colombian frigate—the first South American fighting unit to participate in the Korean action—joined United Nations task force 95 in Korean waters in May. (*See* also International Bank for Reconstruction and Development.)

(G. I. B.)

Education.—In 1947, 11,320 primary schools reported enrolments totalling 738,716 pupils with 17,528 teachers; 1,005 secondary and vocational schools had 92,112 students and 7,480 teachers; 57 university faculties reported 8,032 students and 1,335 faculty members. In addition, 1,206 primary, 630 secondary and 2 higher educational institutions did not report enrolments. About 8% of the 1951 budget was allocated to education.

Finance.—The monetary unit is the peso, valued at 39.84 cents U.S. currency, basic rate, on Nov. 30, 1951. Actual revenue in 1950 totalled 570,176,000 pesos; expenditure, 525,371,000 pesos. The 1951 budget balanced expenditure and revenue at 461,000,000 pesos plus 50,000,000 pesos for the treasury balance and credit operations for public works. The 1952 budget as presented to congress totalled 632,700,000 pesos. The public debt amounted to 511,413,172 pesos on Dec. 31, 1950. Currency in circulation on Sept. 30, 1951, totalled 406,300,000 pesos; demand deposits 595,900,000 pesos; time deposits (Aug. 31, 1951) 49,400,000 pesos; government deposits 91,600,000 pesos; gold reserves (May 1951) U.S. $66,000,000; foreign exchange reserves (May 1951) U.S. $53.000,000. The national income was reported to be 3,690,000,000 pesos in 1948.

Trade and Communications.—Exports in 1950 totalled 767,556,000 pesos; imports, 655,853,000 pesos. Leading exports were coffee (78%), petroleum (16%), gold (2%) and bananas (2%). Leading customers were the U.S. (83%), the Netherlands Antilles (4%), Germany (4%), Canada (2%) and Sweden (1%). Important suppliers were the U.S. (68%), the United Kingdom (5%), Germany (5%), Canada (3%) and Sweden (2%).

In 1947 there were 2,208 mi. of railroad and (1948) 11,166 mi. of improved highways. Motor vehicles (Dec. 31, 1948) included 25,657 automobiles and 22,830 trucks and buses. Civil air lines carried 901,850 passengers and 210,000 short tons of cargo in 1950, and 400 barges carried 2,915,000 short tons of cargo on the Magdalena river.

Agriculture.—Coffee production in 1950 was about 5,000,000 bags of 132 lb. each, of which 4,480,567 bags were exported, 4,059,763 bags to the U.S. Banana exports were 6,437,834 stems. Production of other crops included cotton (ginned) 7,750 short tons; rice (milled) 159,000 tons; and potatoes 485,000 tons. Sugar production included centrifugal 161,000 tons and *panela* 520,000 tons. In 1950 there were an estimated 15,200,000 cattle, 2,470,000 pigs, 531,000 goats and (1949) 1,061,000 sheep.

Manufactures.—The leading industries were foodstuffs, textiles and beverages. Production figures in 1950 included cement 639,259 short tons; beer, about 600,000,000 l.; and rubber-soled shoes, about 3,000,000 pairs. The largest cotton textile factory, located at Medellín, produced about 100,000,000 yd.

Mineral Production.—Production figures in 1950 included gold 379,412 troy oz.; platinum 24,452 oz.; silver 116,104 oz.; and salt 155,445 short tons. Crude petroleum production totalled 34,059,017 bbl. Crude exports were 28,268,872 bbl., of which 15,672,670 bbl. went to the U.S. and 9,297,535 bbl. to Curaçao (for refining). The refinery production throughout was 9,563,587 bbl., and refined products included 2,019,000 bbl. of gasoline. (J. W. Mw.)

Colorado. A Rocky mountain state of the United States, in the west central part, Colorado has a mean elevation above sea level of 6,800 ft., the highest of any state. Admitted to the union in 1876 as the 38th state, it is known as the "Centennial state." Its area of 104,247 sq.mi. includes 325 sq.mi. of water surface. The U.S. owns 34.5% of the total land area and 59.3% is in private ownership, the remainder belonging to state, county and municipal governments.

The 1950 census showed a population of 1,325,089, a gain of approximately 18% from 1940; 62.7% was urban, 37.3% rural. Capital: Denver, pop. (1950 census) 415,786. Other cities (1950 census): Pueblo, 63,685; Colorado Springs, 45,472; Greeley, 20,354.

History.—The first regular session of the 38th assembly convened Jan. 2, 1951, and adjourned on March 21, 1951. Important legislation enacted provided for the following programs: a civil defense organization; a parole organization; the establishment of a state board of state institutions and a director of institutions to administer and manage all penal and charitable institutions in the state; greater benefits under the workmen's compensation act; organization of a fair employment practices educational program; a bill supplanting the existing law concerning the board of medical examiners; a bill creating a new board in regulation of practice of engineering; an administrative code providing that the state purchasing agent shall operate a state car pool system for the use of state-owned vehicles; a bill to amend the law regarding adoption of minor children.

The first extraordinary session of the 38th general assembly convened May 17, 1951, pursuant to call of Gov. Daniel Thornton for the purpose of revising the general county school funds.

The state officers in 1951 were: Daniel I. J. Thornton (Rep.), governor; Gordon Allott (Rep.), lieutenant governor; George J. Baker (Dem.), re-elected secretary of state; Homer F. Bedford (Dem.), auditor; Earl E. Ewing (Rep.), treasurer; Duke W. Dunbar (Rep.), attorney general.

Education.—The state appropriation for education in the public schools, 1951–52, was $10,000,000. The average current expense per pupil in average daily attendance for the school year 1949–50 was $212.20; the total average daily attendance was 201,384 during 1950–51. The school population, including persons 6 to 21 years of age, increased from 314,399 in 1950 to 319,121 in 1951. A total of 10,477 teachers and administrators were employed in the Colorado public schools during 1950–51.

During the fiscal year 1950–51, the 132 county and municipal libraries in Colorado loaned more than 4,000,000 books, films, recordings and other library materials to their patrons at a cost of slightly more than $1,000,000.

Social Insurance and Assistance, Public Welfare and Related Programs.—Disbursements from the state public welfare fund for assistance and administration in 1950 amounted to $55,848,236.37. Of this amount, $42,905,439.75 was expended for pensions, including burials; $5,546,140.12 for aid to dependent children; $290,361.48 for aid to the blind, for awards, treatment and burials; $4,198,488.26 for general assistance; $468,920.50 for tuberculosis hospitalization, including outpatient care and burials; $227,097.27 for child welfare; and $2,211,788.99 for state office administration expenses and allotments to counties for the state's share of salaries and travel. In addition to the above, there was a transfer to the general fund of $2,108,965.21. Federal participation during 1950 in old-age pensions, aid to dependent children, aid to the blind and administration amounted to $20,023,875.58.

The average monthly number of recipients by program were as follows: for old-age pensions, 50,617 received an average of $70.59; 15,131 child recipients of aid to dependent children received an average of $30.62 per child; and 381 aid to the blind cases received an average of $56.29.

Table I.—*Principal Crops of Colorado*

Crop	1951	1950	Average, 1940–49
Corn, bu.	15,782,000	13,368,000	15,145,000
Wheat, all, bu.	34,967,000	36,909,000	35,996,000
Oats, bu.	5,820,000	4,940,000	6,162,000
Barley, bu.	9,541,000	9,536,000	16,705,000
Sugar beets, tons	1,900,000	2,183,000	1,882,000
Potatoes, bu.	11,475,000	18,200,000	17,313,000
Dry beans, 100-lb. bags	1,624,000	1,816,000	2,039,000
Broomcorn, tons	8,300	7,200	12,250
Sorghum for grain, bu.	3,048,000	1,236,000	2,634,000
Hay crops, tons	2,036,000	1,977,000	2,238,000
Apples, commercial, bu.	1,292,000	903,000	1,511,000
Peaches, bu.	312,000	1,219,000	1,954,000
Pears, bu.	190,000	160,000	190,000
Cherries, tons	4,860	2,010	3,989

Source: U.S. Department of Agriculture.

Communications.—Highways (state and federal) in 1950 totalled 78,864 mi. Improved roads totalled 26,102 mi., unimproved roads 52,762 mi. Total funds disbursed for highways in 1950 amounted to $22,959,714.74. Registered motor vehicles in 1950 numbered 572,681. As of Aug. 1, 1951, there were 36 bus companies serving the state and 16 steam (1 electric) railroads had a total railroad mileage within the state of 4,311. There were five scheduled air lines serving the state. There were 160 airports and landing fields operating, of which 55 were personal-use type fields.

Telephones in use on Dec. 31, 1950, numbered 431,361. There were 33 standard AM radio stations and 3 FM stations, plus 1 noncommercial educational FM station.

Banking and Finance.—As of Jan. 1951 there were 77 national banks and 71 state banks. Deposits in all banks at the close of 1950 were $1,216,378,000. Clearings in Denver (1950) $6,717,178,000; in Pueblo $536,153,000; in Colorado Springs $556,398,000.

The cash balance in the treasury as of June 30, 1951, was $55,228,238.52. Total revenue in the fiscal year ended June 30, 1951, $178,667,649.70. All expenditures, including functional services, debt services and transfers, amounted to $169,737,396.39. There was no bonded indebtedness. Highway anticipation warrants totalled $5,505,000. Outstanding warrants, cash and general revenue amounted to $6,881,078.02. Investments, June 30, 1951, of $37,296,438.35, plus a cash balance of $55,228,238.52, made a total of $92,524,676.87 in liquid assets. The state surplus at close of fiscal year ending June 30, 1951, was $17,323,900.35.

Agriculture—In 1950 the cash income from farm marketings totalled $506,000,000. This was made up of $316,000,000 from sale of livestock and livestock products and $190,000,000 from sale of crops. Government payments were not included nor was the value of farm products produced and used on the farm. Production of the leading crops is given in Table I.

The numbers of meat-producing animals on Colorado farms and ranches Jan. 1, 1951, were as follows: cattle 1,818,000; stock sheep 1,210,000; hogs and pigs 316,000. In addition, there were 435,000 lambs in feed lots.

Manufacturing and Industry.—The department of commerce estimate for the value added to Colorado manufactures in 1950 was $315,450,000. There were 1,705 industries in the state, employing 60,000 persons, with an annual pay roll of $158,627,000. The principal industries were food and kindred products, printing and publishing, lumber and products, stone clay, glass products, machinery, petroleum products and primary metals.

Tourist travel in Colorado is the third largest industry in the state. In 1950 the income derived from 3,010,000 travellers was $203,000,000. (P. Ae.)

Table II.—*Mineral Production of Colorado*

(In short tons, except as noted)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Clays	254,691	$ 499,294	310,130	$ 618,814
Coal	4,636,432	23,734,510	4,258,500	21,668,857
Coke*	729,516	?	804,979	?
Copper	2,403	946,782	3,141	1,306,656
Feldspar	68,282	341,049	66,592	329,120
Fluorspar	22,324	763,296	18,489	654,089
Gold (oz.)	102,618	3,591,630	130,390	4,563,650
Lead	26,853	8,485,548	27,007	7,291,890
Molybdenum	5,241	†	12,045	?
Natural gas (thousand cu.ft.)	8,490,000	443,000	10,000,000	550,000
Natural gasoline (gal.)	6,400,000	463,000	8,013,000	510,000
Petroleum (bbl.)	23,587,000	60,150,000	23,353,000	59,550,000
Petroleum gases (gal.)	7,957,000	281,000	7,096,000	224,000
Sand and gravel	4,751,431	2,964,588	5,154,287	3,940,439
Silver (oz.)	2,894,886	2,620,018	3,492,278	3,160,688
Stone	1,816,790	2,803,538	1,679,960	2,776,331
Zinc	47,703	11,830,344	45,776	13,000,384
Other minerals		19,940,206		?
Total		$139,857,803		?

*Values for processed materials are not included in the totals.
†Value included with other minerals.

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the end of 1951.

Columbia, District of: *see* Washington, D.C.

Cominform: *see* Communism.

Commerce: *see* Business Review; International Trade.

Commerce, U.S. Department of: *see* Government Departments and Bureaus, U.S.

Commodity Credit Corporation: *see* Agriculture.

Commodity Prices: *see* Business Review; Prices.

Commodity Trading: *see* Agriculture.

Commons, House of: *see* Parliament, British.

Commonwealth Fund: *see* Societies and Associations, U.S.

Commonwealth of Nations. The following table gives essential data on the British Commonwealth as at Dec. 31, 1951.

Commonwealth of Nations

Country	Area sq. mi. (approx.)	Population* (000's omitted)	Capital	Status	Rulers, Governors and Premiers
Europe					
Great Britain and N. Ireland, United Kingdom of	94,205	50,212†	London	Kingdom	George VI, King Prime Minister of Great Britain: Winston Churchill Governor of Northern Ireland: Earl Granville Prime Minister of Northern Ireland: Sir Basil Brooke
Channel Islands					
Jersey	45	57†	St. Helier	Parts of the United Kingdom	Lt. Gov.: Sir A. E. Grasett
Guernsey, etc.	30	45†	St. Peter Port		Lt. Gov.: Sir Philip Neame
Gibraltar	2	25		Colony	Gov.: Lt. Gen. Sir Kenneth Anderson
Isle of Man	221	55†	Douglas	Part of the United Kingdom	Lt. Gov.: Sir Geoffrey Bromet
Malta	122	315	Valletta	Self-governing colony	Gov.: Sir Gerald Creasy Prime Minister: G. Borg Olivier
Asia					
Aden	112,080	732		Colony and protectorate	Gov.: Tom Hickinbothom
British Borneo:					
North Borneo	29,417	350	Sandakan	Colony	Gov.: Sir Ralph Hone
Brunei	2,226	42	Brunei	Protectorate	High Commissioner } A. F. Abell
Sarawak	47,071	570	Kuching	Colony	Governor
Ceylon	25,332	7,639	Colombo	Dominion	Gov. Gen.: Lord Soulbury Prime Minister: Don Stephen Senanayake
Cyprus	3,572	484	Nicosia	Colony	Gov.: Sir Andrew Wright
Hong Kong	391	2,030‡	Victoria	Colony	Gov.: Sir Alexander Grantham
India	1,138,814	356,892†	New Delhi	Republic	President: Rajendra Prasad Prime Minister: Jawaharlal Nehru
Malaya:					Commissioner-General for S.E. Asia: Malcolm Macdonald
Federation of Malaya	50,680	5,227	Kuala Lumpur	2 settlements and 9 protected states	High Commissioner: vacant at Dec. 31, 1951
Singapore	282	1,018	Singapore	Colony	Gov.: Sir Franklin Gimson
Pakistan	365,907	75,687†	Karachi	Dominion	Gov. Gen.: Ghulam Mohammed Prime Minister: Khwaja Nazimuddin
Africa					
Anglo-Egyptian Sudan	967,500	8,350	Khartoum	Condominium	Gov. Gen.: Sir Robert Howe
British South African Protectorates:					
Basutoland	11,716	574	Maseru	Colony	High Commissioner: Sir John Le Rougetel
Bechuanaland	275,000	289	Mafeking	Protectorate	
Swaziland	6,705	197	Mbabane	Protectorate	
Gambia	4,074	271	Bathurst	Colony	Gov.: P. Wyn Harris
Gold Coast, including Togoland	91,843	4,181	Accra	Colony, protectorate and trust territory	Gov.: Sir Charles Arden-Clarke
Kenya	224,960	5,500	Nairobi	Colony and protectorate	Gov.: Sir Philip Mitchell
Mauritius (and Dependencies)	807	489	Port Louis	Colony	Gov.: Sir Hilary Blood
Nigeria, including Cameroons	372,674	25,025	Lagos	Colony, protectorate and trust territory	Gov.: Sir John Macpherson
Nyasaland	47,900	2,337	Zomba	Protectorate	Gov.: Sir Geoffrey Colby
Rhodesia, Northern	290,320	1,866	Lusaka	Protectorate	Gov.: Sir Gilbert McCall Rennie
Rhodesia, Southern	150,333	2,095	Salisbury	Self-governing colony	Gov.: Sir John Noble Kennedy Prime Minister: Sir Godfrey Huggins
St. Helena (and Dependencies)	126	5	Jamestown	Colony	Gov.: Sir George Joy
Seychelles	156	36	Victoria	Colony	Gov.: Frederick Crawford
Sierra Leone	27,925	1,865	Freetown	Colony and protectorate	Gov.: Sir George Beresford-Stooke
Somaliland	67,936	500	Berbera	Protectorate	Gov.: Sir Gerald Reece
South-West Africa	317,725	430†	Windhoek	Mandate (under South Africa)	Administrator: A. J. R. van Rhyn
Tanganyika	362,688	7,600	Dar-es-Salaam	Trust territory	Gov.: Sir Edward Twining
Uganda	93,981	5,125	Entebbe	Protectorate	Gov.: Andrew B. Cohen
Union of South Africa	472,494	12,646†	Pretoria (seat of government) Capetown (seat of legislature)	Dominion	Gov. Gen.: Maj. G. B. van Zyl Prime Minister: Daniel F. Malan
Zanzibar	1,020	270	Zanzibar	Protectorate	Resident: John Dalzell Rankine
America					
Bahamas	4,375	79	Nassau	Colony	Gov.: Maj. Gen. R. A. R. Neville
Barbados	166	212	Bridgetown	Colony	Gov.: Sir Alfred Savage
Bermuda	21	37	Hamilton	Colony	Gov.: Lt. Gen. Sir Alexander Hood
British Guiana	83,000	425	Georgetown	Colony	Gov.: Sir Charles Woolley
British Honduras	8,598	67	Belize	Colony	Gov.: Sir Ronald Garvey
Canada	3,843,144	13,893†	Ottawa	Dominion	Gov. Gen.: Viscount Alexander of Tunis Prime Minister: Louis St. Laurent
Falkland Islands	4,618	2	Port Stanley	Colony	Gov.: Sir Miles Clifford
Jamaica (and Dependencies)	4,677	1,420	Kingston	Colony	Gov.: Sir Hugh Foot
Leeward Islands	422	112	St. John	Colony	Gov.: K. W. Blackburne
Trinidad and Tobago	1,980	636	Port of Spain	Colony	Gov.: Maj. Gen. Sir Hubert Rance
Windward Islands	821	277	St. George's	4 colonies	Gov.: Sir Robert Arundell
Australasia					
Commonwealth of Australia	2,974,581	8,316	Canberra	Dominion	Gov. Gen.: Sir William McKell Prime Minister: Robert Gordon Menzies
Fiji	7,040	285	Suva	Colony	Gov.: Vacant at Dec. 31, 1951
New Hebrides	4,633	49	Vila	Franco-British condominium	British Resident Commissioner: R. D. Blandy; French High Commissioner: Pierre Anthonioz
Nauru	8	3		Trust territory (under Australia)	Administrator: Robert Stanley Richards
New Zealand (and Dependencies)	103,939	1,960†	Wellington	Dominion	Gov. Gen.: Lord Freyberg Prime Minister: Sidney George Holland
Norfolk Island	13	1		Australian dependency	Administrator: Alexander Wilson
Pacific Islands (Solomon, Gilbert and Ellice, Tonga, Pitcairn Isls.)	12,125	181		Colonies and protectorate	High Commissioner: Vacant at Dec. 31, 1951
Papua–New Guinea	183,540	1,440	Port Moresby	Australian territory and trust territory	Administrator: Col. J. K. Murray
Western Samoa	1,133	82†	Apia	Trust territory (under New Zealand)	Administrator: G. R. Powles

*1950 est. if not otherwise stated. †1951 census. ‡1951 est.

Communism. Communism in 1951 pursued the same general line of policy as in the preceding years. Its propaganda, which in the first years after World War II was mainly directed against Great Britain and against capitalism in general, centred more and more on a virulent campaign against the United States system and supposed U.S. intentions. This hate-U.S.-first attitude led in typical Communist fashion to a reinterpretation of history so that the United States appeared, both in the present and the past, as the implacable enemy of the soviet people and of its striving for social justice and for a world free of war and exploitation. The main points in the Communist propaganda platform were no longer, however, social revolution or international class war. These had been replaced almost entirely, at least for the time being, by an emphasis on peace. Joseph Stalin and the Soviet Union were presented as the main guardians of peace in the interest of all the peoples of the world, while the United States was pictured as the chief imperialist destroyer of peace, which wished to drive mankind into the ruins of an atomic war for the profit of U.S. finance and business.

This peace propaganda—which recalled a similar peace propaganda by the soviet government in the months following its seizure of power in Nov. 1917—was in no way confined to Communists or Communist-controlled countries. It was world-wide and penetrated all classes among many peoples in Europe and Asia, exploiting their natural and legitimate desire for peace and for economic reconstruction. It was carried on by many non-Communists. Though it did not succeed in winning converts to the Communist doctrine or organization, the Communist parties being unable to make any inroads anywhere in Europe or Asia in 1951, it alienated many people from support of the foreign policy of the United States, which was being misrepresented as a policy of superarmament, atomic and otherwise, a policy which imposed unbearable economic burdens on peoples hardly recovered from the devastations of World War II. Communist propaganda asserted that the U.S. was arming itself, and was forcing its allies to follow suit, in order to prepare for a showdown with the Soviet Union.

In such a showdown, backed by the threat of war, it would attempt to force the Soviet Union to surrender and to accept United States world domination.

This "peace" campaign, carried on with all the fervour of a crusade against the sin of war, was started in 1949 by the Scientific and Cultural Conference for World Peace in New York city and the World Congress of Partisans of Peace in Paris and Prague, Czech., and was continued in 1950 by similar congresses in Stockholm, Swed., and Warsaw, Pol. Throughout 1951 petitions for "peace" were circulated in many countries. Some of the slogans most widely used were demands for the abolition of the atomic bomb and for the exclusive use of atomic power for peaceful and constructive purposes, a call for a pact of friendship and nonaggression among the five big powers, and opposition to the rearmament of Germany and Japan. As the result of this campaign, the attitude of "neutralism" in the struggle between the Soviet Union and the United States, as equally bellicose and dangerous powers, made much headway in France, Italy, western Germany and throughout Asia. Nor had the United States succeeded in dispelling the erroneous impression created by Communist propaganda that the United States was arming for an ultimate showdown or for a preventive war which would be unleashed as soon as U.S. armament had reached its maximum strength.

The handling of the Korean truce talks by an exclusively U.S. team and various incidents connected with these negotiations were repeatedly used by Communist propagandists to distort U.S. motives.

In spite of the psychological gains of the Communist "peace" propaganda, the hope for immediate practical results did not materialize. The Communist-led "peace partisans" and trade unionists in France and Italy were unable to carry through their threat of stopping the delivery of U.S. war material to the French and Italian armies. Plans for a strike protesting the arrival of Gen. Dwight D. Eisenhower in Paris in Jan. 1951 to assume command of the forces of the North Atlantic Treaty organization, and similar plans for his arrival in Rome in Nov. 1951 to report to the meeting of the council of the organization, petered out. The secretary general of the Communist-dominated French trade union organization the Confédération Générale du Travail was reported to have declared to the congress of the Communist-led World Federation of Trade Unions in Berlin in November that the western military program must be sabotaged at all costs. But during 1951 the rearmament program was not impeded by any direct sabotage. The World Federation of Trade Unions lost much of its former influence and drive. It had its headquarters in Paris until the beginning of 1951, as had two other Communist-dominated organizations, the World Federa-

CARTOONS BY HERBLOCK of the *Washington Post* which appeared in the booklet *Herblock Looks at Communism* distributed in various language editions in Europe by the U.S. state department in 1951

SMITHSONOVITCH INSTITUTION
FIRST ENGINE (RUSSIAN INVENTION)
FIRST FLYING MACHINE (RUSSIAN INVENTION)
FIRST ATOMIC MODEL (RUSSIAN CREATION)
FIRST ICE CREAM (CATHERINE THE GREAT)
SHAKESPEARE, BACON, OXFORD MANUSCRIPTS IN THE ORIGINAL RUSSIAN
LIGHTNING ELECTRICITY (RUSSIAN DISCOVERY) DO NOT TOUCH
HERBLOCK

"SET IT DOWN ANYWHERE. WE'RE OVERCROWDED ALREADY!"

"THANK YOU!" "THANK YOU!" "THANK YOU!"

"WE NOW BRING YOU MORE LATE ELECTION RETURNS" tion of Democratic Youth and the International Democratic Federation of Women. On Jan. 26, 1951, the French government ordered the dissolution of the Parisian headquarters of these organizations.

The Berlin congress of the World Federation of Trade Unions appealed to all workers, including even the anti-Communist International Confederation of Free Trade Unions which had split in 1949 from the World Federation of Trade Unions, for common action on the basis of economic demands and a fight for peace against United States plutocracy and imperialism. This appeal remained unheeded. The Communists also tried to exploit the discontent of the native populations in colonial countries, especially in French-dominated Indochina and Morocco, and supported their demands for liberty and economic betterment. In the independent nations of Asia communism made headway only in Burma, which had been torn by internal strife since Jan. 1948 when it was granted independence from Great Britain. But democracy held its own successfully throughout 1951.

On the strength of its "dialectics," communism apparently was able to reconcile its shrill propaganda of hatred against the United States and the other democracies with the assurances of its own unique love and guardianship of peace. The supreme soviet of the U.S.S.R. in its session of March 1951 in Moscow adopted a law for the defense of peace in which all war propaganda was declared a crime against mankind and the most severe punishment was threatened against anybody guilty of this crime. The legislation was clearly aimed at persons in democratic countries. The official party line was expressed in an article in the Sept. 1951 issue of the leading soviet philosophical journal *Problems of Philosophy*. It maintained that the Marxist thesis of the inevitability of war between socialism and capitalism was no longer suitable. Thanks to the growing power of the "camp of the peace," the "camp of warmongers" would not prevail, the soviet periodical asserted; it regarded the opinion that war was inevitable as equally antiscientific and harmful as the opinion that war could not break out. All Communist propaganda emphasized, simultaneously with its assurances of its own peace-loving character and of the wickedness of U.S. warmongering, the growing strength of the Soviet Union and the other Communist states as the bulwark for peace and as the guarantee for the ultimate success of communism on a world-wide scale.

The ever-tightening "iron curtain" prevented any definite estimate of the economic strength and the moral cohesion in the Communist countries. But in the Communist-dominated "people's democracies" of eastern Europe, the purges of numerous high-ranking and devoted Communists who suddenly were denounced as criminals of the worst kind continued. The purges hit not only those Communists who were suspected of even the slightest contact with the west during World War II, but also Moscow-trained leaders.

The most far-reaching purges were carried on in 1951 in Czechoslovakia, where Vladimir Clementis, Communist minister of foreign affairs and successor to Jan Masaryk, was arrested in February and accused together with Otto Sling, secretary of the Communist organization in Brno, the second largest city of Czechoslovakia, and Marie Svermova, organizational secretary of the central committee of the Czech Communist party, as a nationalist and as a spy for western imperialism. In February Klement Gottwald, Communist president of Czechoslovakia, stated publicly that the Communist party had found within its ranks a five-year-old plot for lining the country up with western capitalism. In November Rudolf Slansky, former secretary general of the Czech Communist party and for many years the most influential and extreme Communist leader in the country, was arrested and denounced as a Titoist and an agent of U.S. imperialism. Outside observers interpreted the purges and this appeal to Czech nationalism as an acknowledgment of the failure of the Communist economic policy. All the "people's democracies" in central and eastern Europe had suffered under Communist leadership a rapid deterioration of their standard of living.

COMMUNISTS INDICTED for conspiracy in June 1951 shown entering a police van in New York City on their way to prison. Of the 11 leading Communists convicted, 4 jumped bail and became fugitives

The Communist parties outside the soviet-controlled countries showed no sign of large-scale defection. However, in Italy two leading Communists, Valdo Magnani and Aldo Cucchi, both members of parliament from the province of Reggio Emilia, where Magnani was secretary of the provincial party organization, resigned from the party. They pleaded for the complete independence of the Italian Communist party, and demanded that the Communist workers should defend Italy against any invasion, whether from the west or from the east. Except for this one case, Titoism, or the desire to free national Communist parties from subservience to the U.S.S.R., did not prove of major importance.

In the western hemisphere, communism made no headway in 1951 except in the Central American republic of Guatemala. The Communists who had become entrenched there during the regime of Pres. Juan José Arévalo seemed to be still gaining ground. High government officials attended the Communist labour conference held in Guatemala in May 1951 under the auspices of the Mexican pro-Communist leader Lombardo Toledano and the French Communist Louis Saillant, but they did not respond to invitations to attend the anti-Communist conference held at the end of November. In the United States the supreme court confirmed the conviction of 11 top Communists in the country for conspiracy to teach violent overthrow of the government.

In Australia the high court in March declared invalid a federal act outlawing the Communist party, which had been enacted in Oct. 1950. To give the government the power to re-enact the law, Prime Minister Robert Gordon Menzies in July introduced a bill to amend the commonwealth constitution. The bill was submitted to a popular referendum, in which it needed approval by a majority of the Australian states and of the electorate to become law. On Sept. 22 the voters rejected the constitutional amendment empowering the government to implement the Communist Party Dissolution act. Four of the six states voted against it, and the margin of the individual votes against it was 153,000. (*See* also Australia, Commonwealth of; Austria; Burma; China; Democracy; Education; Guatemala; Law; Socialism; South Africa, The Union of.)

Bibliography.—Anthony Leviero, "The War of Ideas between USA and USSR," *New York Times* (Dec. 10–16, 1951); Mario Einaudi, *Communism in Western Europe* (1951); Joseph Korbel, *Tito's Communism* (1951); Eudocio Ravines, *The Yenan Way* (1951); Wilson Record, *The Negro and the Communist Party* (1951); Adam B. Ulam, "The Cominform and the People's Democracies," *World Politics*, (Jan. 1951). (H. Ko.)

Community Chest.

The community chest is the name given to a local federation made up of health, welfare and recreation agencies supported by voluntary contributions. Its purpose is to raise annually, by a single united campaign, funds for the support of its member agencies and, through community welfare councils financed by chest funds, to promote joint planning for health and welfare in the community.

Community Chests and Councils of America, Inc., the national association of local community chests and welfare councils, was organized in Feb. 1918.

Of the 2,013 community chests and welfare councils in operation in July 1951 (1,582 chests and 431 councils), 1,516 chests and 404 councils were in the continental U.S.; 5 chests and 3 councils in Hawaii; 54 chests and 22 councils in Canada; 2 chests in South Africa; 1 chest in the Virgin Islands; 1 chest in Puerto Rico; 1 council in the British West Indies; 1 chest and 1 council in Japan; 1 chest in the Philippines; and 1 chest in Alaska. Almost every city in the U.S. (except New York city, which has a limited joint-financing organization and a welfare council) in 1951 had a community chest or similar plan of federated financing for its voluntary social services. In 1,498 cities in 1950 more than 20,000,000 contributions totalling $212,987,-292 were given to community chests to be used during 1951 for voluntary health and welfare services in their communities. The United Defense fund, including the United Service organizations (U.S.O.), United Community Defense services and Clothes for Koreans, was formed in 1951 to finance special services by about 30 national agencies to armed forces and to civilians in defense communities. It received its chief financial support from United Red Feather campaigns. National promotion of chest campaigns is carried on under the name United Red Feather Campaigns of America, using the national symbol of the red feather.

Officers of C.C.C., Inc., for 1951 were: honorary president, Gerard Swope, New York city; president, Stanley C. Allyn, Dayton, O.; treasurer, H. L. R. Emmet, Erie, Pa.; secretary, Mrs. Oswald B. Lord, New York city. Ralph H. Blanchard was executive director. Headquarters are at 155 E. 44th St., New York, N.Y. (B. A.)

Community Trusts.

An aggregate of $102,005,711 was reported as the assets of community trusts and foundations in the United States, Canada and Hawaii at Jan. 1, 1951. During 1950 these composite foundations appropriated $5,223,911 for charitable projects. In the same year they received new resources totalling $6,455,057.

The largest of these foundations was the New York Community trust whose 100 funds were valued at $19,128,066. The Chicago Community trust reported $15,003,603; the Cleveland foundation, $12,852,717; the Permanent Charity fund, Boston, Mass., $9,857,013; and the California Community foundation, Los Angeles, $7,633,084. Of the disbursements made in 1950, the New York Community trust paid out $1,632,278; Detroit, $741,013; Chicago, $497,307; Boston, $446,610; and Cleveland, $429,291.

Funds newly received in that year included $1,529,185 accruing to the Cleveland foundation, $716,951 reaching the Detroit Community trust and $714,947 added to the New York Community trust. Community foundations became operative in Beloit, Wis., Jackson, Mich., and Norfolk, Va., during 1950.

Of 79 community trusts surveyed in 1951, 70 were administering principal resources and 62 were making current distributions out of 858 funds on hand. Their cumulative disbursements from 1930 through 1950 stood at $39,692,546.

A community trust consists, usually, of a series of trust funds of varied sizes, held by a number of corporate trustees and applied for diverse charitable uses under the central supervision of a joint distributing committee. The trustee of a given fund is ordinarily chosen by its founder. The distributing committee, when authorizing disbursements by the trustee, customarily undertakes to give expression to the specific charitable desires of a founder—stated either when a trust is created or perhaps (in cases of living trusts) subsequently—but is likewise empowered to take appropriate remedial action if previously expressed preferences later become impossible or impractical of execution. (R. Hs.)

Compound E: *see* Chemotherapy; Cortisone and ACTH; Endocrinology; Rheumatic Diseases.

Compound F: *see* Chemotherapy; Endocrinology; Medicine.

Confectionery: *see* Candy.

Congo, Belgian: *see* Belgian Colonial Empire.

Congregational Christian Churches.

The Congregational Christian Churches are a Christian communion organized on a democratic basis. The local churches are united in district associations, state conferences and the National General council for fellowship, mutual aid, missionary work and social service.

The Congregational principle of church organization has been implicit in Christianity from the beginning but came to the fore in the late 16th century in England. The first Congregationalists to arrive in America were the passengers on the "Mayflower" in 1620, but their settlement at Plymouth was soon overshadowed by the much larger immigrations into Massachusetts Bay. Thence in the following 150 years Congregationalists spread over New England and southward until at the time of the Revolution their churches numbered approximately 800 out of a total of 1,700 colonial churches. The "Christians" were a body of about 100,000 members which had its beginnings in the late 18th century in New England, Virginia and North Carolina, and the Ohio valley, and united with the Congregational fellowship in 1931.

As of Jan. 1, 1951, the total number of Congregational Christian Churches in the United States was 5,651 with 1,227,527 members, 5,728 ministers and 619,679 church school members. During 1950, 48,902 persons were received into the churches on confession of faith—the largest total on record. During that year the churches contributed $5,522,324 to benevolences and $31,530,701 to local church support.

During 1951 Sidney M. Berry of London, Eng., the minister and secretary of the International Congregational council, visited the United States. Plans were ratified for the holding of the next meeting of the council in Scotland in 1953.

During 1951 the American Board of Commissioners for Foreign Missions, the Congregational Christian foreign missionary board, withdrew its missionaries from Communist China, only three remaining there at the end of the year because of lack of transportation from Chinese ports.

For some years the Congregational Christian Churches had been planning a merger with the Evangelical and Reformed Church. During 1949, however, an antimerger faction in the Congregational Christian Churches secured a court injunction against further moves toward the union, and at the close of 1951 the matter had just come to the appellate division of the supreme court of New York state for review. (*See* also CHRISTIAN UNITY; CHURCH MEMBERSHIP.) (D. HT.)

Congress, United States.

The 82nd U.S. congress convened for its second session on Jan. 8, 1952. It comprised the following members (as of Jan. 8, 1952):

United States Senate

Presiding Officer: Alben W. Barkley of Kentucky
Majority Leader: Ernest W. McFarland of Arizona
Minority Leader: Styles Bridges of New Hampshire
Democrats: 49; Republicans: 46; Democratic-Liberal: 1.

State	Name	Party	Term Expires	Residence
Ala.	Hill, Lister	Dem.	1957	Montgomery
	Sparkman, John	Dem.	1955	Huntsville
Ariz.	McFarland, Ernest W.	Dem.	1953	Florence
	Hayden, Carl	Dem.	1957	Phoenix
Ark.	Fulbright, J. W.	Dem.	1957	Fayetteville
	McClellan, John L.	Dem.	1955	Camden
Calif.	Knowland, William F.	Rep.	1953	Oakland
	Nixon, Richard M.	Rep.	1957	Whittier
Colo.	Johnson, Edwin C.	Dem.	1955	Denver
	Millikin, Eugene D.	Rep.	1957	Denver
Conn.	McMahon, Brien	Dem.	1957	Norwalk
	Benton, William	Dem.	1953	Southport
Del.	Frear, J. Allen, Jr.	Dem.	1955	Dover
	Williams, John J.	Rep.	1953	Millsboro
Fla.	Smathers, George A.	Dem.	1957	Miami
	Holland, Spessard L.	Dem.	1953	Bartow
Ga.	George, Walter F.	Dem.	1957	Vienna
	Russell, Richard B.	Dem.	1955	Winder
Ida.	Welker, Herman	Rep.	1957	Payette
	Dworshak, Henry C.	Rep.	1955	Burley
Ill.	Douglas, Paul H.	Dem.	1955	Chicago
	Dirksen, Everett McKinley	Rep.	1957	Pekin
Ind.	Capehart, Homer E.	Rep.	1957	Washington
	Jenner, William E.	Rep.	1953	Bedford
Iowa	Gillette, Guy M.	Dem.	1955	Cherokee
	Hickenlooper, Bourke B.	Rep.	1957	Cedar Rapids
Kan.	Schoeppel, Andrew F.	Rep.	1955	Wichita
	Carlson, Frank	Rep.	1957	Topeka
Ky.	Clements, Earle C.	Dem.	1957	Morganfield
	Underwood, Thomas, R.[1]	Dem.	1955	Lexington
La.	Long, Russell B.	Dem.	1957	Baton Rouge
	Ellender, Allen J.	Dem.	1955	Houma
Me.	Brewster, Owen	Rep.	1953	Dexter
	Smith, Margaret Chase	Rep.	1955	Skowhegan
Md.	Butler, John Marshall	Rep.	1957	Baltimore
	O'Conor, Herbert R.	Dem.	1953	Baltimore
Mass.	Saltonstall, Leverett	Rep.	1955	Dover
	Lodge, Henry Cabot, Jr.	Rep.	1953	Beverly
Mich.	Moody, Blair[2]	Dem.	1953	Detroit
	Ferguson, Homer	Rep.	1955	Detroit
Minn.	Humphrey, Hubert H.	Dem.	1955	Minneapolis
	Thye, Edward J.	Rep.	1953	Northfield
Miss.	Eastland, James O.	Dem.	1955	Doddsville
	Stennis, John C.	Dem.	1953	De Kalb
Mo.	Hennings, Thomas C., Jr.	Dem.	1957	St. Louis
	Kem, James P.	Rep.	1953	Kansas City
Mont.	Murray, James E.	Dem.	1955	Butte
	Ecton, Zales N.	Rep.	1953	Manhattan
Neb.	Seaton, Fred A.[3]	Rep.	1955	Hastings
	Butler, Hugh	Rep.	1953	Omaha
Nev.	McCarran, Patrick	Dem.	1957	Reno
	Malone, George W.	Rep.	1953	Reno
N.H.	Tobey, Charles W.	Rep.	1957	Temple
	Bridges, Styles	Rep.	1955	Concord
N.J.	Hendrickson, Robert C.	Rep.	1955	Woodbury
	Smith, H. Alexander	Rep.	1953	Princeton
N.M.	Anderson, Clinton P.	Dem.	1955	Albuquerque
	Chavez, Dennis	Dem.	1953	Albuquerque
N.Y.	Lehman, Herbert H.	Dem.-Lib.	1957	New York city
	Ives, Irving M.	Rep.	1953	Norwich
N.C.	Smith, Willis	Dem.	1955	Raleigh
	Hoey, Clyde R.	Dem.	1957	Shelby
N.D.	Langer, William	Rep.	1953	Bismarck
	Young, Milton R.	Rep.	1957	La Moure
Ohio	Taft, Robert A.	Rep.	1957	Cincinnati
	Bricker, John W.	Rep.	1953	Columbus
Okla.	Monroney, Mike	Dem.	1957	Oklahoma City
	Kerr, Robert S.	Dem.	1955	Oklahoma City
Ore.	Cordon, Guy	Rep.	1955	Roseburg
	Morse, Wayne	Rep.	1957	Eugene
Pa.	Duff, James H.	Rep.	1957	Carnegie
	Martin, Edward	Rep.	1953	Washington
R.I.	Green, Theodore Francis	Dem.	1955	Providence
	Pastore, John O.	Dem.	1953	Providence
S.C.	Johnston, Olin D.	Dem.	1957	Spartanburg
	Maybank, Burnet R.	Dem.	1955	Charleston
S.D.	Mundt, Karl E.	Rep.	1955	Madison
	Case, Francis	Rep.	1957	Custer
Tenn.	McKellar, Kenneth	Dem.	1953	Memphis
	Kefauver, Estes	Dem.	1955	Chattanooga
Tex.	Johnson, Lyndon B.	Dem.	1955	Johnson City
	Connally, Tom	Dem.	1953	Marlin
Utah	Bennett, Wallace F.	Rep.	1957	Salt Lake City
	Watkins, Arthur V.	Rep.	1953	Orem
Vt.	Aiken, George D.	Rep.	1957	Putney
	Flanders, Ralph E.	Rep.	1953	Springfield
Va.	Byrd, Harry F.	Dem.	1953	Berryville
	Robertson, A. Willis	Dem.	1955	Lexington
Wash.	Magnuson, Warren G.	Dem.	1957	Seattle
	Cain, Harry P.	Rep.	1953	Tacoma
W.Va.	Neely, Matthew M.	Dem.	1955	Fairmont
	Kilgore, Harley M.	Dem.	1953	Beckley
Wis.	Wiley, Alexander	Rep.	1957	Chippewa Falls
	McCarthy, Joseph R.	Rep.	1953	Appleton
Wyo.	O'Mahoney, Joseph C.	Dem.	1953	Cheyenne
	Hunt, Lester C.	Dem.	1955	Lander

[1] Appointed March 19, 1951, to fill the vacancy caused by the death of Virgil Chapman, March 8, 1951.

[2] Appointed April 23, 1951, to fill the vacancy caused by the death of Arthur H. Vandenberg, April 18, 1951.

[3] Appointed Dec. 10, 1951, to fill the vacancy caused by the death of Kenneth S. Wherry, Nov. 29, 1951.

United States House of Representatives (*served in 81st congress)

Speaker: Sam Rayburn of Texas

Majority Leader: John W. McCormack of Massachusetts

Minority Leader: Joseph W. Martin, Jr., of Massachusetts

Democrats: 231; Republicans: 201; Independent: 1; vacancies: 2.

State	Dist.		Party	Residence
Ala.	1	*Boykin, Frank W.	Dem.	Mobile
	2	*Grant, George M.	Dem.	Troy
	3	*Andrews, George W.	Dem.	Union Springs
	4	Roberts, Kenneth A.	Dem.	Anniston
	5	*Rains, Albert	Dem.	Gadsden
	6	*DeGraffenried, Edward	Dem.	Tuscaloosa
	7	*Elliott, Carl	Dem.	Jasper
	8	*Jones, Robert E., Jr.	Dem.	Scottsboro
	9	*Battle, Laurie C.	Dem.	Birmingham
Ariz.	1	*Murdock, John R.	Dem.	Tempe
	2	*Patten, Harold A.	Dem.	Tucson
Ark.	1	*Gathings, E. C.	Dem.	West Memphis
	2	*Mills, Wilbur D.	Dem.	Kensett
	3	*Trimble, James W.	Dem.	Berryville
	4	*Tackett, Boyd	Dem.	Nashville
	5	*Hays, Brooks	Dem.	Little Rock
	6	*Norrell, W. F.	Dem.	Monticello
	7	*Harris, Oren	Dem.	El Dorado
Calif.	1	*Scudder, Hubert B.	Rep.	Sebastopol
	2	*Engle, Clair	Dem.	Red Bluff
	3	*Johnson, Leroy	Rep.	Stockton
	4	*Havenner, Franck R.	Dem.	San Francisco
	5	*Shelley, John F.	Dem.	San Francisco
	6	*Miller, George P.	Dem.	Alameda
	7	*Allen, John J., Jr.	Rep.	Oakland
	8	*Anderson, Jack Z.	Rep.	San Juan Bautista
	9	Hunter, Allan Oakley	Rep.	Fresno
	10	*Werdel, Thomas H.	Rep.	Bakersfield
	11	*Bramblett, Ernest K.	Rep.	Pacific Grove
	12	Hillings, Patrick J.	Rep.	Arcadia
	13	*Poulson, Norris	Rep.	Los Angeles
	14	Yorty, Samuel W.	Dem.	Los Angeles
	15	*McDonough, Gordon L.	Rep.	Los Angeles
	16	*Jackson, Donald L.	Rep.	Santa Monica
	17	*King, Cecil R.	Dem.	Los Angeles
	18	*Doyle, Clyde	Dem.	Long Beach
	19	*Holifield, Chet	Dem.	Montebello
	20	*Hinshaw, Carl	Rep.	Pasadena
	21	*Sheppard, Harry R.	Dem.	Yucaipa
	22	*Phillips, John	Rep.	Banning
	23	*McKinnon, Clinton D.	Dem.	San Diego
Colo.	1	Rogers, Byron G.	Dem.	Denver
	2	*Hill, William S.	Rep.	Fort Collins
	3	Chenoweth, J. Edgar	Rep.	Trinidad
	4	*Aspinall, Wayne N.	Dem.	Palisade
Conn.	1	*Ribicoff, Abraham A.	Dem.	Hartford
	2	Seely-Brown, Horace, Jr.	Rep.	Pomfret Center
	3	*McGuire, John A.	Dem.	Wallingford
	4	Morano, Albert P.	Rep.	Greenwich
	5	*Patterson, James T.	Rep.	Naugatuck
		*Sadlak, Antoni N.	Rep.	Rockville
Del.		*Boggs, J. Caleb	Rep.	Wilmington

State	Dist.	Name	Party	Residence
Fla.	1	McMullen, Chester B.	Dem.	Clearwater
	2	*Bennett, Charles E.	Dem.	Jacksonville
	3	*Sikes, Robert L. F.	Dem.	Crestview
	4	Lantaff, Bill	Dem.	Miami
	5	*Herlong, A. S., Jr.	Dem.	Leesburg
	6	*Rogers, Dwight L.	Dem.	Fort Lauderdale
Ga.	1	*Preston, Prince H., Jr.	Dem.	Statesboro
	2	*Cox, E. E.	Dem.	Camilla
	3	Forrester, E. L.	Dem.	Leesburg
	4	*Camp, A. Sidney	Dem.	Newnan
	5	*Davis, James C.	Dem.	Stone Mountain
	6	*Vinson, Carl	Dem.	Milledgeville
	7	*Lanham, Henderson	Dem.	Rome
	8	*Wheeler, W. M. (Don)	Dem.	Alma
	9	*Wood, John S.	Dem.	Canton
	10	*Brown, Paul	Dem.	Elberton
Ida.	1	Wood, John T.	Rep.	Coeur d'Alene
	2	Budge, Hamer H.	Rep.	Boise
Ill.	1	*Dawson, William L.	Dem.	Chicago
	2	Vail, Richard B.	Rep.	Chicago
	3	Busbey, Fred E.	Rep.	Chicago
	4	McVey, William E.	Rep.	Harvey
	5	Kluczynski, John C.	Dem.	Chicago
	6	*O'Brien, Thomas J.	Dem.	Chicago
	7	*Sabath, Adolph J.	Dem.	Chicago
	8	*Gordon, Thomas S.	Dem.	Chicago
	9	*Yates, Sidney R.	Dem.	Chicago
	10	*Hoffman, Richard W.	Rep.	Berwyn
	11	Sheehan, Timothy P.	Rep.	Chicago
	12	*Jonas, Edgar A.	Rep.	Chicago
	13	Church, Marguerite Stitt	Rep.	Evanston
	14	*Reed, Chauncey W.	Rep.	West Chicago
	15	*Mason, Noah M.	Rep.	Oglesby
	16	*Allen, Leo E.	Rep.	Galena
	17	*Arends, Leslie C.	Rep.	Melvin
	18	*Velde, Harold H.	Rep.	Pekin
	19	*Chiperfield, Robert B.	Rep.	Canton
	20	*Simpson, Sid	Rep.	Carrollton
	21	*Mack, Peter F., Jr.	Dem.	Carlinville
	22	Springer, William L.	Rep.	Champaign
	23	*Jenison, Edward H.	Rep.	Paris
	24	*Vursell, Charles W.	Rep.	Salem
	25	*Price, Melvin	Dem.	East St. Louis
	26	*Bishop, C. W.	Rep.	Carterville
Ind.	1	*Madden, Ray J.	Dem.	Gary
	2	*Halleck, Charles A.	Rep.	Rensselaer
	3	Crumpacker, Shepard J., Jr.	Rep.	South Bend
	4	Adair, E. Ross	Rep.	Fort Wayne
	5	Beamer, John V.	Rep.	Wabash
	6	*Harden, Cecil M.	Rep.	Covington
	7	Bray, William G.	Rep.	Martinsville
	8	*Denton, Winfield K.	Dem.	Evansville
	9	*Wilson, Earl	Rep.	Bedford
	10	*Harvey, Ralph	Rep.	New Castle
	11	Brownson, Charles B.	Rep.	Indianapolis
Iowa	1	*Martin, Thomas E.	Rep.	Iowa City
	2	*Talle, Henry O.	Rep.	Decorah
	3	*Gross, H. R.	Rep.	Waterloo
	4	*LeCompte, Karl M.	Rep.	Corydon
	5	*Cunningham, Paul	Rep.	Des Moines
	6	*Dolliver, James I.	Rep.	Fort Dodge
	7	*Jensen, Ben F.	Rep.	Exira
	8	*Hoeven, Charles B.	Rep.	Alton
Kan.	1	*Cole, Albert M.	Rep.	Holton
	2	*Scrivner, Errett P.	Rep.	Kansas City
	3	George, Myron V.	Rep.	Altamont
	4	*Rees, Edward H.	Rep.	Emporia
	5	*Hope, Clifford R.	Rep.	Garden City
	6	*Smith, Wint	Rep.	Mankato
Ky.	1	*Gregory, Noble J.	Dem.	Mayfield
	2	Vacancy[1]		
	3	*Morton, Thruston Ballard	Rep.	Glenview
	4	*Chelf, Frank L.	Dem.	Lebanon
	5	*Spence, Brent	Dem.	Fort Thomas
	6	Watts, John C.[2]	Dem.	Nicholasville
	7	*Perkins, Carl D.	Dem.	Hindman
	8	*Bates, Joe B.	Dem.	Greenup
	9	*Golden, James S.	Rep.	Pineville
La.	1	*Hébert, F. Edward	Dem.	New Orleans
	2	*Boggs, Hale	Dem.	New Orleans
	3	*Willis, Edwin E.	Dem.	St. Martinsville
	4	*Brooks, Overton	Dem.	Shreveport
	5	*Passman, Otto E.	Dem.	Monroe
	6	*Morrison, James H.	Dem.	Hammond
	7	*Larcade, Henry D., Jr.	Dem.	Opelousas
	8	*Allen, A. Leonard	Dem.	Winnfield
Me.	1	*Hale, Robert	Rep.	Portland
	2	*Nelson, Charles P.	Rep.	Augusta
	3	McIntire, Clifford G.[3]	Rep.	Perham

State	Dist.	Name	Party	Residence
Md.	1	*Miller, Edward T.	Rep.	Easton
	2	Devereux, James P. S.	Rep.	Stevenson
	3	*Garmatz, Edward A.	Dem.	Baltimore
	4	*Fallon, George H.	Dem.	Baltimore
	5	*Sasscer, Lansdale G.	Dem.	Upper Marlboro
	6	*Beall, J. Glenn	Rep.	Frostburg
Mass.	1	*Heselton, John W.	Rep.	Deerfield
	2	*Furcolo, Foster	Dem.	Longmeadow
	3	*Philbin, Philip J.	Dem.	Clinton
	4	*Donohue, Harold D.	Dem.	Worcester
	5	*Rogers, Edith Nourse	Rep.	Lowell
	6	Bates, William H.	Rep	Salem
	7	*Lane, Thomas J.	Dem.	Lawrence
	8	*Goodwin, Angier L.	Rep.	Melrose
	9	*Nicholson, Donald W.	Rep.	Wareham
	10	*Herter, Christian A.	Rep.	Boston
	11	*Kennedy, John F.	Dem.	Boston
	12	*McCormack, John W.	Dem.	Dorchester
	13	*Wigglesworth, Richard B.	Rep.	Milton
	14	*Martin, Joseph W., Jr.	Rep.	North Attleboro
Mich.	1	Machrowicz, Thaddeus M.	Dem.	Hamtramck
	2	Meader, George	Rep.	Ann Arbor
	3	*Shafer, Paul W.	Rep.	Battle Creek
	4	*Hoffman, Clare E.	Rep.	Allegan
	5	*Ford, Gerald R., Jr.	Rep.	East Grand Rapids
	6	*Blackney, William W.	Rep.	Flint
	7	*Wolcott, Jesse P.	Rep.	Port Huron
	8	*Crawford, Fred L.	Rep.	Saginaw
	9	Thompson, Ruth	Rep.	Whitehall
	10	*Woodruff, Roy O.	Rep.	Bay City
	11	*Potter, Charles E.	Rep.	Cheboygan
	12	*Bennett, John B.	Rep.	Ontonagon
	13	*O'Brien, George D.	Dem.	Detroit
	14	*Rabaut, Louis C.	Dem.	Grosse Pointe Park
	15	*Dingell, John D.	Dem.	Detroit
	16	Lesinski, John Jr.	Dem.	Dearborn
	17	*Dondero, George A.	Rep.	Royal Oak
Minn.	1	*Andresen, August H.	Rep.	Red Wing
	2	*O'Hara, Joseph P.	Rep.	Glencoe
	3	*Weir, Roy W.	Dem.	Minneapolis
	4	*McCarthy, Eugene J.	Dem.	St. Paul
	5	*Judd, Walter H.	Rep.	Minneapolis
	6	*Marshall, Fred	Dem.	Grove City (R.F.D.)
	7	*Andersen, H. Carl	Rep.	Tyler
	8	*Blatnik, John A.	Dem.	Chisholm
	9	*Hagen, Harold C.	Rep.	Crookston
Miss.	1	*Rankin, John E.	Dem.	Tupelo
	2	*Whitten, Jamie L.	Dem.	Charleston
	3	Smith, Frank E.	Dem.	Greenwood
	4	*Abernethy, Thomas G.	Dem.	Okolona
	5	*Winstead, Arthur	Dem.	Philadelphia
	6	*Colmer, William M.	Dem.	Pascagoula
	7	*Williams, John Bell	Dem.	Raymond
Mo.	1	*Magee, Clare	Dem.	Unionville
	2	*Moulder, Morgan M.	Dem.	Camdenton
	3	*Welch, Phil J.	Dem.	St. Joseph
	4	*Irving, Leonard	Dem.	Independence
	5	*Bolling, Richard	Dem.	Kansas City
	6	Armstrong, O. K.	Rep.	Springfield
	7	*Short, Dewey	Rep.	Galena
	8	*Carnahan, A. S. J.	Dem.	Ellsinore
	9	*Cannon, Clarence	Dem.	Elsberry
	10	*Jones, Paul C.	Dem.	Kennett
	11	Bakewell, Claude I.[4]	Rep.	St. Louis
	12	Curtis, Thomas B.	Rep.	Webster Groves
	13	*Karsten, Frank M.	Dem.	St. Louis
Mont.	1	*Mansfield, Mike	Dem.	Missoula
	2	*D'Ewart, Wesley A.	Rep.	Wilsall
Neb.	1	*Curtis, Carl T.	Rep.	Minden
	2	Buffett, Howard H.	Rep.	Omaha
	3	Harrison, Robert D.[5]	Rep.	Norfolk
	4	*Miller, A. L.	Rep.	Kimball
Nev.		*Baring, Walter S.	Dem.	Reno
N.H.	1	*Merrow, Chester E.	Rep.	Center Ossipee
	2	*Cotton, Norris	Rep.	Lebanon
N.J.	1	*Wolverton, Charles A.	Rep.	Merchantville
	2	*Hand, T. Millet	Rep.	Cape May City
	3	*Auchincloss, James C.	Rep.	Rumson
	4	*Howell, Charles R.	Dem.	Pennington
	5	*Eaton, Charles A.	Rep.	Watchung
	6	*Case, Clifford P.	Rep.	Rahway
	7	*Widnall, William B.	Rep.	Saddle River
	8	*Canfield, Gordon	Rep.	Paterson
	9	Osmers, Frank C. Jr.[6]	Rep.	Haworth
	10	*Rodino, Peter W., Jr.	Dem.	Newark
	11	*Addonizio, Hugh J.	Dem.	Newark
	12	*Kean, Robert W.	Rep.	Livingston
	13	Sieminski, Alfred D.	Dem.	Jersey City
	14	*Hart, Edward J.	Dem.	Jersey City

State	Dist.	Name	Party	Residence
N.M.		*Fernandez, Antonio M.	Dem.	Santa Fe
		Dempsey, John J.	Dem.	Santa Fe
N.Y.	1	Greenwood, Ernest	Dem.	Bay Shore
	2	*Hall, Leonard W.	Rep.	Oyster Bay
	3	*Latham, Henry J.	Rep.	Queens Village
	4	*Clemente, L. Gary	Dem.	Ozone Park
	5	Vacancy[7]		
	6	*Delaney, James J.	Dem.	Long Island City
	7	*Heller, Louis B.	Dem.	Brooklyn
	8	Anfuso, Victor L.	Dem.	Brooklyn
	9	*Keogh, Eugene J.	Dem.	Brooklyn
	10	*Kelly, Edna F.	Dem.	Brooklyn
	11	*Heffernan, James J.	Dem.	Brooklyn
	12	*Rooney, John J.	Dem.	Brooklyn
	13	*O'Toole, Donald L.	Dem.	Brooklyn
	14	*Multer, Abraham J.	Dem.	Brooklyn
	15	*Celler, Emanuel	Dem.	Brooklyn
	16	*Murphy, James J.	Dem.	Staten Island
	17	*Coudert, Frederic R., Jr.	Rep.	New York city
	18	Donovan, James G.	Dem.	New York city
	19	*Klein, Arthur G.	Dem.	New York city
	20	*Roosevelt, Franklin D., Jr.	Dem.	New York city
	21	*Javits, Jacob K.	Rep.	New York city
	22	*Powell, Adam C., Jr.	Dem.	New York city
	23	Fine, Sidney	Dem.	New York city
	24	*Dollinger, Isidore	Dem.	New York city
	25	*Buckley, Charles A.	Dem.	New York city
	26	*McGrath, Christopher C.	Dem.	New York city
	27	*Gwinn, Ralph W.	Rep.	Bronxville
	28	*Gamble, Ralph A.	Rep.	Larchmont
	29	*St. George, Katharine	Rep.	Tuxedo Park
	30	Wharton, J. Ernest	Rep.	Richmondville
	31	*Kearney, Bernard W.	Rep.	Gloversville
	32	*Byrne, William T.	Dem.	Loudonville
	33	*Taylor, Dean P.	Rep.	Troy
	34	*Kilburn, Clarence E.	Rep.	Malone
	35	Williams, William R.	Rep.	Cassville
	36	*Riehlman, R. Walter	Rep.	Tully
	37	*Hall, Edwin Arthur	Rep.	Binghamton
	38	*Taber, John	Rep.	Auburn
	39	*Cole, W. Sterling	Rep.	Bath
	40	*Keating, Kenneth B.	Rep.	Rochester
	41	Ostertag, Harold C.	Rep.	Attica
	42	Miller, William E.	Rep.	Lockport
	43	Radwan, Edmund P.	Rep.	Buffalo
	44	Butler, John C.	Rep.	Buffalo
	45	*Reed, Daniel A.	Rep.	Dunkirk
N.C.	1	*Bonner, Herbert C.	Dem.	Washington
	2	*Kerr, John H.	Dem.	Warrenton
	3	*Barden, Graham A.	Dem.	New Bern
	4	*Cooley, Harold D.	Dem.	Nashville
	5	*Chatham, Thurmond	Dem.	Winston-Salem
	6	*Durham, Carl T.	Dem.	Chapel Hill
	7	*Carlyle, F. Ertel	Dem.	Lumberton
	8	*Deane, Charles B.	Dem.	Rockingham
	9	*Doughton, Robert L.	Dem.	Sparta
	10	*Jones, Hamilton C.	Dem.	Charlotte
	11	Jones, Woodrow W.	Dem.	Rutherfordton
	12	*Redden, Monroe M.	Dem.	Hendersonville
N.D.		Aandahl, Fred G.	Rep.	Litchville
		*Burdick, Usher L.	Rep.	Williston
Ohio	1	*Elston, Charles H.	Rep.	Cincinnati
	2	Hess, William E.	Rep.	Cincinnati
	3	Schenck, Paul F.[8]	Rep.	Dayton
	4	*McCulloch, William M.	Rep.	Piqua
	5	*Clevenger, Cliff	Rep.	Bryan
	6	*Polk, James G.	Dem.	Highland
	7	*Brown, Clarence J.	Rep.	Blanchester
	8	Betts, Jackson E.	Rep.	Findlay
	9	Reams, Frazier	Ind.	Toledo
	10	*Jenkins, Thomas A.	Rep.	Ironton
	11	*Brehm, Walter E.	Rep.	Millersport
	12	*Vorys, John M.	Rep.	Columbus
	13	*Weichel, Alvin F.	Rep.	Sandusky
	14	Ayres, William H.	Rep.	Akron
	15	*Secrest, Robert T.	Dem.	Senecaville
	16	Bow, Frank T.	Rep.	Canton (R.F.D.)
	17	*McGregor, J. Harry	Rep.	West Lafayette
	18	*Hays, Wayne L.	Dem.	Flushing
	19	*Kirwan, Michael J.	Dem.	Youngstown
	20	*Feighan, Michael A.	Dem.	Cleveland
	21	*Crosser, Robert	Dem.	Cleveland
	22	*Bolton, Frances P.	Rep.	Lyndhurst
		Bender, George H.	Rep.	Chagrin Falls
Okla.	1	Schwabe, George B.	Rep.	Tulsa
	2	*Stigler, William G.	Dem.	Stigler
	3	*Albert, Carl	Dem.	McAlester
	4	*Steed, Tom	Dem.	Shawnee
	5	Jarman, John	Dem.	Oklahoma City
Okla.	6	*Morris, Toby	Dem.	Lawton
	7	*Wickersham, Victor	Dem.	Mangum
	8	Belcher, Page	Rep.	Enid
Ore.	1	*Norblad, Walter	Rep.	Astoria
	2	*Stockman, Lowell	Rep.	Pendleton
	3	*Angell, Homer D.	Rep.	Portland
	4	*Ellsworth, Harris	Rep.	Roseburg
Penn.	1	*Barrett, William A.	Dem.	Philadelphia
	2	*Granahan, William T.	Dem.	Philadelphia
	3	*Scott, Hardie	Rep.	Philadelphia
	4	*Chudoff, Earl	Dem.	Philadelphia
	5	*Green, William J., Jr.	Dem.	Philadelphia
	6	*Scott, Hugh D., Jr.	Rep.	Philadelphia
	7	*James, Benjamin F.	Rep.	Rosemont
	8	King, Karl C.[9]	Rep.	Morrisville
	9	*Dague, Paul B.	Rep.	Downingtown
	10	*O'Neill, Harry P.	Dem.	Dunmore
	11	*Flood, Daniel J.	Dem.	Wilkes-Barre
	12	*Fenton, Ivor D.	Rep.	Mahanoy City
	13	*Rhodes, George M.	Dem.	Reading
	14	Carrigg, Joseph L.[10]	Rep.	Susquehanna
	15	Bush, Alvin R.	Rep.	Muncy (R.F.D.)
	16	*McConnell, Samuel K., Jr.	Rep.	Wynnewood
	17	*Simpson, Richard M.	Rep.	Huntingdon
	18	Mumma, Walter M.	Rep.	Harrisburg
	19	*Gavin, Leon H.	Rep.	Oil City
	20	*Walter, Francis E.	Dem.	Easton
	21	*Lind, James F.	Dem.	York
	22	*Van Zandt, James E.	Rep.	Altoona
	23	Sittler, Edward L., Jr.	Rep.	Uniontown
	24	*Morgan, Thomas E.	Dem.	Fredericktown
	25	*Graham, Louis E.	Rep.	Beaver
	26	*Saylor, John P.	Rep.	Johnstown
	27	*Kelley, Augustine B.	Dem.	Greensburg
	28	*Kearns, Carroll D.	Rep.	Farrell
	29	Denny, Harmar D., Jr.	Rep.	Pittsburgh
	30	*Corbett, Robert J.	Rep.	Pittsburgh
	31	*Fulton, James G.	Rep.	Dormont (Pittsburgh)
	32	*Eberharter, Herman P.	Dem.	Pittsburgh
	33	Buchanan, Vera[11]	Dem.	McKeesport
R.I.	1	*Forand, Aime J.	Dem.	Cumberland
	2	*Fogarty, John E.	Dem.	Harmony
S.C.	1	*Rivers, L. Mendel	Dem.	Charleston
	2	Riley, John J.	Dem.	Sumter
	3	Dorn, W. J. Bryan	Dem.	Greenwood
	4	*Bryson, Joseph R.	Dem.	Greenville
	5	*Richards, James P.	Dem.	Lancaster
	6	*McMillan, John L.	Dem.	Florence
S.D.	1	*Lovre, Harold O.	Rep.	Watertown
	2	Berry, E. Y.	Rep.	McLaughlin
Tenn.	1	Reece, B. Carroll	Rep.	Johnson City
	2	Baker, Howard H.	Rep.	Huntsville
	3	*Frazier, James B., Jr.	Dem.	Chattanooga
	4	*Gore, Albert	Dem.	Carthage
	5	*Evins, Joe L.	Dem.	Smithville
	6	*Priest, J. Percy	Dem.	Nashville
	7	*Sutton, Pat	Dem.	Lawrenceburg
	8	*Murray, Tom	Dem.	Jackson
	9	*Cooper, Jere	Dem.	Dyersburg
	10	*Davis, Clifford	Dem.	Memphis
Texas	1	*Patman, Wright	Dem.	Texarkana
	2	*Combs, J. M.	Dem.	Beaumont
	3	*Beckworth, Lindley	Dem.	Gladewater (R.F.D.)
	4	*Rayburn, Sam	Dem.	Bonham
	5	*Wilson, J. Frank	Dem.	Dallas
	6	*Teague, Olin E.	Dem.	College Station
	7	*Pickett, Tom	Dem.	Palestine
	8	*Thomas, Albert	Dem.	Houston
	9	*Thompson, Clark W.	Dem.	Galveston
	10	Thornberry, Homer	Dem.	Austin
	11	*Poage, W. R.	Dem.	Waco
	12	*Lucas, Wingate H.	Dem.	Grapevine
	13	Ikard, Frank[12]	Dem.	Wichita Falls
	14	*Lyle, John E., Jr.	Dem.	Corpus Christi
	15	*Bentsen, Lloyd M., Jr.	Dem.	McAllen
	16	*Regan, Ken	Dem.	Midland
	17	*Burleson, Omar	Dem.	Anson
	18	Rogers, Walter	Dem.	Pampa
	19	*Mahon, George H.	Dem.	Colorado City
	20	*Kilday, Paul J.	Dem.	San Antonio
	21	*Fisher, O. C.	Dem.	San Angelo
Utah	1	*Granger, Walter K.	Dem.	Cedar City
	2	*Bosone, Reva Beck	Dem.	Salt Lake City
Vt.		Prouty, Winston L.	Rep.	Newport City
Va.	1	*Robeson, Edward J., Jr.	Dem.	Newport News
	2	*Hardy, Porter, Jr.	Dem.	Churchland
	3	*Gary, J. Vaughan	Dem.	Richmond
	4	*Abbitt, Watkins M.	Dem.	Appomattox
	5	*Stanley, Thomas B.	Dem.	Stanleytown
	6	*Burton, Clarence G.	Dem.	Lynchburg
	7	*Harrison, Burr P.	Dem.	Winchester
	8	*Smith, Howard W.	Dem.	Alexandria
	9	*Fugate, Tom B.	Dem.	Ewing

State	Dist.	Name	Party	Residence
Wash.	1	*Mitchell, Hugh B.	Dem.	Seattle
	2	*Jackson, Henry M.	Dem.	Everett
	3	*Mack, Russell V.	Rep.	Hoquiam
	4	*Holmes, Hal	Rep.	Ellensburg
	5	*Horan, Walt.	Rep.	Wenatchee
	6	*Tollefson, Thor C.	Rep.	Tacoma
W.Va.	1	*Ramsey, Robert L.	Dem.	Follansbee
	2	*Staggers, Harley O.	Dem.	Keyser
	3	*Bailey, Cleveland M.	Dem.	Clarksburg
	4	*Burnside, M. G.	Dem.	Huntington
	5	Kee, Elizabeth[13]	Dem.	Bluefield
	6	*Hedrick, E. H.	Dem.	Beckley
Wis.	1	*Smith, Lawrence H.	Rep.	Racine
	2	*Davis, Glenn R.	Rep.	Waukesha
	3	*Withrow, Gardner R.	Rep.	La Crosse
	4	*Zablocki, Clement J.	Dem.	Milwaukee
	5	Kersten, Charles J.	Rep.	Milwaukee
	6	Van Pelt, William K.	Rep.	Fond du Lac
	7	*Murray, Reid F.	Rep.	Ogdensburg
	8	*Byrnes, John W.	Rep.	Green Bay
	9	*Hull, Merlin	Rep.	Black River Falls
	10	*O'Konski, Alvin E.	Rep.	Mercer
Wyo.		Harrison, William H.	Rep.	Sheridan

[1] Caused by the death of John A. Whitaker, Dec. 15, 1951.

[2] Elected April 14, 1951, to fill the vacancy caused by the resignation of Thomas R. Underwood, March 17, 1951.

[3] Elected Oct. 22, 1951, to fill the vacancy caused by the death of Frank Fellows, Aug. 27, 1951.

[4] Elected March 9, 1951, to fill the vacancy caused by the death of John B. Sullivan, Jan. 29, 1951.

[5] Elected Dec. 4, 1951, to fill the vacancy caused by the death of Karl Stefan, Oct. 2, 1951.

[6] Elected Nov. 6, 1951, to fill the vacancy caused by the resignation of Harry L. Towe, Sept. 7, 1951.

[7] Caused by the resignation of T. Vincent Quinn, Dec. 30, 1951.

[8] Elected Nov. 6, 1951, to fill the vacancy caused by the resignation of Edward Breen, Oct. 1, 1951.

[9] Elected Nov. 6, 1951, to fill the vacancy caused by the death of Albert C. Vaughn, Sept. 1, 1951.

[10] Elected Nov. 6, 1951, to fill the vacancy caused by the death of Wilson D. Gillette, Aug. 7, 1951.

[11] Elected July 24, 1951, to fill the vacancy caused by the death of Frank Buchanan, April 27, 1951.

[12] Elected Sept. 8, 1951, to fill the vacancy caused by the resignation of Ed Gossett, July 31, 1951.

[13] Elected July 17, 1951, to fill the vacancy caused by the death of John Kee, May 8, 1951.

Congress of Industrial Organizations: *see* LABOUR UNIONS.

Connally, Tom (Thomas Terry)

(1877—), U.S. senator, was born on Aug. 19 in McLennan county, Tex. He studied at Baylor University, Waco, Tex., and the University of Texas at Austin, served two terms in the Texas legislature and six terms in the U.S. house of representatives, and in 1928 was elected to the U.S. senate. He was chairman of the senate foreign relations committee during World War II and most of the succeeding years, and worked with Sen. Arthur Vandenberg, Republican, to effect a bipartisan foreign policy. In 1951 he appeared on more than one occasion as a critic, at least by implication, of details of U.S. foreign and military policy. In January, at closed conferences with state department leaders, he rebuked them for even considering a cease-fire proposition with the Chinese Reds without first conferring with congress. However, he was outspokenly antagonistic to the ideas of Republican Sen. Robert A. Taft during the debate on U.S. foreign policy. He charged Taft with designing a "strength through weakness" approach that would prejudice U.S. aid to allies in Europe. On the question of limiting the president's right to send troops abroad, he proposed a resolution affirming the president's right to do so in principle, but advising the chief executive to consult with congress before exercising this right. Senator Connally was a delegate to the signing of the Japanese peace treaty in San Francisco, Calif., in September. In July he had charged that the Economic Cooperation administration was thinking up ways of spending money in Asia, instead of planning to go out of business when the European Recovery program ended in 1952, and in August he recommended a $1,000,000,000 cut in overseas aid on the grounds that "we cannot go on supporting countries all over the world with handouts just because we like them."

Connecticut.

Popularly known as the "Nutmeg state," the "Land of Steady Habits" or the "Constitution state," Connecticut, next to the smallest of the New England states and one of the 13 original states, has an area of 5,009 sq.mi., including 110 sq.mi. (approximately) of water. The population of the state according to the 1950 official census report was 2,007,280; 77.6% urban, 19.2% rural nonfarm and 3.1% rural farm. Population figures for the principal cities were: Hartford, the capital, 177,397; New Haven, 164,443; Bridgeport, 158,709; Waterbury, 104,477; Stamford, 74,293; and New Britain, 73,726.

History.—The regular biennial session of the general assembly met Jan. 3, 1951, and adjourned June 6. As a result of the previous November elections all the state elective officers were Republican. The governor was John Lodge; lieutenant governor, Edward N. Allen; secretary of state, Mrs. Alice K. Leopold; treasurer, Joseph A. Adorno; comptroller, Fred R. Zeller; and attorney general, George C. Conway. The two United States senators, however, were Democratic, Brien McMahon having been re-elected to a second term, expiring in 1957, and William Benton elected until 1953 to serve the remainder of Raymond E. Baldwin's term.

Supporting the administration was the house of representatives, strongly Republican, 189 seats to 88 Democratic, but the senate was Democratic, 19 seats to 17, and thus had the power of veto on bills and appointments which required passage in both houses. Despite periods of stagnation and deadlock, much worthwhile legislation was enacted through compromise by both parties, some of the most important being: an appropriation from the general fund of more than $223,000,000 (not including highway funds) for the 1951–53 biennium, the largest in Connecticut history; a so-called home rule act, by which towns, cities and boroughs might amend their charters without reference to the legislature; a bill preventing any member of the legislature from holding an appointive office in any other branch of the government; an act establishing a 75-cent statutory minimum wage, but giving wage boards the power to establish higher minimum standards in any industry; a bond issue of $50,000,000 to expand the rental housing program and another of $26,000,000 to be spent on state institutions. A bill allowing the sale of liquor until 11 P.M. on Sundays, and another legalizing bazaars and raffles for nonprofit organizations, were vetoed by the governor.

After adjournment it was discovered that continuation of the Office of Civil Defense had not been authorized. A one-day special session on June 13 corrected this oversight.

During the regular session the two houses of the legislature failed to agree on the method of appointment of minor court judgeships required by a constitutional amendment passed two years previously, the senate claiming that the incumbents appointed by former Gov. Chester Bowles retained their offices and that Governor Lodge's appointments were illegal. The dispute was referred to the supreme court of errors, which on July 30 upheld the legality of Governor Lodge's slate.

Education.—The following statistics for the school year 1950–1951 were issued by the state department of education: there were 680 elementary schools in the state with 6,777 teachers and 216,972 pupils; 34 junior high schools with 838 teachers and 16,461 pupils; 90 high schools with 2,894 teachers and 62,291 pupils; a total of 10,509 teachers and 295,724 pupils. In addition, there were 1,258 teachers and 48,072 pupils in parochial schools and 1,503 teachers and 16,547 pupils in private schools. There were 30 colleges, junior colleges, teachers' colleges and professional schools in the state with 35,311 students. The state supported 12 vocational-technical schools and 9 state-aided schools with an enrolment of 17,197 students. The sum of $12,153,000 was expended by the state on public schools and the total amount of public expenses for public schools was $65,842,000.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state public welfare department reported that in June 1951 there were 68,530 persons in the state receiving some kind of public assistance at a cost of $4,151,113, compared with 73,551 persons and a cost of $3,887,420 in June 1950. The breakdown of the various types of relief was as follows: general local relief was given 11,611 persons who received $494,721; 19,875 persons received old-age assistance at a cost of $1,309,734; aid to 18,535 dependent children cost $703,854; aid was given to 397 blind at a cost of $27,047; aid to 12,557 patients in mental, feeble-minded and tubercular state institutions cost $1,210,923; county wards (6 to 18 years) were 3,472 and the cost was $145,229; state wards (under 6 years) numbered 2,276 and the cost was $43,489.

Table I.—*Principal Crops of Connecticut*

	1951	1950	Average 1940–49
Corn, bu.	1,710,000	1,800,000	2,022,000
Oats, bu.	124,000	140,000	186,000
Hay, tons	449,000	423,000	457,000
Tobacco, lb.	22,111,000	27,806,000	23,688,000
Apples, bu.	1,568,000	1,406,000	1,206,000
Peaches, bu.	156,000	104,000	132,000
Pears, bu.	49,000	56,000	50,000
Potatoes, bu.	2,252,000	2,867,000	3,440,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Connecticut*

(In short tons)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Clays	289,090	$ 216,029	292,367	$ 236,317
Feldspar	14,178	95,044	15,210	101,851
Quartz	16,225	97,350	27,560	166,810
Sand and gravel	2,648,343	1,587,446	2,998,424	1,861,741
Stone	1,695,650	2,460,547	1,860,700	2,789,532
Other minerals	...	429,821	...	?
Total		$4,886,237		$?

Communications.—According to the Federal Communications commission there were, in Sept. 1951, 26 standard broadcasting stations, 9 frequency modulation stations and 1 television station. Railroad mileage in the state was 830.57. There were 41 airports (13 commercial) and 15 seaplane bases (10 commercial). Motor vehicles registered numbered 798,600 and licensed drivers 874,376.

The mileage in the state highway system was 2,982, 145 mi. of which was divided lane. Gasoline tax receipts and motor vehicle fees were $31,867,000.

Banking and Finance.—As of June 30, 1951, the financial condition of the state, according to the treasurer, was as follows: cash balance (June 30, 1950) $19,042,327.47; receipts $655,273,386.34; total $674,315,713.81. Disbursements amounted to $647,684,626.31, leaving a cash balance on June 30, 1951, of $26,631,087.50. The bonded indebtedness at the end of the fiscal year was $91,380,000. The unemployment compensation fund with the secretary of the treasury was $166,317,276.

The bank commissioner's report showed that as of June 30, 1951, 72 mutual savings banks had assets of $1,541,417,043; 55 state banks and trust companies had assets of $954,411,674; 47 national banks had assets of $890,697,000; 7 industrial banks had assets of $7,110,387; 2 private banks had assets of $1,807,399; and 31 building or savings and loan associations had assets of $73,757,168. All represented large increases over the previous year.

Agriculture.—The department of farms and markets reported that the total cash receipts from farm marketing in 1950 were $143,887,000, compared with $156,294,000 in 1949. From commodity crops, receipts were $48,832,000; from livestock and livestock products, $94,540,000; and government payments, $515,000. *See* Table I for crop production.

Manufacturing.—Employment in nonagricultural industries continued to improve, so that in Aug. 1951 the total reached 808,130 compared with 757,970 in Aug. 1950. Material shortages continued to be the major deterrent to plant expansion. The number of unemployment claims filed in Sept. 1951 was 22,608 compared with 25,400 in Sept. 1950. The average number of hours worked per week was 42.2, the same as in 1950, but the average weekly earnings increased from $60.27 to $66.57. In metalworking the average was $69.94; in nonmetallic manufacturing $58.68; and in construction work $83.39. (J. Br.)

Mineral Production.—Table II shows the tonnage and value of those minerals produced in the state in 1949 whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Conservation, Soil: *see* Soil Erosion and Soil Conservation.

Consumer Co-operatives: *see* Co-operatives.

Consumer Credit. During 1951 the use of credit by consumers in their purchases of goods and services and in their borrowing of money reflected the continued gradual expansion of retail business, cautious optimism regarding the future and the steady conditions of employment and earning.

The total volume of consumer debt outstanding remained stable for the first time since World War II, being at both the beginning and end of the year approximately $20,000,000,000 and declining during the year to only $19,100,000,000. That stability may be contrasted with a more than 20% increase in such debt during 1950 and with significant increases during every other postwar year. It may also be compared with a 5% increase in personal consumption expenditures during 1951, a 9% increase in personal disposable income and a more than 100% increase in personal savings.

Several factors were responsible for this stability of total consumer debt in the generally expanding economy. First, the buying spree set off by the war in Korea had somewhat slaked the demand for durable goods, and such goods did not thereafter move from merchants' inventories to their accounts receivable as rapidly as they had been moving. Second, the increase in taxes and the continued rise of prices and living costs checked expenditures in some directions. Third, caution on the part of many consumers made them savers rather than spenders. And fourth, restraints of credit control upon buying diverted the purchases of some consumers from items for which they would normally go into debt to others bought out of current income.

Not all forms of consumer credit shared alike throughout the year. Total instalment credit ended the year with about the same amount outstanding as there was at the beginning of the year, while total noninstalment credit increased in amount. In the instalment field, the volume of loans outstanding increased by almost the same amount that instalment sale debt declined. The decline in debt incurred in the purchase of goods occurred in the sales of articles other than automobiles, such as electrical appliances, furniture, etc. Except for the late-winter seasonal decline, automobile credit remained steady. The noninstalment debt, on the other hand, increased in all categories: single-payment loans, charge accounts and service credit.

At meetings of the National Retail Credit association several resolutions were passed. One was that garnishment of wages and salaries of federal employees should be permitted by law. Under existing law, such individuals were immune to garnishment proceedings, and with the growing number of federal employees an increasing group of debtors was placed outside the pale of this legal means of collection. The original intention of the exemption, to protect from harassment those who were performing essential public service, was now thought to give an unjustified advantage to many thousands of persons who were not different from employees of private industry.

A second resolution recommended discontinuance of use of the term "loss" on accounts in connection with uncollectible credits. It was proposed that what had heretofore been regarded as bad debt "loss" be henceforth referred to as "accounts receivable markdown." To the profession this distinction represented a step in the evolution of the credit function from mere guardianship of funds, in which every loss was to be avoided if possible, to the conception of credit as a facilitation of sales, in which case in order to maximize sales, risks of questionable quality were sometimes intentionally accepted with the presumption that a number of the accounts would be uncollectible. Under the latter conception, bad debts were regarded more or less as a sort of sales expense, whereas under the former they were thought of as a loss or reduction of an asset.

A third resolution recommended that regulation W be modified to prevent discrimination against wage earners and farmers and to prevent lowering the standards of living for many people. This resolution expressed the continuing dissatisfaction of the majority of consumer credit managers with federal regulation of credit. The existing regulation, in keeping with changes in business conditions, had been amended four times, effective Oct. 16, 1950, Feb. 26, 1951, May 15, 1951, and July 31, 1951. By the last amendment the time period for all durable consumer goods bought on instalment was increased from 15 to 18 months. Down payments on automobiles were left at 33%, but those required for household appliances were reduced from 25% to 15% and traded-in articles were made acceptable as part of the down payment.

The arguments concerning regulation W put forth by credit managers both condemned and praised the regulation. Foremost among the complaints was the charge that such control of credit was ineffectual in reducing business fluctuation, unless control should really become stringent. Then, it was thought, it would reduce the demand for durable goods in times of prosperity but would not increase it during periods of depression. Credit regulation was also called a weak anti-inflation device, a step toward the destruction of free enterprise and an instance of regimentation of business by government. On the other hand, some managers regarded it as a help to unwise buyers who in uncertain times might overextend themselves, and it was conceived by some as a stabilizing influence in business. (*See* also FEDERAL RESERVE SYSTEM.) (R. BA.)

Canada.—Federal credit curbs imposed on Nov. 1, 1950, did not restrict instalment buying sufficiently to reduce inflation. Accordingly, in March 1951 the federal government further tightened consumer credit by order in council. The new regulations called for an increase of down payment on car purchases from 33⅓% to 50%, increase of minimum down payments on other consumer goods from one-fifth to one-third, increase of minimum monthly instalments from $5 to $10 and reduction of the maximum instalment period from 18 to 12 months. Later in the year the federal government closed several loopholes in the 1950 Consumer Credit (Temporary Provisions) act. The Canadian automotive and electrical goods manufacturers charged that the tougher credit restrictions caused a major slump in sales of their products, and by midyear there were a number of job layoffs in those production fields. Despite growing pressure from industrialists, the federal government by the end of 1951 was resisting demands for relaxation of the controls.

The bureau of statistics released in August its new consumer credit analysis, which showed for the first time the estimated dollar value of retail sales in 13 key trades, with a dollar value as well as percentage of instalment sales and charge account purchases in each trade. Accounts receivable were included for the first time. For the first quarter of 1951 there were total retail sales of $2,155,000,000, of which 8% were on the instalment plan (compared with 7.2% for the first quarter of 1950). (C. CY.)

Great Britain.—The year 1951 saw a considerable change in the field of consumer credit in Great Britain. For the first three months, retail sales appeared to be maintaining satisfactory figures, but by the late spring or early summer reports from all parts of the country, and covering a wide range of goods, showed that purchases were being substantially reduced; with the increased cost of living the lack of money for commodities other than food was the main cause. As a result, short-term retail credit was inclined to fall. The same conditions, however, brought an increase in the amount of instalment-purchase and long-term credit asked for and extended. This was especially so in the case of sales of such items as furniture, refrigerators, cars and radio and television sets. The retailer, faced with falling sales and, generally speaking, ample supplies, found the only way to maintain a reasonable turnover was to provide long-term credit.

Collections, although becoming more difficult in some cases, remained satisfactory on the whole. More care had apparently been used in selecting customers to whom credit was given and more attention paid to the need for keeping such payments to the agreed terms. At the government's request, the banks continued to limit advances to traders to finance long-term credit on consumer goods. This made it difficult for some retailers to handle all the instalment-purchase business offered to them. No new regulation affecting instalment-purchase terms was made. (C. C. WS.)

Contract Bridge.

The consensus of bridge authorities was that during 1951 the game regained some of the following it had lost to canasta in the two previous years. There were no statistics to support this belief; though there had been occasional surveys of the relative popularity of different card games, none was made in 1951. However, bridge instruction books sold better, and bridge teachers reported greater demand for bridge lessons.

Many of the contract bridge tournaments held during 1951 broke previous attendance records, and the national championship play of the American Contract Bridge league, held in Washington, D.C., in August, attracted the largest crowd ever to play in a tournament, comprising about 7,000 gross entries.

There was no change in laws and little development in the technical aspects of the game. The trend to "point-count" rather than "honour-trick" valuation continued, and toward the close of the year even Ely Culbertson, whose system is most widely played, announced that he was translating the requirements for Culbertson system bids into a point-count method—without, however, dropping honour tricks or changing the system.

The U.S. team of Howard Schenken, George Rapee, Samuel M. Stayman and B. Jay Becker of New York city and John R. Crawford of Philadelphia, Pa., again won the world championship match. It defeated the Italian team of Paolo Baroni, Eugenio Chiaradia, Piero Forquet, Mario Franco, Augusto Ricci and Guglielmo Siniscalco, who had won the championship of the European Bridge league, in a match of 320 deals played at Naples, It., in November. Julius L. Rosenblum of New Orleans, La., acted as nonplaying captain of the U.S. team and Carl Alberto Perroux of the Italian team.

Winners of the principal championship contests of the American Contract Bridge league in 1951 were:

Masters' individual: Sidney Silodor, Philadelphia.

Masters' teams: Silodor and Charles H. Goren, Philadelphia; Mrs. Helen Sobel and Myron Field, New York city.

Masters' pairs: Peter A. Leventritt and Richard Kahn, New York city.

Open teams, cumulative scoring (Vanderbilt cup): Crawford, Stayman, Rapee and Becker.

Open teams, match-point scoring: Corti Boland, C. B. Elliott, M. M. Miller and P. E. Sheardown, Toronto, Ont.

Open pairs: Arthur Glatt and Albert Weiss, Chicago, Ill.

(A. H. MD.)

Great Britain and Europe.—In Great Britain the winners of the principal competitions were:

Waddington cup for masters' pairs: R. Swimer and R. Preston.

National pairs: J. T. Reese and A. Meredith.

Gold cup: L. Tarlo (captain) and N. Gardener, L. Baron and A. Rose.

Crockford's cup: J. Pavlides (captain) and L. Dodds, K. W. Konstam and G. Mathieson.

The Camrose trophy, played between the countries of Great Britain, was won by England, with Scotland runner-up. The Contract Bridge Association of Ireland announced that its team would not enter for this contest in future.

The European championship was played at Venice, It., and was won by Italy. Austria was second, Great Britain third, Egypt fourth and Sweden fifth. The ladies' championship was won by Great Britain, with Denmark second. (T. REE.)

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Co-operatives.

During 1951 the International Cooperative Petroleum association, with headquarters in New York city, proposed to the governments of Iran, Great Britain and the United States that it take over operation of the Anglo-Iranian Oil company refinery at Abadan in order to prevent huge continuing losses resulting from the stoppage of the refinery. The proposal was not accepted, although the Iranian government indicated its willingness to accept the offer. The development, however, spotlighted the growth of the world oil co-operative which during the year served 23 central co-operative associations in 13 countries from Sweden to Australia.

U.S. consumer co-operatives in the petroleum industry continued to grow. Approximately 2,300 local co-operatives distributed 1,400,000,000 gal. of fuel, primarily to farmers. This represented 2.25% of the total domestic consumption of petroleum products. Co-operatives' savings to members in 1951 were estimated at a little more than the $23,000,000 returned to co-operative oil customers in 1950.

Fourteen regional co-operative associations owned 20 refineries with a combined output of 144,500 bbl. a day. The co-operatives also owned 1,600 oil wells and held under lease 63,000 ac. of proved oil producing lands and 310,000 ac. of prospective oil lands. Nearly 1,000,000 farm and city consumers owned these petroleum resources co-operatively.

Co-operative credit unions continued their spectacular growth by adding nearly 100 new credit co-operatives a month during the year. This brought credit union membership to a total of 6,000,000 in the U.S. and Canada in 12,000 local associations.

Rural electric co-operatives added 68,000 mi. of lines and 250,000 new consumer-owners in 1951. Power use increased 14%. Electric co-operative members totalling 3,500,000 were $41,500,000 ahead of schedule in repaying loans to the Rural Electrification administration.

During the year 54 telephone co-operatives took steps to modernize and streamline their operations for about 100,000 subscriber-owners. This telephone co-operative modernization program was also under the sponsorship of the REA.

Co-operative housing associations under the new co-operative section of the Federal Housing administration completed their first few units in 1951. At the year's end approximately $60,000,000 worth of co-operative housing was under construction, and FHA had received applications for more than $300,000,000 worth of this type of housing. The Federal National Mortgage association was authorized by congress to make advance commitments for $30,000,000 worth of co-operative housing mortgages, thereby easing the mortgage squeeze which had hit co-operative and other housing. Prior to the initiation of the FHA program 30,000 United States families were already living in approximately 100 co-operative housing projects.

The consumer food store field saw the opening of several large supermarkets during the year, and business volumes of established food co-operatives continued to grow. This section of the co-operative movement was still small compared with other fields of co-operation, but included about 1,000 food stores with business totalling about $100,000,000 annually. During the year the Cooperative League of the U.S.A. brought together about 30 managers of $1,000,000 retail consumer co-operatives which were setting the pace in food distribution.

The insurance companies, members of the Insurance Conference of the Cooperative League, reported gains in policyholdings and memberships. The largest group in the field, the Farm Bureau Insurance companies with headquarters in Columbus, O., marked their 25th anniversary by moving into a $6,000,000 headquarters building. During 1951 the Farm Bureau group served about 1,500,000 policyholders in 12 eastern states.

Co-operative health associations and co-operative hospitals were reported to the U.S. senate committee on health and public welfare as a possible pattern for a "middle way" in the health field; but opposition to consumer-owned health services by the American Medical association continued. In the state of Washington the Puget Sound Cooperative Health association was forced to go to the state supreme court for a decision which acknowledged the right of consumers to control and operate a medical service. Health associations affiliated with the Cooperative Health Federation of America reported a membership of 600,000. An additional 5,000,000 consumers were served by labour union health programs and other nonprofit associations.

The largest co-operative activity in the U.S. was the marketing of farm products. Activities in such fields as cotton, dairy products, fruit and vegetables, grain, dried beans, rice, livestock, nuts, poultry, tobacco, wool and other products brought together 3,600,000 farmers. Their marketing activities covered nearly $8,000,000,000 worth of commodities.

Co-operative purchasing of farm supplies—feed, seed, fertilizer and other essentials—affected a membership of 2,260,000 farmers. The total business of these farm supply co-operatives was about $1,500,000,000.

Underlying and essential to all of these co-operative activities were: (1) ownership of the associations by the consumer or producer members; (2) democratic control based on each member having one vote; and (3) nonprofit operation. These had been cardinal principles of co-operative enterprise for more than a century.

Near the close of the year the U.S. congress changed the tax laws affecting co-operatives, virtually eliminating the exemption of farmer-owned co-operatives from federal income tax. That change placed all co-operatives on an even footing with other types of business enterprise as far as the tax laws were concerned. (*See* also FARM CREDIT ADMINISTRATION.) (W. J. CL.)

International Co-operative Alliance.—The International Co-operative alliance held its 18th congress at Copenhagen, Den., in Sept. 1951. The affiliated membership was 100,000,000 in 30 countries. This total was made up of 52,990 consumers' societies and 40 wholesale societies with 59,348,000 members; 11,560 industrial producers' societies with 749,000 members; 70,530 agricultural societies with 17,801,000 members; 225,500 credit societies and 16 co-operative banks with 18,333,000 members; and a number of miscellaneous bodies with 1,944,000 members. Among the nonaffiliated movements were those of China, Hungary, Poland, the British colonies (except Jamaica) and most of Latin America; and there were many unaffiliated bodies in other countries. The I.C.A., however, still included the co-operative movements of the Soviet Union, Bulgaria, Czechoslovakia and Rumania, as well as those of the countries outside the soviet sphere of influence. The countries of the soviet group retained their connection with the I.C.A. despite its domination by the western movements. At Copenhagen the conflict between the two blocs came to a head. The action of the central committee in prescribing conditions for new affiliations in such terms as to rule out the co-operative movements of the soviet countries was challenged by the Russians, the Italians and other groups, but the committee's action was upheld by 623 votes to 353. This involved the rejection of the applications for admission of the new co-operative Polish organization and also of that of the co-operative movement of eastern Germany. The ground for exclusion, laid down in the committee's regulations and approved by the congress, was that "free" co-operative movements could not exist in totalitarian countries. The soviet group also endeavoured to persuade the I.C.A. congress to adopt a peace resolution corresponding to the terms of the Communist peace campaign; but the congress adopted a resolution embodying specific references to the need for freedom of speech, movement, organization, real democratic elections, co-operative independence and action through the United Nations in the spirit of the Atlantic charter. Other issues dealt with at the congress included the need to adapt the I.C.A. more effectively to meet the needs of the agricultural co-operative movement, for which a special section was set up; the demand for effective action on a world-wide scale against restrictive monopolies and for the nationalization of commodity distribution; proposals for the development of international co-operative trade and for the removal of hindrances in the way of the international co-operative trade in petroleum products and projects for the expansion of co-operative educational activities. During the year Thorstein Ohde resigned his position as director of the I.C.A. and was succeeded by W. P. Watkins.

Great Britain.—At the end of 1950, British retail consumers' societies had 10,691,000 members, as against 10,413,000 at the end of 1949. Average dividend rates continued to fall—from 1*s.* 4½*d.* in the £1 in 1949 to 1*s.* 3½*d.* in 1950. The English Co-operative Wholesale society's trade rose from £291,000,000 to £321,500,000, and that of the Scottish C.W.S. from £62,000,000 to £68,000,000.

At the general election of Oct. 1951 the Co-operative party, fighting in alliance with the Labour party, put forward 38 candidates, of whom 16 were successful, as compared with 18 in 1950.

Other Countries.—In the British colonies, notably West Africa and the West Indies, co-operation continued to expand with government encouragement. The west German movement also continued to regain its strength, but attempts to re-establish unity with the movement in eastern Germany met with no success. In Yugoslavia there was a considerable liberalization of co-operative policy, as the pressure for collectivization was further relaxed. The Chinese movement was brought more fully under Communist control. The Italian movement remained predominantly under Communist influence.

FILMS OF 1951.—*The Rising Tide* (National Film Board of Canada). (G. D. H. C.)

Copper.

Increased demand pushed world copper production up by 11% in 1950, reaching a level almost equal to that of 1944. Of the major producers only Chile and Cyprus had small decreases.

Table I.—*World Mine Production of Copper*

(Thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Belgian Congo	182.4	176.6	158.6	166.2	171.4	155.9	193.9
Canada	273.5	237.5	184.0	225.9	240.7	263.6	284.4
Chile	549.5	492.1	395.5	456.9	490.5	409.1	397.4
Cyprus	1.6	...	0.1	14.0	17.4	26.4	25.7
Japan	95.7	30.8	18.9	23.4	28.3	36.1	43.3
Mexico	45.5	68.0	67.3	71.4	65.1	63.1	68.0
Peru	35.7	35.2	27.1	24.8	19.9	30.8	33.0
No. Rhodesia	248.8	219.7	211.1	217.5	249.7	285.6	327.9
South Africa	25.2	26.5	29.8	32.4	32.5	33.6	37.5
U.S.S.R.	149?	154?	165?	182?	198?	220?	240?
United States	972.5	772.9	608.7	847.6	834.8	752.8	907.0
Yugoslavia	25.0	13.8	35.6	44.7	58.0	37.5	40?
Total	2,780	2,380	2,050	2,460	2,570	2,480	2,750

For comparison with Table I, as reported by the U.S. bureau of mines, a comparable table of smelter output will be found in the article MINERAL AND METAL PRODUCTION AND PRICES.

United States.—The salient statistics of the copper industry in the United States, as reported by the U.S. bureau of mines, are shown in Tables II and III.

Mine and smelter outputs increased by 20% in 1950, and refinery output advanced 33% over 1949, the difference being supplied by a 47% increase in imports of crude copper. In addition, there was a 15% increase in refined copper which, added to the other advances, gave a 32% rise in the available supply. The 1950 advance in mine production continued through the third quarter, with a total of 697,971 tons, equivalent to an annual rate of 930,400 tons.

Table II.—*Data of Copper Industry in the U.S.*

(Thousands of short tons)

	1945	1946	1947	1948	1949	1950
Mine output	772.9	608.7	847.6	834.8	752.7	907.0
Smelter output	782.7	599.7	862.9	842.5	757.9	911.4
Refinery output	1,108.6	878.7	1,160.0	1,107.4	927.9	1,239.8
Domestic ore	775.7	578.4	909.2	860.0	695.0	920.7
Foreign ore	332.9	300.2	250.8	247.4	232.9	319.1
Secondary recovery	1,006.5	803.5	961.7	972.8	713.1	940.0
From old scrap	497.1	406.5	503.4	505.5	383.5	474.0
From new scrap	509.4	397.1	458.4	467.3	329.6	466.0
Imports	853.2	393.3	413.9	507.4	552.7	690.2
Refined	531.4	154.4	149.5	249.1	275.8	317.1
Exports	132.6	97.5	197.0	207.0	196.0	192.9
Available for use*	2,004.5	1,342.1	1,615.9	1,655.0	1,391.2	1,838.0

*Available for use includes total refinery output, secondary from old scrap, and refined imports less exports; secondary from new scrap is only a turnover of metal in process and does not add to the supply available for use, and other imports have been covered in refined output from foreign ores.

Table III.—*Mine Production of Copper in U.S.*

(Thousands of short tons)

	1945	1946	1947	1948	1949	1950
Arizona	287.2	289.2	366.2	375.1	359.0	401.0
California	6.5	4.2	2.4	0.5	0.6	0.6
Colorado	1.5	1.8	2.2	2.3	2.4	3.2
Idaho	1.5	1.0	1.6	1.6	1.4	1.9
Michigan	30.4	21.7	24.2	27.8	19.5	25.3
Missouri	3.4	1.9	1.8	2.4	3.7	3.0
Montana	88.5	58.5	57.9	58.3	56.6	53.7
Nevada	52.6	48.6	49.6	45.2	38.1	53.4
New Mexico	56.6	50.2	60.2	74.7	55.4	66.1
Utah	226.4	114.3	266.5	227.0	197.2	279.0
Washington	5.8	4.5	2.2	5.7	5.3	5.2
Others	12.5	12.8	12.7	14.3	13.5	14.4
Total	772.9	608.7	847.6	834.8	752.8	907.0

Canada.—Primary copper output in Canada dropped from 263,457 tons in 1949 to 262,865 tons in 1950, but refinery output rose from 226,083 tons to 240,143 tons. (G. A. Ro.)

Corn

The U.S. corn crop of 1951, because of its reduced size (2,941,423,000 lb.), was a cause of much official concern in view of the large and increasing livestock population dependent on it. The spring was cool and wet over much of the corn-producing area; farmers planted only 83,306,000 ac.—not the officially suggested 90,000,000 ac. Floods in the Kansas area led to unusual acreage abandonment. There was some drought damage in an eastern area. Frost caught about one-third of the crop in the important northwest quarter of the corn belt, resulting in light-weight grain and wet corn difficult to store; a wet and snowy autumn much delayed the harvest and the curing of the crop.

Table I.—*U.S. Corn Crops*

	1951	1950	1949	Average, 1940–49
Total production (thousands of bu.)	2,941,423	3,057,803	3,379,436	2,980,777
Acreage harvested (thousands)	81,306	81,817	87,029	87,882
Yields (bu. per acre)	36.2	37.4	38.8	33.9

Average prices increased from a low of $1.54 per bushel at the farm early in the year to about $1.80 per bushel late in the year, the highest price level since 1948. The probable value of the crop was estimated at $4,934,921,000, as compared with $4,679,612,000 for the larger crop of 1950.

Exports were preliminarily indicated at 85,000,000 bu., as compared with 108,000,000 bu. in the previous year. A national production goal of 3,375,000,000 bu. and an acreage goal of 89,000,000 was officially recommended for 1952. The carry-over on Oct. 1951, from the previous crop declined to about 670,000,000 bu. (of which about 400,000,000 bu. were held by the Commodity Credit corporation), and the carry-over at the beginning of the next crop year, Oct. 1, 1952, was estimated at about 400,000,000 bu.

World corn production for 1951–52 was preliminarily estimated at about 5,400,000,000 bu., larger than the 5,240,000,000 bu.

Table II.—Corn *Production by Leading States*

(In thousands of bushels)

State	1951	1950	Average, 1940–49	State	1951	1950	Average, 1940–49
Illinois	491,865	422,331	429,440	Kansas	58,296	89,495	68,239
Iowa	471,780	475,203	533,540	Georgia	49,536	50,514	46,799
Indiana	241,415	212,430	212,069	Alabama	46,303	56,954	46,983
Minnesota	215,038	197,030	219,083	Texas	42,143	58,420	62,517
Nebraska	187,620	249,012	210,496	Virginia	41,624	44,528	39,743
Ohio	169,536	174,928	169,584	Mississippi	38,141	52,123	44,756
Missouri	132,022	176,132	142,318	New York	28,116	28,638	24,787
Wisconsin	103,759	109,098	107,906	South Carolina	26,320	31,089	26,067
South Dakota	85,624	101,124	92,154	North Dakota	23,332	24,814	25,856
Kentucky	80,662	78,810	76,584	Arkansas	23,218	32,242	30,989
Michigan	69,056	61,022	59,089	Oklahoma	21,156	24,346	28,461
North Carolina	67,611	74,184	57,934	Maryland	20,430	18,832	16,674
Pennsylvania	60,766	60,218	56,275	Louisiana	16,307	17,514	18,747
Tennessee	60,360	69,582	65,294	Colorado	15,782	13,368	15,145

Table III.—*Corn Production of the Principal Producing Countries*

(In thousands of bushels)

Country	1951	1950	Average, 1935–39
United States	2,941,423	3,057,803	2,315,544
Brazil	—	228,000	215,153
Argentina	—	118,000	301,986
Mexico	125,000	98,420	67,523
Italy	118,000	98,000	113,000
China	—	—	262,000
India	—	70,000	67,240

of the previous year and the 4,750,000,000-bu. average crop before World War II. (*See* also LIVESTOCK; VEGETABLES.)

(J. K. R.)

Corporation Income Tax: *see* TAXATION.

Cortisone and ACTH.

Cortisone is a crystalline hormonal steroid isolated from extracts of the adrenal cortex by E. C. Kendall of the Mayo foundation (Rochester, Minn.) in 1936. T. Reichstein of the University of Basle, Switz., described it independently. L. H. Sarett of the research laboratories of Merck & Co., Inc. synthesized the product from a bile acid in 1946. Cortisone was first used on patients by Philip S. Hench and his associates at the Mayo clinic in 1948.

The adrenocorticotropic hormone ACTH is derived from the pituitary gland; it stimulates the cortex of the adrenal gland to activity which results in the production of hormones. These include Compound E which is cortisone, Compound F which is hydrocortisone and about 25 others. ACTH was discovered by J. B. Collip, H. M. Evans, G. Sayers and C. H. Li.

The pituitary hormone is secreted in response to nervous stimuli; apparently certain hormones act on the hypothalamus causing it to stimulate the pituitary. According to George W. Thorn, an autoregulatory mechanism involves action by circulating steroids from the adrenal cortex to inhibit the secretion of ACTH by the pituitary.

The adrenocortical hormones act to regulate the use of sodium, potassium and chlorides in the body. They regulate the water balance. They regulate the quantity of carbohydrate, protein and fat entering into the chemistry of the body and are concerned in the formation of blood cells and of lymphoid tissue. They are involved in sexual anatomy and physiology and in the pigmentation of the body.

The relationship of adrenal hormones to sex function is reflected in symptoms attributable to increased androgenic function that may appear with large doses of cortisone. Excess hair, acne, a deepened voice and disturbances of menstruation in women are among the conditions observed. Lessening of dosage or discontinuance brings about disappearance of the unfavourable symptoms.

Relation of Stress to Cortisone.—The reasoning of Hans Selye and his concept that includes the alarm reaction; the shock phase; the countershock phase; and the general adaptation syndrome startled scientists everywhere.

Simply stated, when living bodies are subjected to various forms of stress, the body reacts. As depicted by George W. Thorn, stress or emergency causes the adrenal medulla to send epinephrine to the hypothalamus, which is also subject to stimuli coming from the cortex of the brain. The hypothalamus causes the anterior pituitary to send ACTH to the cortex of the adrenal which elaborates the necessary steroid hormones. Selye postulated overreaction to the stress which leads to a variety of diseases of adaptation—of which rheumatoid arthritis and lupus erythematosus might be considered examples.

Philip S. Hench noted that jaundice and pregnancy bring about remissions in rheumatoid arthritis, whereas they do not influence favourably the course of proved bacterial or virus infections. This led him to the concept that the substance responsible for relief must be a hormone common to both men and women. The earliest observations revealed striking and rapid improvement in rheumatoid arthritis with subsequent demonstrations of similar benefit in acute rheumatic fever, rheumatic spondylitis, disseminated lupus erythematosus, periarteritis nodosa, arthritis associated with psoriasis, gout and dermatomyositis.

The administration of cortisone can cause impairment of tolerance for carbohydrates. Large doses of cortisone induce a rather decided loss of nitrogen from the body, indicating an increase in catabolism of protein. Pronounced creatinuria (an abnormal excretion in the urine) was also noted, indicating increased breakdown of protein. Ketonuria (disturbed handling of fat by the body) was also observed; cortisone exerts an influence on use of fat by the body. Rounding of the contour of the face and transient obesity with abnormal distribution of fat as seen in Cushing's disease are evidences of cortisone activity.

Rheumatoid Arthritis.—The approach to rheumatoid arthritis before the advent of cortisone was complicated and utilized a variety of forces. Drug therapy involved the trial of salicylates, gold, cinchophen, analgesics, sedatives, counterirritants, adequate nutrition with proteins, vitamins and mineral salts; the entire gamut of physical medicine with heat, massage, radiation and other techniques; specific anatomic correction and support under the guidance of the orthopaedic surgeon; and psychosomatic therapy.

The era of the concept of focal infection brought about elimination of all spots of infection.

Neither cortisone nor any other substance known can restore tissue that has been destroyed or repair irreversible articular damage.

Eminent clinicians emphasized that cortisone extends rather than curtails the use of physical measures in the treatment of rheumatoid arthritis. Physical therapy is particularly helpful when the limitation of movement can be reversed. Cortisone acts on fibrous tissue to diminish stiffness and to lessen joint swelling and tenderness. As the range of motion is increased the physical therapist helps restore strength and re-educate muscle action. The sense of well-being associated with the use of cortisone gives the depressed patient a new outlook on life and encourages him to try to do more for himself. Restoration of bedridden patients to ambulation is one of the most dramatic results of the new era in rheumatoid arthritis.

Later techniques recommended small doses over a long period of time.

Collagen Disorders.—The diffuse collagen disorders include polyarteritis nodosa, disseminated lupus erythematosus, scleroderma and dermatomyositis. Also associated with this group are acute rheumatic fever, serum sickness, rheumatoid arthritis, thromboangiitis, obliterans, erythema nodosum and multiforme, and anaphylactoid purpura. Clinical reports claimed beneficial effects from the administration of cortisone in practically all these conditions.

Acute Rheumatic Fever.—Enough research was done on the treatment of rheumatic fever with cortisone or ACTH or both in 1951 to establish the conviction that these substances could suppress the manifestations of the disease that used to make it almost invariably fatal or permanently crippling.

No routine of treatment with cortisone or ACTH, however, could be established for rheumatic fever. Again the dosage seemed to be related more to the severity of the condition than to the age or weight of the patient. Neither cortisone nor ACTH cures rheumatic fever, nor do they shorten the duration of the state of rheumatic activity. They prevent intensive exudative and inflammatory reactions in the body and therefore prevent the fibroblast proliferation and subsequent scarring of such vulnerable tissues as the cardiac valves, which ordinarily follows.

Inflammations of the Eye.—Many ocular diseases are accompanied by inflammation and exudation and the subsequent keratitis damages eyesight or even results in blindness. Sympathetic ophthalmia has long been among the most feared of conditions. The inflammation and exudation that occur in tubercular, syphilitic and other ocular infections, allergic keratitis and nongranulomatous iritis are the damaging factors. The action of cortisone is not specific. Its effect is a general one preventing the damage and maintaining the functional integrity of the eye. Associated with cortisone the specific antibiotic or other necessary forms of treatment may be used. Research showed that cortisone has value in cases of retrolental fibroplasia, haemorrhagic retinitis and exudative retinitis.

Psychic Disturbances.—Cortisone had been tried in a number of mental disturbances by 1951. Recovery seemed to be hastened in alcoholism and in delirium tremens, and the pathologic changes in these conditions seemed to warrant trial. Treatment in drug addictions yielded interesting responses; effects are of course more permanent when proper psychiatric treatment accompanies use of cortisone. Trials with schizophrenia were puzzling.

Excess of cortisone may be associated with nervousness proceeding even to mild psychotic disturbances. Stopping the hormone may not be followed by immediate improvement. Patients with abnormal personalities are more likely to have reactions toward psychosis than are more stolid types.

Cortisone was found to be effective in many cases of haemolytic anaemia and thrombocytopenic purpura. Benefit was also reported in several clinics in severe cases of ulcerative colitis treated with ACTH or cortisone or both. (*See* also ALLERGY; BLOOD, DISEASES OF; CHEMISTRY; CHEMOTHERAPY; ENDOCRINOLOGY; EYE, DISEASES OF; HEART AND HEART DISEASES; INTOXICATION, ALCOHOLIC; MEDICINE; RHEUMATIC DISEASES.) (M. FI.)

Cosmic Rays: *see* PHYSICS.

Costa Rica.

A Central American republic, Costa Rica is located between Nicaragua and Panamá. Area: 19,238 sq.mi.; pop. (preliminary figures, 1950 census of the Americas): 794,000, classified as about 80% white, 16% mixed, 3% Negro and less than 1% Indian. The capital is San José (1949 pop.: 79,694); other principal cities are Alajuela (11,187), Cartago (11,624), Guadalupe (15,966), Heredia (10,730), Liberia (3,061), Limón (12,666), Puntarenas (12,329), Tibás (5,227) and Turrialba (5,316). Language: Spanish; religion: predominantly Roman Catholic. President in 1951: Otilio Ulate Blanco.

History.—Some progress toward stability and constitutional government was discernible during the year, although 1951 did see an attempt to overthrow the Ulate government. A major milestone in the return to domestic peace, following the civil war of 1948, was passed on March 4 when *La Tribuna* of San José resumed its daily publication after three years of suspension. An editorial foe of President Ulate, *La Tribuna* continued to criticize him. The administration announced on April 4 that it had frustrated another plot to unseat Ulate. The aborted coup, the government said, was directed by former Pres. Rafael Angel Calderón Guardia (1940–44), operating from his Mexican exile. Quantities of arms and munitions were seized and 48 persons were jailed in connection with the affair. On July 12 a court order dissolved four allegedly Communist-dominated trade unions—the National Aviation Workers, the Public Works Ministry Employees, the Municipal Workers of San José and the Social Security Nurses and Medical Aides—charged with engaging in political activities outside their labour functions. Acting as Pres. Harry S. Truman's personal representative, Assistant Secretary of State Edward G. Miller, Jr., in September conferred the U.S. Legion of Merit award on President Ulate for his "exceptionally meritorious conduct" in governing Costa Rica democratically. (G. I. B.)

Education.—In 1951 there were 1,139 public and private primary schools with 4,821 teachers and 116,157 pupils. In 1950 there were 8 public secondary schools, 16 private schools and 7 technical schools. University education was available at the University of Costa Rica. In 1950, 15% of the budget was expended on education. There were 92 motion-picture theatres in 1951 with seating capacity of 43,000.

Finance.—The monetary unit is the colón, valued at 17.64 cents U.S. currency, controlled rate, and 13.48 cents, uncontrolled rate, on Nov. 14, 1951. The national budget for 1952 as introduced provided for expenditure of 143,500,000 colones (1951 as authorized: 134,928,691 colones). Revenue in 1950 was 137,987,150 colones; expenditure, 126,129,039 colones, thus leaving a record surplus of 11,858,111 colones. The public debt on Dec. 31, 1950, was 403,504,340 colones, of which 161,007,368 colones represented the external debt. Currency in circulation on July 31, 1951, was 97,900,000 colones; commercial deposits 113,500,000 colones; gold reserves $2,040,000. The cost-of-living index (San José) stood at 273 in Oct. 1951 (1937=100).

Trade.—Exports in 1950 amounted to $34,689,235; imports, $46,032,968. Chief exports were coffee (51%), bananas (30%), cacao (6%) and abacá (4%). Leading customers were the U.S. (71%), the Netherlands (8%), Italy (6%) and Canada (4%); leading suppliers, the U.S. (67%), the United Kingdom (5%), Canada (5%) and Germany (4%). Important imports included textiles, machinery, instruments and vehicles, wheat flour and fertilizers.

Communications.—Railroad trackage included 410 mi. of public railway and 250 mi. of private railway. On Dec. 31, 1948, there were 1,015 mi. of highway, of which 926 mi. were all-weather roads. Registered motor vehicles on Jan. 1, 1951, included 4,645 automobiles, 2,308 trucks and 810 buses. In 1950 domestic air line flights carried 124,000 passengers and 14,700,000 lb. of cargo; international flights, 42,000 passengers and 1,600,000 lb. of cargo.

Agriculture.—Coffee production in the 1949–50 season was 386.449 bags of 132 lb. each, of which 317,600 bags were exported. The 1950–51 crop totalled 335,332 bags. Exports of other crops in 1950 included bananas 10,198,042 stems, of which 9,244,409 went to the U.S.; cacao 48,028 short tons; and abacá 2,896 tons. The 1950 census showed 610,757 cattle. In 1950, 49,449 short tons of fresh frozen tuna were exported.

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Cost of Living: *see* BUSINESS REVIEW; PRICES.

Cotton.

Cotton Manufacture.—The cotton manufacturing industry experienced an "inventory" recession in the U.S. during the last part of 1951. Heavy demand resulting from military requirements and "scare buying" following the outbreak of the Korean war carried over into early 1951, but before midyear, inventory liquidation became the order of the day. Pricing problems of the industry were complicated not only by surplus in stock but by wide and unexpected swings in raw cotton prices. Mill activity dropped to about 60% of capacity. Spinning, which operated in January at 145.9% of capacity, had declined to 124.1% in October. Of 23,182,000 spindles in place, 20,294,000 were actively consuming cotton in November, as compared with 20,900,000 in February.

Cotton goods produced through September totalled 7,770,093,000 yd.; it was estimated that the total for the year would be about 9,750,000,000 yd., as compared with 9,887,344,000 yd. in 1950. Military procurement required about 10% of the output, and cotton cloth exports, estimated at a probable 775,000,000 sq.yd. for the year were about 14% more than in 1950. The manufacturing of cotton tire cord and fabric expanded substantially in the latter half of the year; at 79,000,000 lb. it was 20% and 9% larger than in the first and second quarters of 1951.

United States Production.—Though the early promise of a very abundant cotton harvest gradually faded as the season progressed, the U.S. cotton crop of 1951 was a large one of 15,290,000 bales (of 500 lb. gross weight), as compared with only 10,012,000 bales in 1950 and an average for 1940–49 of 12,030,000 bales. On conditions as of Sept. 1, when 2,014,444 bales of the crop were reported as already picked and ginned, a total crop of 17,291,000 bales was forecast; in October this was dropped to 16,831,000 bales, in November to 15,771,000

Table I.—*U.S. Cotton Production by States*

(In thousands of 500-lb. bales)

State	1951	1950	Average, 1940–49
Texas	4,100	2,946	3,049
California	1,770	978	584
Mississippi	1,620	1,332	1,644
Arkansas	1,255	1,090	1,414
Georgia	935	488	738
Alabama	920	575	919
Arizona	860	474	222
South Carolina	860	405	707
Louisiana	765	426	527
North Carolina	550	181	579
Tennessee	540	409	559
Oklahoma	450	242	511
Missouri	320	254	375
New Mexico	284	187	151
Florida	35	14	14
Virginia	16	4	24
Other states	10	7	16

bales and in December to 15,290,000 bales. It was indicated in December that the July 1 estimate of 29,510,000 ac. in cotton cultivation on that date was for certain reasons about 5% too high, the corrected figure being 27,997,000 ac. as of that date, about 50% more than in 1950 and to be compared with a 1940–49 average of 22,158,000 ac. The revised July 1 acreage estimate was thus somewhat less than the minimum acreage guide of 28,536,000, which had been announced. Acreage allotments had been removed on the 1951 crop, because a crop much larger than the very small one of 1950 was officially desired. The acreage actually harvested was estimated at 26,698,000, as compared with only 17,843,000 in 1950 and an average for the previous decade of 21,622,000. Yields of lint of 274.5 lb. per acre were slightly more than in 1950 (269.0 lb.) and the 266.0-lb. average for 1940–49.

Abnormal weather in May and June apparently led to some early season abandonment. Severe drought in August and early September contributed to further abandonment, and low temperatures and rain delayed late-season harvesting in some areas.

The 1951 crop of long-staple American Egyptian cotton, much of it produced under irrigation in the southwest, was only 46,300 bales, as compared with 64,200 bales in 1950 and an average for the decade of 24,400 bales. Yields of 365 lb. were high compared with 298 lb. in 1950 and an average of 301 lb. for the previous decade.

Acreage was reduced to 60,700, as compared with 103,200 ac. in 1950.

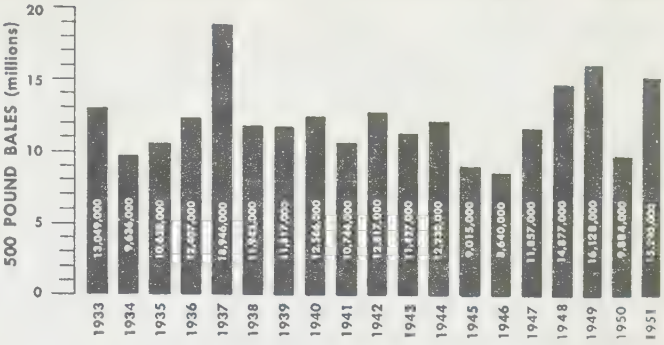
U.S. cotton prices fluctuated sharply during 1951, but at levels above those provided for by government supports (30.46 cents per pound for 1951 as compared with 27.9 cents per pound in 1950, middling $\frac{7}{8}$-inch upland cotton), and were lower and more stable than world prices. Early in the year prices received by farmers were as high as 43.17 cents per pound, the highest level since the Civil War period. After a ceiling was placed on cotton beyond the farm level at about 45.76 cents per pound, prices declined substantially during the summer on the prospect of a big crop, only to rise abruptly as crop estimates declined late in the season after part of the crop had been sold to producers. The average season price received by farmers was estimated at 37.6 cents (40.07 cents in 1950), and the value of the lint was estimated at a total of $2,877,928,000, as compared with $2,005,169,000 for the small crop of 1950.

Table II.—*Cotton Production of the Principal Producing Countries*

(In thousands of 500-lb. bales)

Country	1951	1950	Average, 1935–39
United States	15,290	10,012	13,149
India	2,800	2,650	5,348*
Egypt	1,697	1,754	1,893
Brazil	1,350	1,500	1,956
Mexico	1,325	1,120	334
Pakistan	1,286	1,237	
Turkey	650	562	249
Argentina	500	460	289
Anglo-Egyptian Sudan	—	436	248
Peru	370	372	379
Uganda	275	283	281

*Includes Pakistan.



COTTON CROP in the United States. The figure for 1951 is the department of agriculture's estimate

Cotton exports from the U.S. in 1950–51 were 4,117,000 bales; there was some preliminary indication that as many as 6,000,000 bales might be exported in 1951–52. Thus, in summary, a supply consisting of a carry-over from the previous crop of 2,200,000 bales, plus a new crop of nearly 15,300,000 bales, would support a domestic consumption of at least 9,500,000 bales (earlier estimated at from 10,000,000 to 10,500,000 bales), which would mean that export must be held below the earlier estimate (6,000,000 bales) if the carry-over on Aug. 1, 1952, was not to fall below the very low one of 1951. In consequence of the probable tight situation, the official goal recommended for the 1952 crop was 16,000,000 bales and 28,000,000 ac. in cotton cultivation on July 1, 1952. Export controls had not been reimposed at the end of 1951.

World Cotton Production.—Early indications pointed toward a 23% increase in world cotton production in 1951–52, as compared with 1950–51, or 33,800,000 bales compared with 27,600,000 bales. The crop plus the carry-over gave a total supply of about 42,000,000 bales, 5% below the preceding year.

World cotton prices fluctuated widely during 1951. In March, when a ceiling was put on U.S. prices, world prices were about 30 cents per pound higher. Mexican and Brazilian cottons sold for more than 70 cents per pound and better grades of Egyptian cotton for more than $1 per pound; Mexican cotton later declined to a level near U.S. prices, Brazilian to a low of 43.5 cents per pound and Egyptian cotton to 56.6 cents per pound. All recovered sharply in the late months of the year.

World cotton consumption in 1950–51 rose to 32,800,000 bales, 12% more than the 29,300,000 bales for the previous year, a considerable part of the increase apparently going into inventory accumulation. Raw cotton stocks in all countries as of July 1951 were estimated at 11,000,000 bales, as compared with 16,600,000 bales a year earlier. Thus a decline in stocks of 5,600,000 bales nearly matched the indicated 6,200,000 bales increase in production.

World trade in cotton in 1950–51 was considerably limited by restrictions on supplies and high prices, yet was near 12,000,000 bales, as compared with 12,500,000 bales in 1949–50.

Cottonseed.—The U.S. cottonseed crop of 1951 was estimated at 6,186,000 tons, as compared with only 4,105,000 tons in 1950 and an average of 4,900,000 tons for 1940–49. Such abundance of raw material for oil (largely used in margarine production) and of high-protein cake for livestock feed resulted in an estimated price to farmers of only $69.90 per ton, as compared with $86.40 per ton in 1950; a total value for 1951 cottonseed of $432,348,000, and, for 1950, $354,543,000. (*See* also LINEN AND FLAX; RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY; WOOL.) (J. K. R.)

Cottonseed Oil: *see* VEGETABLE OILS AND ANIMAL FATS.

Council of Europe: *see* EUROPEAN UNION.

Council of Foreign Ministers: *see* GERMANY.

Counterfeiting: *see* SECRET SERVICE, U.S.

Countries of the World, Areas and Populations of the: *see* AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

Courts: *see* LAW.

Cranberries: *see* FRUIT.

Credit, Consumer: *see* CONSUMER CREDIT.

Cricket.

In the winter of 1950–51 a Marylebone Cricket club team visited Australia and New Zealand, and a commonwealth side toured India, Pakistan and Ceylon. The former had the satisfaction of winning a test match in Australia for the first time since Dec. 1936, and though this was achieved only in the last of the five matches, it was generally agreed that the difference between the two sides was not so great as those figures would suggest. At Brisbane, rain determined the result of the first match, which Australia won by 70 runs. The second game, at Melbourne, was a splendid fight and Australia won by 28 runs. At Sydney, England's fate was sealed in the third test by an innings and 13 runs, and K. R. Miller and J. Iverson dominated the game. The fourth test, at Adelaide, brought Australia another decisive victory by 274. In the last test, at Melbourne, England won by 8 wickets.

On the short New Zealand tour that followed, two test matches were played: the first was virtually confined to one innings by each side—New Zealand 417 for 8 declared, M.C.C. 550—but the M.C.C. won the second by 6 wickets, largely because of the bowling of R. Tattersall who had been flown to Australia a month earlier.

The chief feature of the 1951 English season was the visit of a South African team under the captaincy of A. D. Nourse. They won the first test match at Nottingham by 72 runs. In the second game, at Lord's, fate dealt roughly with the visitors, for after they had done well enough to dismiss England for 311, heavy rain on the next day produced a wicket on which they could find no effective answer to Tattersall's accuracy and spin and England won by 10 wickets. If this match was Tattersall's—his final figures were 12 for 101—the third, at Old Trafford, Manchester, was Bedser's with 12 for 112. On a wicket that always gave the bowlers help, E. A. B. Rowan's 57 in South Africa's second innings was the highest score on either side until, on the last morning, Hutton (98 not out) piloted England comfortably home by 9 wickets. At Leeds in the fourth test South Africa found a true and fast wicket and never looked like being beaten. In making 236 in nine and one-fourth hours, Rowan beat the South African test-match record and their total reached 538 against some very poor bowling. To England's reply of 505 Hutton contributed 100 and P. B. H. May a most impressive 138 in his first test-match innings. At the end of the fourth day South Africa were 87 for no wicket, Rowan 60 not out, but then came rain and there was no more play. The fifth match at the Oval was played throughout at a pitch that, though reasonably fast, helped the spin bowlers and so produced a fascinating game with the balance between bat and ball very even. In the end England won by 4 wickets.

In the county championship, Warwickshire won a decisive and popular victory exactly 40 years after their only previous success, and the runners-up were Yorkshire. Lancashire, after threatening to challenge, fell away in August.

As in 1950, the Gentlemen and Players match produced some most interesting cricket, and in the end the Players won by 21. Oxford upset all expectations by defeating a much-heralded Cambridge side by exactly the same margin and less than 20 minutes from time. Eton college, after completely outplaying Harrow school until tea time on the second day, were in the end just foiled. (H. S. A.)

Crime.

United States.—For the third successive time, both urban and rural crimes increased during the first half of the year. The rise was not by any means uniform either as to areas or types of crime, but there was no mistaking the general result. The amazing increase of negligent manslaughters (chiefly motor vehicle homicides caused by criminal negligence) recorded in the cities during 1950 was extended into rural areas during the first six months of 1951. Auto thefts and other larcenies also rose in striking fashion, while robberies in both city and country showed gratifying declines. Since 1950 had likewise compared favourably with 1949 in the number of robberies recorded (an even 10% reduction for rural and urban areas combined), the tendencies for this one offense classification were definitely on the favourable side.

Crime Changes in U.S. Cities and Rural Areas—January to June 1950 and 1951

Offense classification	Per cent change in 1951	
	Cities	Rural areas
Murder and nonnegligent manslaughter	− 6.1	− 7.4
Negligent manslaughter	− 3.2	+21.3
Rape	+ 6.0	− 2.4
Robbery	− 8.4	−21.8
Aggravated assault	− 1.9	− 9.4
Burglary	− 3.2	− 5.2
Larceny	+ 7.9	+12.9
Auto theft	+18.6	+20.0
Total	+5.1	+4.0

Yet the grand total of crimes reported on a nation-wide basis continued at such high levels as to emphasize the burdens that criminal acts impose upon the economy. With 170,000 auto thefts, more than 1,000,000 other larcenies, 412,000 burglaries and other crime classifications in lesser numbers, there was no basis for congratulation. Although rural crimes continued for the most part at a substantially lower rate than was recorded for cities, the property of the average urban dweller was a special target. Thus for each 1,000 urban residents, the first half of 1951 witnessed one auto theft, five other larcenies and two burglaries. These figures are roughly doubled when extended to an annual basis, and serve to emphasize the continuing economic and social importance of better crime control.

Total property losses in 1950 soared 20% above those for 1949, with the average value per offense increasing in generally comparable fashion. Inflationary influences on property values cannot alone explain this marked rise, and it seemed apparent that, as in former "boom" years, both the number of crimes and the financial returns to the offender increase during periods of bulging pay envelopes and free and easy spending. Property recoveries declined to 60.2% in 1950 from the 62.4% restored to owners in 1949. As usual, about 85% of all recovered property was represented by motorcars. Only 12% of stolen currency was restored and but 6% of the value of stolen furs.

Southern states had the highest per capita rates for crimes against the person, with the Pacific coast and Rocky mountain areas maintaining their clear lead in crimes against property.

Age distribution of offenders showed the greatest concentration between 21 and 25 years; but of the 185,406 persons arrested in 1950 for property crimes, 28.9% were under 21 years of age.

During the first half of 1951, males who were fingerprinted totalled 377,507, representing a 3.6% increase over the corresponding period of 1950. Females were arrested and fingerprinted in much smaller numbers—only 41,944—but this was still an impressive increase of 10.8% over 1950 levels. Of the males arrested, 62.1% had been fingerprinted before, with 46.0% of the females also showing earlier criminal records.

Racial distributions included 302,744 whites, 110,309 Negroes, 4,188 Indians, 424 Chinese, 137 Japanese and 1,649 of other races.

Crime Investigations.—The United States senate's special

ESTES KEFAUVER (centre foreground) listening to testimony by Mrs. Virginia Hill Hauser (right) during televised hearings before the senate crime investigating committee held in New York city in March 1951

committee to investigate organized crime in interstate commerce (Kefauver committee) was widely publicized in 1950 when its public open hearings were held in various large United States cities. But 1951 witnessed the extraordinary response of the United States public to the televised broadcasts of the hearings held in New York city. Gamblers and political fixers both in and out of public office gave their testimony while millions of their fellow citizens followed the drama with an amused tolerance that quickly changed to bitter revulsion and mounting anger. Hoodlums and political quacks lost their poise in the unseen presence of the television audience and wilted under the heat and glare of studio lighting and the interrogations of committee members and counsel. High points were the reluctant testimony of Frank Costello of New York and Willie Minetti of New Jersey, while William O'Dwyer, former mayor of New York city, was recalled from the U.S. embassy in Mexico City, Mex., to face a fusillade of questioning.

Aside from the clear and open demonstration of the vicious alliances prevailing among gamblers and public officers in large cities, it was uncertain whether the senate committee's hearings would have any large or continuing results. Ambassador O'Dwyer returned to Mexico, Willie Minetti was assassinated for talking too freely at the New York hearings and Costello was indicted for perjury and removed himself at least temporarily from the public eye. A flurry of citations for judicial contempt descended upon some of the major and minor characters. As the year closed these proceedings were confused by the usual dilatory manoeuvres. But that part of the public that pours hundreds of millions of dollars into the pockets of touts and bookmakers had improved the opportunity to gaze upon the men who make indulgence in gambling possible, and the general reaction was clearly unfavourable.

Whether rightly or wrongly, numerous political overturns in Nov. 1951 were attributed to such popular resentment, while reliable evidence abounded on every hand that sports betting together with most other forms of organized gambling had suffered a severe though probably temporary decline.

The investigations of District Attorney Frank Hogan of New York county (Manhattan), N.Y., disclosed such widespread corruption of basketball players appearing in the commercialized setting of Madison Square Garden in New York city as to emphasize the long-established principle that amateur gamblers are willing to assume large risks with their money, but that professional gamblers try to eliminate all elements of chance in their own underwritings. (*See* also DEMOCRATIC PARTY; FEDERAL BUREAU OF INVESTIGATION; JUVENILE DELINQUENCY; LAW; MUNICIPAL GOVERNMENT; POLICE; SECRET SERVICE, U.S.)

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Great Britain.—In 1950 the number of persons in England and Wales found guilty of offenses of all kinds was 688,650, of whom 116,021 had committed indictable offenses, 564,844 nonindictable offenses and 7,785 offenses against the defense regulations, an increase of 1,727 and 41,281 and a decline of 4,855, respectively, against the figures for 1949.

Among the indictable offenses which contributed to the increase were violence against the person (16%), sexual offenses (5%), thefts of motor vehicles (32%) and thefts from automatic machines and meters (26%). The number of murderers of persons aged one year and over rose from 95 to 109, the total number of victims from 114 to 122. Seventy-one persons were arrested in murder cases involving 72 victims. Four of those arrested were discharged, 14 found unfit to plead, 15 found guilty but insane, 2 certified insane after conviction and 9 acquitted; 14 were executed and the rest sent to prison or other institutions. Thirty-eight murderers or suspects committed suicide before arrest.

The number of persons found guilty of traffic offenses, accounting for 63% of all nonindictable offenses, increased from 320,182 to 357,932, and the fines paid by motorists from £392,905 to £492,038. Of those found guilty of indictable offenses, 100,948 were males and 15,073 females; 23% were under 14 years old, 14% between 14 and 17, 11% between 17 and 21, 21% between 21 and 30 and 31% were 30 and over.

Indictable offenses known to the police increased from 459,869 in 1949 to 461,435 in 1950. The percentage of indictable offenses cleared up remained 47.

In the metropolitan police district the number of indictable offenses known to the police showed a decline from 106,077 in

1949 to 100,304 in 1950; *i.e.,* 12.6 against 11.9 per 1,000 inhabitants. This decline was confined to persons under 14 and between 21 and 40; for the age group 17–20 there was an increase of 9.1%. However, offenses against the person, including sexual offenses, increased by 7.1%. Robbery and assault with intent to rob declined by 11.7% from 290 to 256 cases. The percentage of indictable offenses cleared up was 32.4 against 31.3 in 1949. Of the 26,862 persons arrested for such offenses, 39% had previous criminal records.

In Scotland, the number of persons against whom a crime or an offense was proved was 96,271 in 1950 as against 92,778 in 1949, an increase of 3.8%. Of these, 91.7% were males, as compared with 90.9% in 1949. The highest incidence was again in the 17–20 age group for males and in the 30–39 group for females. The total number of crimes and offenses known to the police was 173,708, an increase of 11,210 or 6.9% against 1949. The number of crimes in the 4 counties of cities was 22.5 per 1,000, compared with 13.0 in the 10 large burghs with separate police forces and 8.8 in the 19 county or joint police areas. Twenty-one cases of murder were known to the police compared with 14 in 1949; of the 16 persons prosecuted 4 were acquitted or had the charge against them withdrawn and 3 were found insane and unfit for trial. Of the nine persons sentenced to death seven were reprieved.

Europe.—In Austria, a slight fall occurred in 1950 in the number of cases known to the police; *i.e.,* from 221,097 to 211,783. Murder and manslaughter declined from 155 to 101, but sexual offenses showed a further increase from 2,691 to 2,821. Altogether, the trends of crime reflected the greater stability of conditions in Austria: robberies, which had amounted to 1,732 in 1947 and 597 in 1949, went down to 350 in 1950 and burglaries declined from 14,756 in 1947 and 6,555 in 1949 to 5,163.

In France, there was a further slight fall in the total number of cases dealt with, from 670,962 in 1949 to 658,047 in 1950, and the percentage of arrests declined from 58 to 48. An increase occurred in crimes against persons from 23,550 to 26,626, whereas sexual crimes declined from 15,908 to 14,652 and thefts from 233,816 to 187,496. (*See* also Betting and Gambling; Juvenile Delinquency; Police; Prisons.) (H. Mm.)

Crude Oil: *see* Petroleum.

Cuba. The republic of Cuba occupies all of the island which lies between 20° and 25° N. lat. and 74° and 85° W. long. Including various small islands under Cuban sovereignty, its area is 44,217 sq.mi. The population in 1951 was estimated at 5,400,000, approximately half of non-European origin. Greater Havana had a population in excess of 800,000 (est. 1949); other important cities (est. 1946) were Santiago de Cuba, 152,000; Camagüey, 87,000; Pinar del Río, 64,000; Matanzas, 55,000; Santa Clara, 54,000; Cienfuegos, 53,000. President during 1951: Carlos Prío Socarrás.

History.—Cuba's third largest sugar crop on record was harvested in 1951, attaining a total of 6,348,368 metric tons. The problem of marketing the portion not acquired by the United States continued to absorb the attention of the industry. At the end of 1951, the Cuban quota of sugar imported into the United States was slightly reduced. A study of the economy of Cuba by the International Bank for Reconstruction and Development, published in 1951, stressed the need of vigorous promotion of the export of nonsugar products, in order to reduce the dependence of Cuba on sugar; and also recommended more extensive research on the part of the sugar industry on all aspects of its operations. Among many other recommendations was one of improving the relations between labour and management, through legislation and its effective administration. This report was part of the preparation for consideration by the bank of a substantial loan to Cuba, which had not been granted when the year closed.

The Central bank was able, by the middle of 1951, to substitute Cuban currency for the floating supply of U.S. dollars, which, after July 1, were treated like any other foreign currency. The currency (peso = $1) remained stable in foreign exchange markets, but prices and costs of operation continued to rise. Building activity continued in nearly all the larger communities. The trade balance continued modestly favourable. The treasury's holdings of foreign currency (chiefly dollars) remained high.

The budget was voted late in the year and contemplated expenditure of slightly more than $300,000,000, of which debt service absorbed about $6,500,000. A tax on dividends of 5.8% and one of 4% on corporate surpluses in excess of 30% of capital stock were established to provide a retirement fund for all national government employees. At the end of the year the government indicated its intention to establish a tax of six cents on each 100-lb. bag of sugar to pay for the nationalization of the Havana United railways (owned by British investors), which had a costly strike during the year.

Relations with the Dominican Republic again became tense after the latter seized a Guatemalan ship on the high seas in July, and later condemned to long terms of imprisonment five Cuban members of the crew, on the charge of conspiring against the Dominican regime. At Christmas, the Dominican president freed these Cubans and the tension was relaxed.

The search for oil in the coastal waters of Cuba continued throughout the year, and one well as deep as 10,000 ft. was drilled on the north coast.

Activity in mining was sustained, and improvement in transportation facilities aided industry and agriculture alike.

(C. Me.)

Education.—In the school year 1944–45 there were 498,286 children in attendance at public schools and 72,000 at private schools. There were 21 institutes for advanced education and a normal school and a commercial school in each province. University education was available at the University of Havana, the Oriente university (Santiago de Cuba) and the Catholic University of Villanova (Havana). The 1950–51 budget allocated $15,279,640 for education. In 1951 there were 600 motion-picture theatres.

Finance.—The monetary unit is the peso, officially pegged at par with the U.S. dollar. The budget for the fiscal year 1951–52 estimated ordinary expenditure at $102,300,000, extraordinary expenditure at $197,500,000 and all revenue at $299,800,000. As of Dec. 31, 1949, the national debt was $105,880,000, of which $73,912,700 was foreign and $31,967,300 was domestic. Currency in circulation (June 30, 1951) totalled $846,000,000; demand deposits $523,000,000; gold reserves (Nov. 30, 1951) $501,000,000. The national income in 1950 was estimated at $1,650,000,000. The retail food price index (Havana) stood at 249 in June 1951 (July–Dec. 1937 = 100).

Trade and Communications.—Exports in 1950 totalled $657,000,000; imports were $515,000,000. The chief exports were sugar (85%), tobacco and products (5%) and molasses (4%). Leading customers were the U.S. (59%), the United Kingdom (15%) and the Netherlands (5%). The U.S. (79%) was the leading supplier. Important imports included rice and flour, petroleum and products, cotton and manufactures, and iron and steel and manufactures.

Railways (1949) included 3,017 mi. of main line, 660 mi. of sidings and yards and 7,870 mi. of industrial trackage. Roads (1949) included 1,720 mi. of paved highways and 600 mi. of improved highways. As of Jan. 1, 1951, there were 72,392 passenger cars, 32,377 trucks, 5,307 buses and 1,820 truck trailers. The merchant marine had 34 steamers and motorships (100 tons and over) aggregating 36,135 gross tons on June 30, 1949. In May 1951 there were two television stations and 18,000 television sets.

Agriculture.—Sugar cane continued to be by far the most important crop. Production of sugar in the 1950–51 season amounted to 6,348,660 short tons (1949–50, 6,126,000 tons). Production of blackstrap molasses totalled 288,639,643 gal. Production of other crops in 1950–51 included coffee, 547,000 bags of 132 lb. each; tobacco, 38,000 short tons; henequen fibre, 17,500 tons; rice (paddy), 143,000,000 lb.; black beans, 69,000,000 lb.; red beans, 19,000,000 lb. As of Jan. 1, 1951, there were 4,600,000 cattle; on July 1, 1946, there were 1,338,000 pigs, 154,000 sheep and 141,000 goats.

Manufactures.—The manufacture of sugar from sugar cane continued to be the principal industry. There were in 1951 about 160 sugar mills scattered throughout the island. In 1950, 350,000 short tons of cement and 75,700,000 kw.hr. of electric energy were produced.

Films of 1951.—*The Pearl of the Antilles, Cuba* (Cornell Film Co.).

(J. W. Mw.)

DUTCH CONTESTANTS in a six-day bicycle race at Wembley, Eng., in May 1951. One of each two-man team had to be on the track throughout the 143 hr. of racing. Rider at right is pushing his partner to a flying start during a changeover on the track

Curaçao: *see* NETHERLANDS ANTILLES.

Curling. Canadian teams monopolized the major prizes in the sport during 1951, capping the season when dominion stars regained the Gordon international medal by defeating the United States players, 413 to 366, in a two-day bonspiel at Montreal in March. One of the most popular events on the calendar was the annual meet of the Utica (N.Y.) Curling club that extended over four days, where Canadians again triumphed. Kingston, Ont., skipped by Joseph Shamess, won the Mitchell medal and Lachine, Que., led by Gordon Cape, took the Allen medal. Teams from Canada also carried home the Country Club cup and the Dewar trophy.

The 16th annual bonspiel of the St. Andrews Golf club at Hastings-on-Hudson, N.Y., in January drew a big field. The St. George club of Montreal captured the Douglas medal and the Hamilton (Ont.) Thistles, victorious in the event for three successive years, won the Griffiths award in the consolation final.

Nova Scotia annexed dominion laurels for the first time when the Kentville rink, skipped by Don Oyler, won ten straight matches without a defeat in the playdowns.

A Poynette, Wis., rink won the Midwest Curling association's annual bonspiel. The Gordon Grand National medal, eastern states' top prize, went for the second straight year to a Utica Curling club rink. The United States Women's Curling association's third annual bonspiel was won by a Wauwatosa, Wis., rink. The Chicago Curling club Heathers' international bonspiel honours also went to a Wauwatosa team.

(T. V. H.; H. McB.)

Currency: *see* COINAGE; EXCHANGE CONTROL AND EXCHANGE RATES. *See* also under various countries.

Cycling. Gus Gatto of San Jose, Calif., rode off with the senior open title in the championships sponsored in 1951 by the Amateur Bicycle League of America. Gatto, with the aid of a triumph in the one-mile sprint, scored 14 points in the two-day competition held at Columbus, O., Aug. 4–5. Ernie Seubert of Ridgewood, N.Y., who captured the five-mile event, finished only one tally behind the new champion, who won two sprints and placed fifth in another. Joe Cirone of Alhambra, Calif., finished third with 12 points. Anna Piplak of Chicago, Ill., took the women's laurels with a score of 19 after gaining the lead on opening day with a victory in the one-mile event and a second place in the half-mile sprint. Vaughn Angell of Salt Lake City, Utah, took home the junior crown.

François Mertens retained his senior title in the New York state amateur meet at Flushing, N.Y., June 24 when he tallied 19 points to defeat Seubert, who was credited with 15. Lorraine Thomas again won in the women's division with 21 markers, and William Nickonovitz led the juniors.

The national amateur senior championship for banked tracks was annexed by Dave Rhoades of Long Branch, Calif.

Mertens added to his prizes with a triumph over 96 other cyclists in the eighth running of the 50-mi. tour of Somerville, N.J., the country's longest race for amateur riders, on May 30.

(T. V. H.)

C.Y.O.: *see* SOCIETIES AND ASSOCIATIONS, U.S.: *Catholic Organizations for Youth.*

Cyprus. An island in the eastern Mediterranean, Cyprus is a British colony. Area: 3,572 sq.mi. Pop.: (1946 census) 450,114; (1950 est.) 484,000. Language: Greek 80.3%, Turkish 17.8%; English is spoken by about 10%. Religion: Greek Orthodox 80.4%, Moslem 17.9%. Chief towns: Nicosia (cap., 34,463); Larnaca (14,746); Limassol (22,693); Famagusta (15,912). Governor in 1951: Sir Andrew Wright.

History.—So far as the *enosis* movement for union with Greece was concerned 1951 was a good deal quieter than the previous year. The efforts of both the right and left wings of the movement to enlist foreign support in Europe and at the U.N. had met with little success. The antisedition law was made more specific, and in March the editor of a Communist newspaper and five others went to prison for taking part in a demonstration against the measure.

Prosperity and development continued. A new law established selected villages as "improvement areas" and set up local councils as a step toward a more fully developed rural local government; a forestry school was opened in September with students attending not only from Cyprus but also from North Africa, the middle east and Kenya; and a new power station at Dekhelia was due to start operating early in 1952. The British garrison was larger than ever before, being more than 10,000 strong, and in October an entire parachute brigade was transported from Cyprus to the Suez canal zone by air. Income tax rates were reduced.

Education.—Primary school attendance (1949) 60,000. Other schools: secondary 42, agricultural 2, trade 1, teachers' training colleges 2.

Finance and Trade.—Currency: piastre (180 piastres = £1 = $2.80 U.S.). Budget (1951 est.): revenue £4,800,000; expenditure £4,700,000. Foreign trade (1950): imports £13,500,000; exports £11,000,000. Main products: citrus, seeds, vine products, carob, wool and copper. (K. G. B.)

Cyrenaica: *see* LIBYA.

Czechoslovakia. A people's republic of central Europe, Czechoslovakia is bounded W. and N.W. by Germany, N. and N.E. by Poland, E. by the U.S.S.R., S. by Hungary and Austria. Area: 49,330 sq.mi. Pop.: (Feb., 1950, est.) 12,596,000. Language: Czech and Slovak. Religion: mainly Roman Catholic. Chief towns (pop., 1947 census): Prague (cap., 921,416); Brno (272,760); Moravska Ostrava (181,181); Bratislava (172,664); Plzeň (118,152). President of the republic in 1951: Klement Gottwald; prime minister, Antonín Zápotocký.

History.—In Feb. 1951 the government announced a large increase in the production targets of the current five-year plan. Under the revised plan the yearly increase in industrial output was to be 22% instead of the originally planned 16%. The targets for coal production exceeded the original targets by 20%, of chemicals by 30% and of heavy engineering by 48%. The output of heavy industry as a whole in 1953 was to be 230% of the 1948 level instead of 170%.

Problems of manpower and management continued to worry the government throughout the year. During 1950 the number of women in industry had increased by 135,000 and during 1951 pressure continued to recruit women workers. Serious attempts were made to diminish the number of clerical workers and to transfer men and women from office jobs to direct production. By the end of October 72,000 persons had been so transferred. There was still an acute shortage of coal miners. On Oct. 17 a statement was made by the Communist party that in the important Moravska Ostrava coal basin the plan had been systematically underfulfilled. Both workers and management were to blame. A large part of the labour force stayed in the mines only for a short period. The standards of output ("norms") on which wages were based were too low. Existing machinery was inadequately and wastefully used. The local branches of the Communist party had failed in their duty of creating toiling enthusiasm by political enlightenment. The party decided radically to reorganize the managing personnel, to raise norms and to introduce a new wage system providing greater incentives. During the year Zápotocký continued, as in earlier years, to urge the workers to greater efforts and to deplore their slackness. On Nov. 9 the premier, himself a veteran trade unionist, told the Trade Union council that demands from the workers for more equal wages must be resolutely resisted. The government had already gone dangerously far in raising the wages of the lower-paid and unskilled categories of workers. On Nov. 13 the government announced an increase by 15% of the norms in the steel industry and the introduction of a new system of progressive piece rates.

Government spokesmen often stressed the need to speed up the collectivization of agriculture. Zápotocký in October stated that supply difficulties in the towns were the result of the fact that the workers' demand for meat had risen in comparison with the prewar period. Higher agricultural output, the premier declared, would come only when agriculture was socialized. The faster the peasants were persuaded to join collective farms, the sooner the supply problem would be solved. According to a statement in the assembly in November, there were then more than 7,000 "agricultural co-operatives" or preparatory committees for the formation of such, and these together held nearly 27% of the arable land in Czechoslovakia.

In September a reorganization of the machinery of government was announced. The ministry of heavy industry was subdivided into five separate ministries—fuel and power, foundries and ore mines, chemicals, heavy engineering and general engineering. A new ministry of forests and timber industry was created. The old ministry of labour and social welfare was transformed into a ministry of manpower, and its welfare functions distributed between the other departments. A ministry of state control was introduced, based on the institution of the same name in the Soviet Union. Its task was to watch the administration generally, to check up on the efficiency, honesty and political orthodoxy of officials and to encourage and act upon complaints and denunciations by citizens.

The government reorganization was accompanied by the abolition of the post of general secretary of the Communist party and the transfer of its hitherto powerful holder, Rudolf Slánský, to a vice premiership without clearly defined functions. Two months later it was announced that Slánský had been arrested for treasonable activities. After his fall, Slánský was indiscriminately associated in official propaganda with the previously disgraced Communists and the western "warmongers."

Czechoslovakia's foreign policy continued faithfully to follow the Soviet lead. Spy trials included alleged French agents in Bratislava in mid-June and the U.S. newspaper correspondent William Oatis in July. In October Wilhelm Pieck, president of the Eastern German republic, paid an official visit to Prague. He publicly declared the transfer of the Sudeten German population to Germany an "irrevocable, just and final solution." (H. S-W.)

Education.—Schools (1948): elementary 12,019, pupils 1,059,010; higher grade 2,280, pupils 463,295; secondary 292, pupils 70,440; vocational 1,243, pupils 91,160; universities 7, students 31,769; institutions of higher education 10, students 23,127.

Finance and Banking.—Budget: (1950 est.) revenue 131,930,000,000 koruny, expenditure 131,556,000,000 koruny; (1951 est.) revenue 166,520,000,000 koruny, expenditure 166,100,000,000 koruny. Currency circulation (March 1950): 72,000,000,000 koruny; bank deposits (Jan. 1950): 146,000,000,000 koruny. Monetary unit: koruna, with an official exchange rate of 50.00 koruny to the U.S. dollar.

Foreign Trade.—(1949) Imports 39,399,000,000 koruny; exports 40,308,000,000 koruny.

Transport and Communications.—Roads (Dec. 1946): 43,969 mi. Licensed motor vehicles (Dec. 1950): cars 165,000, commercial 65,000. Railways: (1947) 8,161 miles; passenger-miles (six months, 1949) 5,502,000,000; freight ton-miles (six months, 1949) 4,401,000,000. Air transport (1949): flights 16,833; miles flown 4,884,000; freight ton-miles 2,598,000. Telephones (1949) 350,708. Radio receiving set licences (1949): 2,280,017.

Agriculture.—Main crops (metric tons, 1950): wheat 1,590,000; barley 1,225,000; oats 1,080,000; rye 1,170,000; maize (1949) 231,000; potatoes 7,480,000; sugar, raw value 880,000. Livestock: cattle (Jan. 1951) 4,100,000; sheep (Jan. 1950) 480,000; pigs (Jan. 1951) 3,700,000;

horses (Jan. 1950) 640,000; goats (Jan. 1949) 982,000; poultry (Jan. 1949) 15,131,000. Food production (metric tons, 1949): butter 30,000; milk 2,618,000; factory cheese 13,900; meat 290,000, of which beef 104,000.

Industry.—Persons employed in manufacturing industries (Nov. 1949) 1,477,700. Fuel and power (1950): coal 18,500,000 metric tons; lignite 27,500,000 metric tons; manufactured gas (1949) 2,189,000,000 cu.m.; electricity 9,120,000,000 kw.hr. Raw materials (metric tons, 1950): pig iron 1,800,000; steel ingots and castings 2,900,000. Manufactured goods (1949): cotton piece goods 318,000,000 metres; cotton yarn 75,800 metric tons; wool yarn 35,400 metric tons; rayon filament yarn 5,500 metric tons; rayon staple fibre 20,500 metric tons; sheet glass 135,500 metric tons; cement 1,740,000 metric tons. New dwelling units completed (1950) 13,000. Production of motor vehicles (1948) 25,200. Index of industrial production (on basis of 1937 = 100, 1950) 147.

See R. H. Bruce Lockhart, *Jan Masaryk* (1951).

Dahomey: *see* FRENCH UNION; FRENCH WEST AFRICA.

Dairy Industry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Dairy Products.

During 1951, the dairy industry in the United States was estimated to have contributed a volume of production 17% more than the pre-World War II level, but about 1% less than in 1950. Milk production was just under 120,000,000,000 lb. It was expected, barring drought, to continue on about the same level in 1952.

Partly as a result of the unusually excellent pasture situation during the midseason and early autumn, the rate of milk production per cow in 1951 approximately equalled or slightly exceeded the 1950 record of 5,292 lb. The number of milk cows at the end of 1951 was expected to approximate the 22,660,000 on farms at the beginning of the year, a slight decline compared with the more than 22,700,000 in the two preceding years and 12% less than the peak number of the middle 1940s.

Particularly at a time when demand for all dairy products, except butter, was relatively strong, this apparent stability of the dairy industry at a level only about 17% above prewar was the cause of some concern, since all livestock products were 43% and all agricultural production was 41% above prewar levels. Costs of production were expected to be somewhat higher in 1952 and feed supplies somewhat less abundant and more costly. Nevertheless, the official production goals of the U.S. department of agriculture for 1952 emphasized the desirability of maintaining production at least as high as 120,000,000,000 lb.

The market prices of milk and its products in 1951 averaged moderately above the maximum support level of 90% parity. Prices strengthened more than seasonally late in the year; in December the price index for dairy products was 3% higher than a month earlier and 15% higher than a year before. Prices received by producers for milk sold to plants and dealers averaged $5.22 per 100 lb.—68 cents more than in Dec. 1950.

The trend toward use of fresh milk rather than its products continued in 1951. Consumption of fluid milk and cream was about 395 lb. per capita for civilians in 1951, 3% more than in 1950 and 16% above prewar levels, in spite of somewhat higher prices in most urban markets than in 1950.

U.S. cheese per capita consumption in 1951 was estimated at 7.5 lb.—the same as in 1950 but 36% above prewar. Stocks of cheese, which were at record levels in 1950, were much reduced in 1951 and the price moved up about one-sixth. Imports of 56,200,000 lb. of cheese in 1950–51 slightly exceeded exports.

Consumption of evaporated milk in 1950 was steady at about 17 lb. per person, compared with a record high of 18.3 lb. in 1948. Production in 1951 was heavy in anticipation of large military demand; hence stocks at year-end were heavy.

The ice cream per capita consumption in 1951, which depends much on income, was estimated at not less than 40 lb. (net milk-use basis). This was far below the 56 lb. of 1946 and far above the prewar average of 23.7 lb.

Milk Production in Principal Producing Countries

(In millions of pounds)

Country	1950	1949	Average 1934–38
United States	123,381	122,071	105,416
France	34,079	30,671	33,000
United Kingdom	23,103	21,506	18,424
Canada	16,437	16,843	15,789
Australia	12,966	12,968	11,780
Netherlands	12,754	11,610	11,180
Denmark	11,931	10,789	11,684
Sweden	10,798	10,245	10,238
New Zealand	10,403	10,135	10,176

Dry milk consumption increased as more people learned how to use it. Nevertheless, consumption was still small, only 3.4 lb. of nonfat dry milk solids per person in 1951; dry whole milk consumption was about one-half pound per person. Exports of the dry skim were heavy as the Commodity Credit corporation disposed of its large holdings; about 331,100,000 lb. were exported in 1950–51.

Butter production declined further in 1951; and though it still exceeded margarine in total use, the gap was narrowing rapidly. Butter production and consumption declined from 1,666,000,000 lb. or 10.8 lb. per person in 1950, to 1,500,000,000 lb. and only 9.7 lb. per person in 1951; margarine meanwhile increased from 937,000,000 lb. (6.1 lb. per person) in 1950 to perhaps 1,050,000,000 lb., or 6.7 lb. per person in 1951. Stocks of butter were sharply reduced after the latter half of 1950 and further decline in consumption was anticipated.

In August import quotas were put on cheese and casein under the provisions of the Defense Production act, as amended, which required the imposition of import controls on certain commodities if their unrestricted importation would impair or reduce domestic production, interfere with orderly domestic storing and marketing or result in an unnecessary burden or expenditure under a government price support program. Under the act, imports of butter, butter oil and nonfat dry milk solids were prohibited.

Milk production in practically every major producing country was increasing. Despite generally increased fluid milk consumption and an increase in processed milk, butter and cheese production also increased. Butter output, excluding ghee, was estimated at 5,590,000,000 lb. in the major producing countries in 1950, 220,000,000 lb. more than in the previous year. Ghee production in addition was approximately 2,400,000,000 lb. Cheese production in 1950 appeared to be about 7% more than in 1949 and 30% above the prewar level. (J. K. R.)

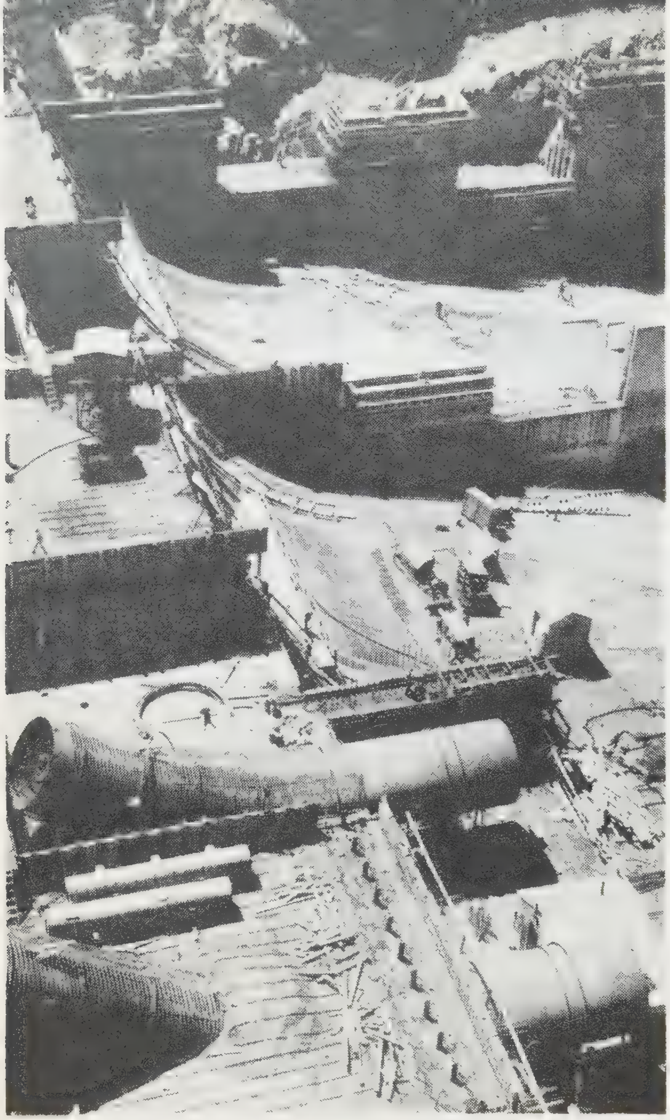
Dakar: *see* FRENCH WEST AFRICA.

Dams.

Emphasis on the development of water resources by governments throughout the world continued to expand dam construction during 1951.

Activity in the United States was highlighted by progress on the tremendous multipurpose dams in the Columbia and Missouri river basins. At Hungry Horse dam, the world's fourth largest concrete dam, construction was proceeding ahead of schedule. The 2,000,000th yard of concrete was placed on Aug. 29, 1951, with the dam at more than two-thirds of its ultimate height, and by early October storage of water had commenced. On the main stem of the Columbia river, high water in January stopped construction of the cofferdam and practically all other work at Chief Joseph dam, but by the end of 1951 concrete was being placed at a rate of more than 3,000 cu.yd. per day. Downstream, at McNary dam, construction was also delayed by flooding and damaging of the cofferdam.

Garrison and Fort Randall dams, on the Missouri river, were 50% complete in 1951. Construction of the 35-ft.-diameter bore of the power tunnels at Garrison dam proceeded at a rate of 24 ft. per day. Downstream, at Oahe dam, more than 2,200,000 cu.yd. of fill was completed in 1951, and placing was continuing at a rate of 30,000 cu.yd. per day.



AIR VIEW of the all-concrete Canyon Ferry dam under construction in 1951 on the Missouri river 18 mi. E. of Helena, Mont.

Construction of dams in Europe was highlighted by the efforts in France to replace and supplement the power-generating facilities destroyed during World War II. On the Dordogne river, work was under way in 1951 on Bort-les-Orgues and Chastang concrete arch gravity dams, 394 ft. and 280 ft. high, respectively. The former would contain 900,000 cu.yd. of concrete and would be the largest in France. A unique method of construction of the dam was the use of precast concrete panel sections as forms for the concrete, to be left in place as the permanent facing of the dam. Both dams would have unique spillways discharging into mid-air over the roof of the powerhouse, known as the *saut de ski* or ski-jump type. Dispersion of the water as it mixes with the air destroys some of the energy of the falling water and reduces the erosion of the stream bed.

At Tignes dam, on the Isère river, 600,000 cu.yd. of concrete were in place at the end of 1951. A concrete arch dam, being built by Electricité de France, it would, when completed, be Europe's highest dam, 592 ft. high.

In Turkey, at the 360-ft.-high Sariyar dam on the Sakarya river, construction of access roads was completed during 1951, and work was under way on the cofferdams and the diversion and power tunnel.

An extensive program in India for development of irrigation and hydroelectric power was further aided in 1951 by a third loan from the International Bank for Reconstruction and Development for work on dams under construction in the Damodar river valley in Bihar. This included the Konar dam on the Konar river, a 160-ft.-high earthfill dam 12,600 ft. long, and the Tiluiya dam on the Baraker river, a 112-ft.-high, 1,150-ft.-long concrete gravity dam. On the Mâhanadi river in Orissa, construction was under way in 1951 on the Hirakud dam, a 180-ft.-high earthfill and concrete gravity dam. In addition to the 11,000-ft.-long earthfill and 4,700-ft.-long concrete sections, approximately 17 mi. of earth dikes would be required to contain the 6,000,000-ac.-ft. reservoir. At Tungabhadra dam, on a tributary of the Kistna river, 25% of the 1,900,000 cu.yd. of stone masonry for the 130-ft.-high, 6,000-ft.-long dam was complete in 1951, with construction proceeding at the rate of 1,000 cu.yd. per day.

The accompanying table lists 15 of the important dams of the world under construction during 1951. (*See* also AQUEDUCTS; IRRIGATION; TENNESSEE VALLEY AUTHORITY.) (B. O. M.)

Dance.

Ballet.—The year 1951 was marked by enormous productivity in the dance field. Ballet companies concentrated on the creation of new works rather than on extensive touring. Nevertheless there was a healthy exchange of artists between countries.

United States.—The New York City Ballet made its Chicago debut and danced for 15 weeks in New York, presenting nine new ballets. George Balanchine choreographed *La Valse, Capriccio brillant, Tyl Ulenspiegel* and *À la Françaix,* with music by Maurice Ravel, Felix Mendelssohn, Richard Strauss and Jean Françaix, respectively. *Lady of the Camellias* had choreography by Antony Tudor and music by Giuseppe Verdi. Jerome Robbins choreographed *The Cage* and *The Pied Piper,* with music by Igor Stravinsky and Aaron Copland. *The Miraculous Mandarin* had music by Béla Bartók and choreography by Todd Bolender, and *Cakewalk* had music by Louis Moreau Gottshalk and choreography by Ruthanna Boris. A new version of Peter Tschaikovsky's *Swan Lake* was arranged by Balanchine, whose *Pas de trois*

Chief Dams Completed or Under Construction During 1951

Name of Dam	River	Place	Type	Maximum Height, Ft.	Crest Length, Ft.	Volume (Cu.yd.)	Purpose*	Built by	Progress†
Alvaro Obregón (Oviachic)	Yaqui	Sonora, Mexico	Earthfill	187	—	11,143,300	I	Secretaria de Recurcos Hidraulicos	U
Bull Shoals	White	Arkansas, U.S.	Concrete gravity	283	2,256	2,100,000	F,P	U.S. army engineers	U
Castelo-do-Bode	Zezere	Portugal	Concrete arch	377	—	523,000	P	Hidro Electrica do Zezere Society	C
Claerwen	Elan	Wales	Concrete curved gravity	182	1,066	—	W	City of Birmingham	C
Fort Randall	Missouri	South Dakota, U.S.	Earthfill	160	10,000	30,000,000	F,N,P,W	U.S. army engineers	U
Gal Oya	Gal Oya	Ceylon	Earthfill	154	4,000	6,000,000	I,P	———	U
Garrison	Missouri	North Dakota, U.S.	Earthfill	210	12,000	68,511,000	I,F,N,P	U.S. army engineers	U
Hungry Horse	Flathead, S. Fork	Montana, U.S.	Concrete arch gravity	564	2,115	3,331,000	I,F,P	U.S. bureau of reclamation	U
Limberg	Salzach	Salzburg, Aus.	Concrete arch	394	1,024	—	P	———	C
Merriman	Rondout	New York, U.S.	Earthfill	200	2,500	6,600,000	W	N.Y. board of water supply	U
Oahe	Missouri	South Dakota, U.S.	Earthfill	230	9,300	78,000,000	F,I,N,P	U.S. army engineers	U
St. Mary	St. Mary	Alberta, Canada	Earthfill	191	2,536	4,500,000	I	Prairie Farm Rehabilitation administration	U
San Angelo	North Concho	Texas, U.S.	Earthfill	128	37,540	18,000,000	F	U.S. army engineers	C
Whitney	Brazos	Texas, U.S.	Earthfill and concrete gravity	167	19,600	—	F,P	U.S. army engineers	C
Wolf Creek	Cumberland	Kentucky, U.S.	Earthfill and concrete gravity	240	5,736	9,000,000 (earth) 1,400,000 (concrete)	F,P	U.S. army engineers	C

*F—flood control, I—irrigation, N—navigation, P—power, W—water supply. †C—completed in 1951, U—under construction.

and *Apollo* were also given. *The Card Party, The Fairy's Kiss, Concerto barocco* and *The Four Temperaments* were revived. Tudor restaged his *Lilac Garden* for this company, and danced in it. Nora Kaye and André Eglevsky joined the company, which was headed by Maria Tallchief, Tanaquil LeClerq, Janet Reed, Melissa Hayden, Patricia Wilde, Diana Adams, Herbert Bliss, Francisco Moncion, Hugh Laing and Nicolas Magallanes.

Ballet Theatre toured the United States and South America, and danced for six weeks at the Metropolitan Opera house, New York city. Jean Babilée and Nathalie Philippart made American debuts as guest artists, dancing *Le Jeune homme et la mort* and *L'Amour et son amour*. The company produced *The Thief Who Loved a Ghost,* choreography by Herbert Ross, music by Carl Maria von Weber; *Ensayos sinfonicos,* choreography by Alicia Alonso, music by Johannes Brahms; *Tropical Pas de Deux,* choreography by Enrique Martinez, music by Amadeo Roldan; and *Schumann Concerto,* choreography by Bronislava Nijinska, music by Robert Schumann. Roland Petit's *Les Demoiselles de la nuit* and Babilée's *Till Eulenspiegel* were given for the first time in America. *Princess Aurora* and *Bluebeard* were revived. Principal dancers were Alonso, Igor Youskevitch, Mary Ellen Moylan and John Kriza. Guest artists included Agnes de Mille, Colette Marchand and Carmelita Maracci, who danced in her own work, *Circo de Espana*. Nora Kaye left Ballet Theatre after 11 years with this company; Erik Bruhn rejoined it. Ballet Theatre opened its own school in New York.

Ballet Russe de Monte Carlo toured the United States. Alexandra Danilova and Frederic Franklin made limited appearances, while leading dancers were Yvonne Chouteau, Nina Novak, Gertrude Tyven, Oleg Tupine and Roman Jasinsky. Guest artists included Mia Slavenska and (in Chicago only) Léonide Massine, who revived his *Capriccio espagnol*. Lupe Serrano and Victor Moreno joined the company.

Zachary Solov was appointed ballet director at the Metropolitan Opera, with Janet Collins (first Negro artist to be engaged by the Metropolitan) and Maria Karnilova as *premières danseuses*. Choreographers for the New York City Opera were Charles Weidman, Sophie Maslow and Grant Mouradoff.

José Greco and his Spanish Ballet enjoyed a long season in New York, where concert appearances were made by Ruth St. Denis, Ted Shawn, Uday Shankar, Merce Cunningham, Jean Erdman, Leticia Jay, Eleanor King, Sybil Shearer and others. Experimental groups active in New York included Theatre Dance, New York Ballet club and Choreographer's workshop, which also appeared in Bermuda.

The Jacob's Pillow Dance festival, directed by Ted Shawn, presented two new ballets by Tudor, *Les Mains gauches* and *Ronde de printemps,* and revived his *Dark Elegies*. Other new works included *The Song of Songs,* choreographed by Shawn, *Along Appointed Sands,* choreographed by Myra Kinch, and ballets by Kate Forbes, Marc Hertsens and Tilda Morse. Soloists at the festival included Diana Adams, Ronne Aul, Herbert Bliss, Jean Leon Destiné, Grace and Kurt Graff, Melissa Hayden, Nora Kaye, Iva Kitchell, Hugh Laing, José Limòn, Annabelle Lyon, La Meri, Lillian Moore, Ted Shawn, Ruth St. Denis and Maria Tallchief.

The American Dance festival at Connecticut college, New London, produced new works by William Bales, Doris Humphrey, Pauline Koner, Limòn, Maslow and Weidman. Martha Graham lectured and taught. The Louisville Philharmonic Symphony commissioned a new solo work, *Joan of Arc,* by Graham, with music by Norman Dello Joio. A new department of dance, directed by Martha Hill, was established at Juilliard School of Music, New York.

Harold Lang, Janet Collins and Jerome Robbins received Donaldson awards for dancing and choreography in musical comedy, while the Antoinette Perry award went to Michael Kidd, and the Capezio award to Zachary Solov.

RECITAL by members of the dance group of Karamu House, a Negro art centre in Cleveland, O.

In October Sadler's Wells Theatre Ballet began its first American tour. Ana Maria, Iva Kitchell, Lillian Moore, Marina Svetlova and Slavenska's Ballet Variant made extensive tours.

In Chicago, the Page-Stone-Camryn Ballet produced *Revenge,* with choreography by Ruth Page and music by Verdi. New works by Walter Camryn were *Thunder in the Hills* and *Alice in Wonderland,* while Bentley Stone choreographed *Les Enfants perdus*. The Chicago Ballet guild produced works by Charles Bockman and Etta Buro.

The San Francisco Ballet produced *Le Gourmand,* choreographed by Lew Christensen, and *Les Maîtresses de Lord Byron,* choreographed by William Christensen. In Los Angeles, Lester Horton reopened his Dance theatre. The Concert Ballet was organized by Lasar Galpern. Michel Panaieff's Ballet Intime toured the Pacific northwest. Roland Petit's Ballets de Paris disbanded in Hollywood. Experimental groups were active throughout the country.

England.—The Festival of Britain was marked by intensive activity in ballet. In January the Sadler's Wells Ballet returned to London after completing its second American tour. Two new works choreographed by Frederick Ashton were produced, *Daphnis and Chloe,* with Maurice Ravel's music, and *Tiresias,* music by Constant Lambert. Massine choreographed *Donald of the Burthens,* with music by Ian Whyte. Leading dancers were Margot Fonteyn (inactive for several months, because of a strained foot), Moira Shearer, Beryl Grey, Violetta Elvin, Michael Somes, Alexis Rassine and Alexander Grant. Nadia Nerina was promoted to the rank of ballerina. Fonteyn was awarded the title of Commander of the British Empire. Ninette de Valois, director of the company, lectured in Yugoslavia, Greece and Turkey.

The Sadler's Wells Theatre Ballet produced two ballets by John Cranko, *Pineapple Poll,* with music by Sir Arthur Sullivan, and *Harlequin in April,* music by Richard Arnell. De Valois' *The Prospect before Us* was revived, and there were new productions of *Coppélia* and *The Nutcracker*. Headed by Elaine Fifield, Svetlana Beriosova, David Blair, Patricia Miller and Maryon Lane, the company began its first U.S. tour.

Ballet Rambert celebrated its 25th anniversary, producing two new works by David Paltenghi, *Canterbury Prologue* and *Fate's Revenge.*

Festival Ballet, headed by Alicia Markova and Anton Dolin, appeared in London and Monte Carlo, and toured England. *Impressions,* choreographed by David Lichine to music by Georges Bizet, was presented. Guest artists included Danilova, Slavenska and Tatiana Riabouchinska.

Mona Inglesby, director of International Ballet, returned to the stage after a long illness. *For Love or Money,* a new work by Harcourt Algeranoff, was presented, and Massine staged his *Capriccio espagnol.*

Ballet workshop was founded in London by Angela and David Ellis, and presented experimental works by many young choreographers.

The Original Ballet Russe, reorganized after the death of its founder, Col. Wassily de Basil, on July 27, toured England. The Marquis de Cuevas' Grand Ballet, the Ballet des Champs Elysées, the Ny Norsk Ballet and the Swedish Ballet appeared in London, as well as Paul Draper, Angna Enters, José Greco, Pilar Lopez, Pearl Primus and Rosario and Antonio. The Ambassador Ballet toured England and Ireland. The Yugoslav National Ballet danced at the Edinburgh festival.

Cyril W. Beaumont and Arnold Haskell received the French Legion of Honour, in recognition of their services to ballet.

France.—The Paris Opera Ballet produced two new works choreographed by its director, Serge Lifar: *L'Astrologue,* with music by Henri Barraud, and *Snow White,* which had music by Maurice Yvain and a cast headed by Liane Daydé, Nina Vyroubova, Jean-Paul Andreani and Lifar. *Schéhérazade* was revived, with Alexander Kalioujny. Tamara Toumanova appeared as guest artist, dancing *Giselle, Swan Lake* and *Phèdre.*

At the Opéra Comique, Massine revived *The Good Humored Ladies,* and produced *Le Bal du Pont Nord.* Jean-Jacques Etcheverry choreographed *Le Chanson du mal aimé* and *Commedia dell'arte.*

The Marquis de Cuevas' Grand Ballet danced in Paris and London, and toured France. Massine choreographed *Symphonie allégorique,* with music by Henri Sauguet. George Skibine arranged *Annabel Lee* and *The Prisoner of the Caucasus.* Two *pas de deux, Tarasiana* and *Raymonda's Dream,* were added to the repertoire. Rosella Hightower choreographed *Scaramouche.* Hightower, Skibine, Marjorie Tallchief, George Zoritch and George Golovine were principal dancers.

The Ballet des Champs Elysées was reorganized and presented Ruth Page's *Impromptu au bois,* with music by Jacques Ibert, and her *Revenge,* with settings by Antoni Clavé. Other new works were *Romanza romana,* with choreography by Frank Staff, music by Pierre Petit, and *La Damnée,* choreography by Walter Gore, music by Samuel Barber. Jacqueline Moreau, Paula Hinton, Sonia Arova and Leon Danielian were among the dancers appearing with this company in Paris, London and Africa.

Janine Charrat organized her own company. Her dance-drama *Abraham* was produced at the Toulouse festival. Among dancers touring Europe were Talley Beatty, Ram Gopal, Juana, Hima Besarcodi, Indra Kamadjojo, Mariemma, Teresa and Luisillo, Clotilde and Alexandre Sakharoff and Cilli Wang.

Australia.—The Australian National Ballet, directed by Joyce Graeme, toured Australia and New Zealand, presenting *Swan Lake, Corroboree, Aurora's Wedding* and other works. The Jubilee Ballet, directed by Edouard Borovansky, presented a large repertoire of classic and modern ballets in Sydney, Brisbane, Adelaide and Melbourne. The Ballet guild produced *Coppélia, Apollo* and works by its director, Laurel Martyn.

Austria.—*Homeric Symphony,* with choreography by Erika Hanka and music by Theodor Berger, was produced by the Vienna State Opera Ballet. Grete Wiesenthal resigned as director of dance at the Vienna academy, and was replaced by Toni Birkmayer. Rosalia Chladek presented *American Impressions* and *Rhapsody in Blue.*

Canada.—The Canadian National Ballet was founded in Toronto, with Celia Franca as artistic director and Irene Apine, David Adams, Lois Smith and Jury Gotshalks as principal dancers. It presented ballets by Adams, Franca and Kay Armstrong, as well as classical works.

The Winnipeg Ballet, directed by Gweneth Lloyd, appeared before Princess Elizabeth. Joy Camden joined this company as assistant ballet mistress. New ballets by Gweneth Lloyd and Arnold Spohr were produced.

Belgium.—Seven ballets were presented at the Dance festival held in Antwerp in February. Jacques Milliand replaced Caroly Zsedenyi as choreographer at the Antwerp Opera. Marthe Coeck was choreographer at the Theatre de la Monnaie, Brussels.

Germany.—The reorganized Jooss Ballet made its first appearances in Essen. New works included *Colombinade,* by Kurt Jooss, and *Fantaisie,* by Hans Zuellig. Leading dancers were Ulla Soederbaum, Noelle de Mosa, Rolf Alexander and Zuellig. An exchange of dancers was arranged with the Chilean Ballet, directed by Lola Botka and Ernst Uthoff.

Yvonne Georgi was engaged as director of the opera ballet in Düsseldorf. Angna Enters danced at the Berlin Arts festival.

Italy.—The Florence May Festival Ballet, directed by Aurel Milloss, with Yurek Shabelevsky as assistant, produced *Misteri, Tirsi e Clori* and *Don Giovanni,* with choreography by Milloss, and *Nocturne,* choreographed by Victor Gsovsky. Leading dancers were Babilée and Philippart, Yvette Chauviré, Toumanova, Moreau, Vladimir Skouratoff and Deryk Mendel. Galina Ulanova and Yuri Kondratov, of the Moscow Ballet, danced in concerts during the festival.

At La Scala, Milan, *The Legend of Joseph* was produced with choreography by Margarete Wallman, music by Richard Strauss, and Toumanova and Giulio Perugini in leading roles. Chauviré danced *Giselle.* Boris Romanoff was engaged as choreographer at the Rome Opera. At the Venice festival, Charrat choreographed *Orfeo,* with music by Roberto Lupi.

Mexico.—José Limòn and his company produced several new works at the Palacio de Bellas Artes, Mexico City. These included *The Four Suns,* with music by Carlos Chavez and settings by Miguel Covarrubias; *Dialogues;* and *Tonanzintla.* For the Ballet Mexicano, Limòn created *Antigona* and *Redes,* and Doris Humphrey revived her *Passacaglia.*

Netherlands.—The Ballet of the Low Countries and the Dutch Opera Ballet danced at the Holland festival, while Toumanova, Perugini, Ethery Pagava and others appeared in *Hommage à la danse classique.*

Scandinavia.—In June a ballet festival was given in Copenhagen, Den., by the Royal Danish Ballet, directed by Harald Lander. Leading dancers included Toni Lander, Gerda Karstens, Kirsten Ralov, Inge Sand, Erik Bruhn, Boerge Ralov and Frank Schaufuss. *Desire,* with choreography by Niels Bjoern Larsen and music by George Gershwin, was produced.

Boris Kniaseff and Janine Charrat staged ballets at the Stockholm Royal Opera.

South America.—Tatiana Leskova staged *Giselle, Coppélia* and other ballets in Rio de Janeiro. Nina Verchinina formed a ballet company under the auspices of the University of Cuyo, Mendoza, Arg. Tamara Grigorieva presented her first ballet, *Concerto coreografico,* in Montevideo, Urug. Ballet Theatre, Katherine Dunham, Iva Kitchell and Mrinalini Sarabhai toured South America. Ballet Alicia Alonso toured the Caribbean islands. Kaye and Eglevsky danced *Giselle* in Havana, Cu., with Ballet Alicia Alonso.

U.S.S.R.—Galina Ulanova and Olga Lepeshinskaya were awarded the title People's Artist of the U.S.S.R. in November. (Ln. M.)

Ballroom Dancing.—The major changes in ballroom dancing during 1951 affected the so-called Latin dances. The most noticeable development was the return of the tango. Experts attributed this sudden interest in the tango to various causes: to the motion picture *The Valentino Story,* to the Spanish trend in women's fashions and to the success of the tango hit tunes "I Get Ideas" and "Blue Tango."

Another outgrowth affected the rumba. This dance had already grown to international popularity second only to the ubiquitous fox trot. There was, however, a change in the style of the dance—musical compositions shifted from regular, measured beats to a syncopated form known as mambo. Step patterns to this tempo resemble a combination of rumba and jitterbug. An infinite variety of dance movements are adaptable to mambo and this awakened fresh interest and enthusiasm.

Samba, the Brazilian variation of the waltz, continued to flourish. It is the easiest of all the Latin dances to learn and execute. Further, its waltz-pattern steps appeal to both old and young people.

There were no dance crazes or unusual novelties during the year. The Charleston, a famed and frenzied revival during 1950, died out. The year 1951 was merely an average year for ballroom dancing.

Films of 1951.—*Reflections #11* (A. F. Films, Inc.); *Roads to Hell, "She" and Moon Dance* (Thomas Bouchard). (A. Mu.)

Dates: *see* Fruit.
Daughters of the American Revolution, National Society of: *see* Societies and Associations, U.S.
DDT: *see* Agricultural Research Administration; Malaria.
Deafness: *see* Hearing.
Deaths (of prominent persons in 1951): *see* Obituaries.

Death Statistics. Despite an outbreak of respiratory disease in the early months of the year, the death rate for the United States during the first nine months of 1951 was only 1% above that for the same period of 1950. There were altogether 1,456,000 deaths during the entire year 1950, and the death rate was 9.6 per 1,000 population. Canada also experienced an increase in mortality from 1950 to 1951, according to data covering the first seven months of both years. The Canadian mortality record for all of 1950 showed 123,649 deaths and a death rate of 8.9 per 1,000 population. Largely as a result of a particularly severe epidemic of respiratory disease in England and Wales during the winter of 1950–51, the urban death record in that country for the first ten months of 1951 was 13% above that for the corresponding period of 1950. For the whole of 1950, England and Wales recorded 510,274 deaths, and a death rate of 11.6 per 1,000 population. In 1950 the European populations of New Zealand and the Union of South Africa had death rates of 9.3 and 9.1 per 1,000 respectively. The 1950 figure for Australia was 9.6 per 1,000. Among the European countries, the Netherlands had a rate in 1950 of only 7.5, Norway 8.9, Sweden 10.0, Switzerland 10.1, Denmark 9.2, Finland 10.1, Italy 9.8 and western Germany 10.4. However, these rates are not strictly comparable since they do not take into account the different proportions of aged persons in these countries.

According to the mortality records of the industrial policyholders of the Metropolitan Life Insurance company for the first ten months of 1951, compared with the same period of 1950, there were decreases in the death rates for tuberculosis, the principal communicable diseases of childhood, syphilis, general arteriosclerosis, acute poliomyelitis, appendicitis, the complications of pregnancy and childbirth, suicide and homicide. There were either slight increases or no changes for diabetes, ulcers of the stomach and duodenum, cirrhosis of the liver and accidents. More marked increases were recorded for pneumonia and influenza, cancer and the cardiovascular-renal diseases.

The death rates for the leading causes per 100,000 population in the United States in 1950 were: diseases of the cardiovascular system, 492.7; malignant neoplasms (principally cancer), 139.6; pneumonia and influenza, 31.1; tuberculosis, 22.2; chronic nephritis, 16.9; diabetes mellitus, 16.6; congenital malformations, 12.2; suicide, 11.4; motor vehicle accidents, 22.2; all other accidents, 37.7. These death rates were provisional, being based on a 10% sample of the death certificates for 1950.

On the basis of mortality records for the general population of the United States in 1949, the latest year for which life tables were constructed as of the close of 1951, the average length of life was: 67.6 years for total persons; 65.9 years for white males; 71.5 years for white females; 58.6 years for nonwhite males; and 62.9 years for nonwhite females. For the total population, the gain since 1948 amounted to one-half year, and since 1939–41 to 4.0 years. England and Wales in 1949 had an average length of life of 66.0 years for males and 70.6 years for females. The corresponding figures for the Netherlands in 1947–49 were: males, 69.4 years; females, 71.5 years.

In order to gauge the room for improvement in longevity by the control of disease and accident, life tables for the United States in 1948 were prepared with certain causes of death eliminated. In this way it was found that the average length of life without the cardiovascular-renal diseases would be increased by 9.8 years for white males and 9.0 years for white females; without cancer, the respective gains were 1.8 and 2.5 years; without accidents, 1.8 and 0.8 years; without tuberculosis, 0.5 and 0.4 years; and without diabetes, 0.2 and 0.5 years. On the same basis, the chances per 1,000 of eventual death for white persons at birth were: cardiovascular-renal diseases—males 558, females 579; cancer (including leukaemia and Hodgkin's disease)—males 137, females 158; pneumonia and influenza—35 for each sex; tuberculosis—males 26, females 13; accidents

—males 69, females 52.

War casualties experienced by the United States forces in Korea from the beginning of hostilities to the report dated Nov. 21, 1951, came to: battle deaths, 16,972; missing, 10,871; wounded, 70,768; prisoners, 174; missing accounted for, 1,391.

It was shown, in a paper by L. I. Dublin before the American Public Health association in San Francisco, Calif., in Oct. 1951, that the advantage the United States has in low mortality in youth and early maturity, when compared with other advanced countries, is lost at the higher ages. In this international comparison the accident record at the older ages was found to be particularly bad for both males and females after 45 years of age. The older white males in the United States also had exceptionally high death rates from the cardiovascular-renal diseases, whereas the record for white females was about the average for the other countries in the comparison. In explanation of the relatively poor showing of the United States at the higher ages, it was suggested that, with the high quality of medical care available, large numbers are brought into midlife with organic impairments resulting from infections in earlier years. In other countries, such persons might have succumbed before midlife. With the probability of a higher proportion of such disabled lives in the United States at the older ages, the mortality rates would thus tend to be high. It was also suggested that this high mortality might reflect the large proportion of obese persons in the United States at the older ages, a consequence of an abundant food supply. (*See* also ACCIDENT PREVENTION; CENSUS DATA, U.S.; DISASTERS; INFANT MORTALITY; SUICIDE STATISTICS.)

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Debt, National.

The national debt of the United States at the end of fiscal year 1951 amounted to $255,222,000,000. (*See* Table I.) In his budget message of Jan. 21, 1952, Pres. Harry S. Truman estimated that, as a reflection of budget deficits calculated in terms of existing revenue legislation, the national debt would be increased to $260,000,000,000 by June 30, 1952, and to the statutory limit of $275,000,000,000 by June 30, 1953.

Table I.—*National Debt of the United States*

June 30	(Millions of dollars)	June 30	(Millions of dollars)
1915	1,191	1944	201,003
1920	24,298	1945	258,682
1925	20,516	1946	269,422
1930	16,185	1947	258,286
1935	28,701	1948	252,292
1940	42,971	1949	252,770
1941	48,961	1950	257,357
1942	72,422	1951	255,222
1943	136,696	1952	260,000

Source: Data from 1915 to 1951 are from U.S. Department of the Treasury, daily treasury statement (revised); 1952 is estimate from President Truman's Jan. 1952 budget message.

The prospective sharp rise in the public debt during fiscal years 1952 and 1953 followed a substantial reduction in debt during the 1946–48 period and an irregular, moderate increase over the 1949–51 period. The public debt as of June 30, 1951, was about $24,000,000,000 below the peak total of $279,214,000,000 reached at the end of Feb. 1946.

Table II.—*Decrease in Marketable Interest-Bearing Public Debt**

(Millions of dollars)

	1946 Jan. 1– Dec. 31	1947 Jan. 1– Dec. 31	1948 Jan. 1– Dec. 31	1949 Jan. 1– Dec. 31	1950 Jan. 1– Dec. 31	1951 Jan. 1– Dec. 31
Treasury bills	−1	1,897	2,912	−95	−1,308	−4,475
Certificates of indebtedness	11,426	8,767	−5,305	−3,111	24,263	−23,705
Treasury notes	9,461	−1,284	4,244	−1,118	−31,009	20,849
Treasury bonds—bank restricted	3,791	0	0	0	0	13,589
Treasury bonds—bank eligible	−1,479	1,460	6,423	6,682	10,723	3,500
Postal savings and other bonds	−1	14	1	2	3	6
Total marketable interest-bearing public debt	23,197	10,854	8,276	2,359	2,673	9,765

*Negative figures denote increases.
Detail will not necessarily add to totals because of rounding.
Source: U.S. Department of the Treasury.

The postwar debt-retirement program of the U.S. treasury involved a steady and sizable reduction in marketable interest-bearing securities. From Jan. 1946 through Dec. 1951 the gross reduction in such securities amounted to $57,124,000,000. (*See* Table II.)

Table III furnishes data on the sources of funds for the reduction in the marketable interest-bearing public debt. The funds used to retire aggregate maturities of $23,197,000,000 during the last ten months of 1946 were obtained chiefly from the general fund cash balance accumulated by the Victory Loan drive. In the period 1947–51 funds for reducing the marketable public debt were derived mainly from the growth in nonmarketable issues. This was supplemented by budget surpluses in 1947 and 1948 and partly offset by budget deficits in 1949 and 1951. The portion of the total public debt constituted by marketable interest-bearing obligations declined from 72% in March 1946 to 55% at the end of 1951.

Table III.—*Sources of Funds for Reduction in Marketable Interest-Bearing Public Debt*

(Millions of dollars)

	1946 Mar. 1– Dec. 31	1947 Jan. 1– Dec. 31	1948 Jan. 1– Dec. 31	1949 Jan. 1– Dec. 31	1950 Jan. 1– Dec. 31	1951 Jan. 1– Dec.31
1. Reduction in general fund balance	22,459	405	−1,111	−471	447	−62
2. Net budgetary surplus	−1,714	2,434	5,440	−3,358	−335	−3,464
3. Net receipts in trust accounts, etc.*	−681	−590	229	−502	312	815
4. Increase in nonmarketable public debt	3,132	8,605	4,177	6,689	2,249	12,476
Savings bonds	1,084	2,312	2,998	1,655	1,312	−432
Special issues	3,688	4,370	2,759	2,182	−189	2,195
Other debt	−1,640	1,923	−1,580	2,852	1,126	10,713
5. Decrease in interest-bearing marketable public debt (1, 2, 3, 4)	23,197	10,854	8,276	2,359	2,673	9,765
6. Net decrease in total public debt (5, 4)	20,065	2,249	4,100	−4,331	424	−2.711

*Includes transactions of Foreign Economic Cooperation Trust fund, 1948–49.
Detail will not necessarily add to totals because of rounding.
Source: U.S. Department of the Treasury.

The significance of federal debt management in 1951 can best be viewed against the background of previous management operations. The maintenance of order and stability in the government bond market—a policy initiated in the pre-World War II period—was a primary objective of the debt management program in the war and postwar periods. In line with this objective, the prewar structure of interest rates was maintained with only minor variation during the war, permitting the authorities to finance cheaply the huge requirements of war finance.

In the postwar period the stabilization of the government bond market, a joint treasury-federal reserve function, required different policies to meet changing conditions. Beginning in the spring of 1947, for example, several steps were taken to control an incipient boom in the government bond market. But in 1948, when a downward pressure on government bond prices developed, the federal reserve system supported the market through substantial purchases of government bonds from investment institutions and other nonbank holders seeking to acquire funds for lending. The prices of the longest-term issues were stabilized at slightly above par.

While pursuing the broad policy of stabilizing the market for government securities, treasury and federal reserve authorities adopted numerous measures designed to combat postwar inflation. Among them may be noted: (1) the substantial reduction effected in bank ownership of federal securities; (2) active promotion of the sale of savings bonds; (3) permitting interest rates to rise on short-term government securities from mid-1947 until the fall of 1948; and (4) raising by approximately $3,000,000,000 in 1948 the amount of reserves required to be held by member banks to prevent the additional reserves created by federal reserve support purchases from becoming the basis for multiple credit expansion.

In 1949, with the abatement of inflationary pressures and moderate downturn of business activity, the board of governors of the federal reserve system on three occasions reduced the reserve requirements of member banks in order to make credit more freely available. The strong bank demand stemming from these reductions resulted in sharp increases in the prices of government securities. To maintain orderly conditions in the money markets, the federal reserve sold short-term securities in considerable volume; but it discontinued the practice of freely selling government bonds. This compromise policy moderated the decline in yields on short-term government securities but permitted market forces to depress sharply the yields on medium and long-term government securities, thereby encouraging investors to seek municipal and corporate securities and mortgage loans as outlets for their funds.

After the outbreak of war in Korea in mid-1950, several steps were taken to restrict credit expansion without disturbing the stability of the government bond market. These included intensifying the drive to shift debt holding to nonbank investors; raising the federal reserve discount rates; and, in Jan. 1951, increasing the reserve requirements of member banks substantially to their upper legal limits. Nevertheless, in this period the total demand for long-term credit considerably exceeded the supply of funds becoming available from new savings and repayment of outstanding loans. Insurance companies and banks sold government bonds in heavy volume in order to meet this surplus demand, and the federal reserve system purchased the excess not bought by private investors so as to prevent declines in government bond prices. Such support purchases by the system increased both the money supply and the reserves available to banks for expanding credit.

The treasury-federal reserve agreement reached in March 1951 marked a major shift in debt management (and monetary) policy. In its government security transactions, the federal reserve system began placing greater emphasis on the supply and availability of bank reserves and less emphasis on maintaining fixed prices of government bonds. The system restricted its purchases of government securities and thereby reduced the supply of reserves made available to the banks. The prices of government securities were permitted to decline with market evaluations, and several of the long-term issues fell below par. Banks and other investors became less willing to convert their government securities at a market loss. The federal reserve regained considerable control over the availability of bank reserves, and a firmer money market and gradual rise in interest rates consequently developed.

Also in accordance with the March 1951 agreement, the treasury acted to immobilize part of the publicly held debt. It offered in exchange for the two longest-term 2½% bonds an issue of nonmarketable bonds with a longer term and higher interest coupon. The purpose of the offering was to encourage long-term investors such as insurance companies to retain their government securities, and thereby to minimize monetization of the public debt. Of the total of $19,700,000,000 of 2½% bonds covered by the exchange offer, $13,600,000,000 was converted.

Table IV.—*Estimated Ownership of Federal Securities—Public Debt and Guaranteed Securities*

(Billions of dollars)

	Feb. 1946	Dec. 1947	Dec. 1948	Dec. 1949	Dec. 1950	Sept. 1951
Total federal securities outstanding . . .	279.8	257.0	252.9	257.2	256.7	257.4
Total held by banks	116.7	91.3	85.8	85.7	82.6	83.1
Commercial banks	93.8	68.7	62.5	66.8	61.8	59.4
Federal reserve banks	22.9	22.6	23.3	18.9	20.8	23.7
Total held by nonbank investors	163.1	165.7	167.1	171.5	174.1	174.3
Individuals	63.9	65.5	65.6	66.5	67.0	66.2
Insurance companies	24.4	23.9	21.2	20.1	18.6	16.7
Mutual savings banks	11.1	12.0	11.5	11.4	10.9	10.1
Other corporations	19.9	14.1	14.3	16.3	19.9	20.1
State and local governments	6.7	7.3	7.9	8.0	7.8	8.0
U.S. government investment accounts .	28.0	34.4	37.3	39.4	39.2	42.0
Miscellaneous investors.	9.1	8.6	9.3	9.8	10.7	11.3

Detail will not necessarily add to totals because of rounding.
Source: U.S. Department of the Treasury.

Table V.—*Debt of State and Local Governments, U.S.*

(Millions of dollars)

June 30	Total	State	County	City and township	School district and special district
1929	17,234	2,300	2,270	9,259	3,405
1933	19,985	3,018	2,521	10,577	3,869
1937	19,594	3,276	2,345	10,067	3,906
1940	20,246	3,526	2,156	10,189	4,375
1941	20,226	3,413	2,046	10,210	4,557
1942	19,690	3,211	1,846	10,079	4,554
1943	18,692	2,909	1,634	9,784	4,365
1944	17,471	2,768	1,694	8,826	4,183
1945	16,589	2,425	1,545	8,589	4,030
1946	15,922	2,358	1,417	8,267	3,880
1947	16,825	2,978	1,481	8,275	4,091
1948	18,702	3,722	1,408	9,135	4,437
1949	20,875	4,024	1,603	9,806	5,442
1950	24,191	5,361	1,707	11,247	5,876
1951	27,040	6,373	1,875	12,132	6,660

Source: U.S. Department of Commerce.

Debt operations in the postwar period effected a striking redistribution in public debt ownership. (*See* Table IV.) The public debt and guaranteed securities held by banks declined from 43% of the total in Feb. 1946 to 32% in Sept. 1951.

In President Truman's Jan. 1952 budget message, it was estimated that total payments of interest on the public debt in fiscal 1953 would amount to $6,150,000,000—$300,000,000 higher than the estimate for fiscal 1952 and $535,000,000 higher than actual outlays in fiscal 1951. The projected rise in expenditures

Table VI.—*National Debt of Various Countries*

Country (Unit of currency) *	Total debt Date	(000,000's)	Total debt Date	(000,000's)
Argentina (peso)	12/31/39	5,242	12/31/48	18,072
Australia (pound-Aust.)	6/30/39	1,295	6/30/49	2,828
Austria (schilling)	12/31/37	3,495	12/31/49	10,986
Belgium (franc)	12/31/39	59,608	12/31/49	252,087
Bolivia (boliviano)	12/31/39	4,192	12/31/49	7,976
Brazil (cruzeiro)	12/31/39	12,535	12/31/46	37,953
Bulgaria (lev)	12/31/39	22,864	12/31/46	162,049
Burma (rupee)	9/30/40	574	9/30/50	936
Canada (dollar-Canadian). . . .	3/31/39	3,708	3/31/50	16,751
Chile (peso)	12/31/39	4,227	12/31/49	6,820
China (dollar-C.N.)	12/31/38	2,523	12/31/46	9,910
Colombia (peso)	12/31/39	182	12/31/49	513
Costa Rica (colón)	12/31/39	133	12/31/47	259
Cuba (peso).	2/28/39	229	6/30/44	180
Czechoslovakia (koruna).	12/31/39	38,449	12/31/46	108,758
Denmark (krone)	3/31/39	1,489	3/31/49	4,760
Dominican Republic (U.S. dollar). .	12/31/37	18	12/31/46	21
Ecuador (sucre)	12/31/39	78	12/31/46	224
Egypt (pound-Egyptian)	4/30/39	95	4/30/49	156
Finland (markka)	12/31/45	87,752	12/31/49	123,907
France (franc)	12/31/39	482,967	12/31/49	3,906,000
Germany (reichsmark).	3/31/39	30,847	9/30/44	323,615
Greece (drachma)	3/31/39	52,138	3/31/41	52,996
Guatemala (quetzal)	12/31/39	12	6/30/48	16
Haiti (gourde)	9/30/39	48	9/30/49	36
Honduras (lempira)	6/30/39	19	6/30/47	13
Hungary (pengö).	6/30/39	1,937	12/31/43	6,501
India (rupee)	3/31/39	12,064	3/31/50	26,990
Iran (rial).	3/20/40	2,111	3/20/49	6,768
Iraq (Iraqi dinar).	1/1/39	2	1/1/48	3
Ireland, Republic of (pound) . . .	3/31/39	61	3/31/49	101
Italy (lira)	6/30/39	145,795†	6/30/50	2,591,146†
Japan (yen).	3/31/39	17,921	3/31/50	517,919
Mexico (peso)	12/31/39	1,500	12/31/45	1,438
Netherlands (guilder)	12/31/39	4,218	12/31/47	21,586
New Zealand (pound).	3/31/39	304	3/31/49	615
Nicaragua (córdoba)	1/31/39	8	12/31/45	10
Norway (krone)	6/30/39	1,528	6/30/48	6,330
Panamá (balboa)	12/31/39	21	12/31/47	22
Paraguay (peso)	10/31/39	3,340	12/31/47	9,990
Peru (sol)	12/31/39	833	12/31/48	1,678
Poland (zloty)	3/31/39	5,318	9/30/47	29,380‡
Portugal (escudo).	12/31/39	7,192	12/31/48	10,232
Rumania (leu)	3/31/39	107,716§	3/31/42	94,697§
Salvador (colón)	12/31/39	38	12/31/47	38
Siam (baht)	3/31/39	73	3/31/46	166
Spain (peseta).	12/31/39	24,127	12/31/47	53,173
Sweden (krona)	6/30/39	2,634	6/30/49	11,861
Switzerland (franc)	12/31/39	3,101	12/31/49	9,397
Turkey (pound-Turkish)	5/31/39	619	5/31/48	2,037
Union of South Africa (pound-S.A.)	3/31/39	279	3/31/49	662
Union of Soviet Socialist Republics (rouble)	12/31/37	28,766†		
United Kingdom (pound).	3/31/39	8,301	3/31/49	25,332
United States of America (dollar) .	6/30/39	45,890‖	6/30/51	263,844‖
Uruguay (peso)	12/31/39	410	12/31/47	708
Venezuela (bolivar).	6/30/39	3	6/30/49	15

*For approximate value of various currencies see *Exchange Control and Exchange Rates.*
†Domestic debt only.
‡Not strictly comparable with the 1939 figure.
§Long-term domestic debt and foreign debt.
‖Includes guaranteed securities as well as public debt outstanding.
Source: United Nations, Department of Economic Affairs.

was attributed both to an increase in the size of the interest-bearing debt and to higher interest rates. It was noted, however, that, because of the lag between new borrowings and initial interest payments, the anticipated $20,000,000,000 rise in debt during fiscal years 1952 and 1953 would not be fully reflected in increased interest payments until the fiscal year 1954.

U.S. State and Local Government Debt.—From June 30, 1950, to June 30, 1951, the aggregate debt of state and local governments in the U.S. increased almost $3,000,000,000—from $24,191,000,000 to $27,040,000,000. (*See* Table V.) State and local debt in 1951 was 70% higher than in 1946 and 34% higher than in 1940. Rising revenues and restricted expenditures had enabled state and local governments to reduce their total debt from $20,246,000,000 in 1940 to $15,922,000,000 in 1946.

Other Countries.—In Table VI are presented data on the national debts of many countries of the world. Insofar as permitted by information available at the close of 1951, the data are shown for 1939 and for 1949 or 1950, affording a comparison of national debts before and after World War II. (*See* also BUDGET, NATIONAL.) (C. F. Sz.)

Defense, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Defense Mobilization Agencies, U.S.

The mobilization program in the United States came into being as a result of the unprovoked invasion of the Republic of Korea by North Korean armies—trained, equipped and inspired by the Soviet Union. That invasion began on June 25, 1950. On Sept. 8, 1950, the president signed the Defense Production Act of 1950, which laid the basis for the mobilization of the country's resources and the stabilization of its economy in the face of growing danger from aggressive nations.

The United States, in company with other countries of the United Nations, acted to repel the invaders in Korea and by Nov. 1950 the Communist armies of North Korea had been defeated and, for all practical purposes, destroyed.

However, the armies of Communist China then swept across the border and intervened in the Korean conflict. This action led the president of the United States on Dec. 16, 1950, to proclaim the existence of a national emergency. He said that "the increasing menace of the forces of Communist aggression requires that the national defense of the United States be strengthened as speedily as possible."

On that same day, the president, acting under authority of the Defense Production act, created the Office of Defense Mobilization (ODM). Its director was given authority "to direct, control and coordinate all mobilization activities of the Executive Branch of the Government, including but not limited to production, procurement, manpower, stabilization and transport activities."

As director of the Office of the Defense Mobilization the president named Charles E. Wilson, (*q.v.*), who thereupon resigned as president of the General Electric company. He had held a top post in the War Production board during World War II.

The Office of Defense Mobilization was a small organization which, administratively, was part of the executive office of the president. Consisting of Wilson and a few assistants, the ODM determined general policies to be followed in pursuing the two principal objectives of the mobilization program: (1) to gear United States industry for defense production and (2) to maintain the stability of the nation's economy.

ODM was strictly a policy-making, directing and co-ordinating group, as distinguished from an operating agency. It set the policies and saw that they were carried out; other agencies actually carried out those policies.

Set up at approximately the same time that ODM was created was an advisory group called the Defense Mobilization board. This board consisted of all the cabinet officers except the postmaster and the attorney general. It also included the chairmen of the Reconstruction Finance corporation, the national security resources board and the board of governors of the federal reserve system, and also the administrators of the Defense Production administration and the Economic Stabilization agency. The chairman of this group was the director of ODM.

The composition of this board reflected ODM's purpose to avoid the creation of a new and massive bureaucracy and to rely instead so far as possible upon existing departments and agencies of government.

Still another advisory group existed in the mobilization pattern, although this group was advisory to the president, not to ODM. This was the National Advisory Board on Mobilization Policy, established by the president on March 15, 1951. It was composed of the director of defense mobilization as chairman, and 16 other members appointed by the president. All these members represented the public, but the president's order specified that four should have had experience in business management, four in matters relating to labour and four in matters relating to agriculture. The board's function was to advise the president with respect to all phases of the mobilization program.

To supervise the field of production—one of the two main wings of the mobilization program—the president established the Defense Production administration (DPA). Manly Fleischmann, a lawyer of Buffalo, N.Y., was named the head of this agency.

DPA co-ordinated the operations of the several government agencies having defense production responsibilities. This included priorities and allocation of scarce materials both for defense and nondefense production purposes; also procurement, contracting and construction, as well as the conversion, requisitioning or expansion of production facilities and the financing thereof.

The DPA operated through the National Production authority of the department of commerce; it also operated through the departments of labour, interior and agriculture, and the Defense Transport administration, board of governors of the federal reserve system, Reconstruction Finance corporation, General Services administration and Housing and Home Finance agency.

Either all or part of the aforementioned agencies had some responsibility in the production end of the mobilization program.

To co-ordinate efforts in the field of economic stabilization the president created the Economic Stabilization agency (ESA), whose administrator was Roger L. Putnam. Its responsibility was to plan and develop price and wage stabilization policies; inform the country of the need for stabilization and encourage voluntary action to this end; and consult with government officials handling procurement, production, manpower, rent control, fiscal credit and monetary policies concerning measures within their jurisdiction which would assist stabilization.

The price control functions of this phase of the program were handled by the Office of Price Stabilization, headed in 1951 by Michael V. DiSalle. The wage aspect was the province of the Wage Stabilization board, consisting of 18 members—6 representing the public, 6 labour and 6 business and industry—and headed by Nathan P. Feinsinger.

Also under ESA were two other agencies, the Rent Stabilization board, headed by Tighe E. Woods, and the Salary Stabilization board, headed by Raymond B. Allen. The latter group was responsible for the stabilization of salaries of professional persons not represented by labour organizations.

"BUT FIRST A FEW WORDS FROM OUR SPONSORS—" a cartoon by Herblock which appeared in the *Washington Post* in 1951

ODM's basic plan was to make it possible within a period of three years to fight an all-out war, if necessary, directly from the production lines.

Meanwhile, ODM had to see to it that all necessary arms and materials were provided for the armed forces, whether they were fighting in Korea or were in garrison in Europe or in training in the United States. ODM had also to see that there were sufficient stores in the national stock pile of materials required for full-scale war, and also that arms and equipment were manufactured in sufficient quantity over and above the country's own needs so as to assist the growing defense forces of other free nations.

The program was based on the projected expenditure of about $150,000,000,000 for the three-year period, or an average of $50,000,000,000 a year.

The plan, as laid down, called for minimum disturbance to the normal civilian economy. Some cut in consumer durable goods was necessary because of shortages of materials and of the utilization of factories and tools in the making of defense items. However, the plan contemplated such expansion of productive facilities and of raw materials production that eventually the civilian goods would flow in normal quantity alongside the output of military goods.

The United States program of defense mobilization was tied in closely with similar programs of other free nations. For the fiscal year ending June 30, 1952, congress appropriated $7,300,000,000 for military and economic assistance to other free nations.

All told, 1951 was a year of considerable progress toward achieving the strength to deter aggressor nations.

Broadly, the following things were accomplished:

1. More than 1,000,000 men and women were added to the armed forces. The air force added 28 groups and at the end of 1951 had a total of 90 groups. The number and strength of the army's divisions were increased. The navy returned more than 270 vessels to active duty from the "moth ball" fleet.

2. A rate of about $2,000,000,000 a month in deliveries of military procurement and construction was reached—more than three times the rate of a year before.

3. Expansion programs were launched in every sector of the economy where greater production was needed to support a sustained military production effort and a healthy economy.

4. The groundwork was laid for a much greater expansion both in military production and in basic industry. The building and equipping of plants dominated the economy in 1951. In the making of an aeroplane, a tank or any other complex military item, thousands of actions must be taken in making ready for production before the first mass-produced item comes off the assembly line. In industrial expansion, foundations must be poured and walls erected before the plant can be equipped and production actually begun. In both these fields, 1951 was the year of preliminary work, of making ready. The results would come in 1952 and 1953.

5. Orders were placed for $45,000,000,000 in military goods, bringing total obligations to $63,000,000,000.

In the doing, there was relatively little dislocation of the civilian economy. There were relatively few business shutdowns and little unemployment. Since early 1951, the economy had been virtually stabilized.

The record was marred to some degree by delays in production for many reasons, one of which was the bottleneck in machine-tool production. Shortages of many of the metals basic both to military and civilian production hurt the program. Economic stabilization suffered by reason of weak legislation in the area of price and credit controls. Popular opinion, which is needed to support any national mobilization program, showed the lack of a sense of urgency in the absence of all-out war. Nevertheless, the nation's progress was considerable.

At the close of 1951 a plan for the distribution of materials was in operation. Up to that time it had been on the basis of allotting to military production its full need for metals. After that, the supply was distributed among the elements of the civilian economy and exports to friendly countries in such a way as to provide for the expansion as necessary of the defense-supporting activities and still to maintain production of civilian goods where possible.

The diversion of a great part of the resources of the United States to military needs did not, in 1951, cause any great decline in the standard of living. The impact was expected to be more widely felt in 1952.

In specific areas of the mobilization program, the accomplishments were as follows:

Transportation.—The volume of railroad freight transportation, which increased substantially after the beginning of the Korean war, was maintained throughout 1951 at a level almost 20% above the pre-Korean war period. Production of about 96,000 new freight cars and 2,550 diesel locomotives during the year, together with a reduction in the number of cars under repair, enabled the railroads to meet requirements. While the full car-building program of the industry had to be curtailed because of material shortages, serviceable freight cars at the end of 1951 were estimated to be up 2.4%, or more than 40,000 cars, over the level of a year before. (*See* also RAILROADS.)

Commercial ocean ship loadings in U.S. ports during the first half of 1951 were up 50% over the pre-Korean war level, with volume continuing at a high level during the balance of the year. Export of 28,000,000 tons of coal to Europe and grain shipments to both Europe and Asia were primarily responsible. To meet requirements, more than 800 merchant vessels built during World War II were reactivated from the reserve of 1,451 ships. By Nov. 1, 1951, the active U.S. merchant fleet totalled 2,000 vessels, of which 1,300 were in private ownership. At the

"HOW TO CURB INFLATION," a 1951 cartoon by Fitzpatrick published in the *St. Louis Post-Dispatch* (Mo.)

end of 1951, 73 seagoing vessels of 1,000 gross tons and over were under construction or on order. Two large passenger ships were completed; a third, the largest ever built in the United States, was nearing completion, along with three transports for the navy. The government undertook the construction of 35 fast, newly designed "mariner-type" dry cargo vessels and 15 keels were laid by the end of 1951. (*See* also Shipping, Merchant Marine.)

Iron-ore shipments on the Great Lakes in 1951 reached 89,000,000 gross tons—14% over 1950. Fourteen large Great Lakes bulk carriers, of 20,000 gross tons capacity each, were being built in private shipyards to be completed in 1952 and 1953.

Air traffic increased 30% in 1951. To handle the larger volume, 79 passenger and cargo aircraft and more than 2,400 private aircraft were delivered in 1951. An additional 397 transport planes and more than 8,500 smaller planes were approved for construction during 1952 and 1953. (*See* also Aviation, Civil.)

Manpower.—Voluntary labour-management committees were established at national, regional and local levels to help achieve manpower objectives of the mobilization program. The total labour force expanded by 300,000 more than the normal increase during the year, as more women, older and retired workers and handicapped people were utilized. Peak civilian employment was 62,600,000 in August. Despite substantial layoffs in textile, apparel and leather centres and in certain consumer durable-goods industries, unemployment in November was only 1,800,000—400,000 less than in Nov. 1950. The sharp increase in nonfarm employment in the first year following the Korean attack—amounting to about 2,600,000—represented one of the greatest rises on record. The sharpest relative increases occurred in such industries as aircraft and metalworking machinery. During 1951 the female labour force increased by 300,000. Under the state-federal program of rehabilitation, more than 50,000 disabled persons were prepared to take jobs in 1951.

A monitoring system was established to prevent placement of defense contracts in areas where there were labour shortages. A Facilities Review board was established in the Defense Production administration to examine proposed projects for the purpose of utilizing not only idle men but idle plants as well.

Shift of farm workers to industry and the armed forces reduced the nation's farm labour force about 350,000 in 1951 to the lowest number of farm workers on record. Even so, one of the largest crop harvests in history was achieved in 1951. This was made possible by more efficient and widespread use of labour-saving machinery, more hours of work and better farm management. About 200,000 foreign contract workers were employed in agriculture in 1951 compared with 94,000 the previous year. (*See* also Census Data, U.S.; Employment.)

Military Production.—During 1951 the armed forces were provided with equipment, supplies and construction with a total value of $16,000,000,000. At the beginning of 1952, United States industry was working on outstanding orders of about $40,000,000,000, or more than twice the volume that had been delivered since the start of the Korean war. The aircraft industry, which was devoted virtually 100% to military goods, expanded more than 50% in 1951. (*See* also Aircraft Manufacture.)

Machine Tools.—The bottleneck in machine tools was broken. Shipments at the end of 1951 were at the annual rate of about $800,000,000 and were expected to rise to a level of about $1,250,000,000 in the third quarter of 1952.

Reserve Plants.—About 90% of the 179 defense plants built by the government during World War II and retained in the national industrial plant reserve were in operation during 1951 or were being reactivated for use in the defense program.

Plant Expansion.—Total contracts awarded for new privately owned factory construction in 1951 amounted to $2,200,000,000, a 69% rise over 1950. To assist in the expansion programs, the government authorized accelerated tax amortization in the sum of $11,400,000,000. As of Dec. 7, $190,000,000 in direct loans had been extended to 93 firms and credits of $1,200,000,000 had been made available through loans by Oct. 31, 1951. (*See* also Building and Construction Industry.)

Steel.—The steel industry at the end of 1951 was producing at the annual rate of 108,000,000 ingot tons, compared with a rate of fewer than 100,000,000 ingot tons in June 1950. Additional capacity under construction would enable the industry to produce at a sustained level of 120,000,000 ingot tons by 1954. (*See* also Iron and Steel.)

Aluminum.—At the close of 1951, aluminum was being produced at an annual rate of 860,000 tons, as compared with 735,000 tons when the Korean war began. (*See* also Aluminum.)

Power.—More than 7,000,000 kw. were added to the nation's electric power supply during 1951, an increase of about 10% over the capability a year earlier and the greatest expansion in a single year in the history of the industry. (*See* also Electrical Industry.)

Minerals.—Significant progress was made in 1951 toward expanding the domestic supply of a long list of critical minerals, ranging from copper and lead to such little-known minerals as mica and columbium. The government was using powers granted by the Defense Production act to contract with prospectors and mine operators to explore for new mineral deposits. (*See* also Mineral and Metal Production and Prices.) (C. E. Wi.)

Defense Production Administration: *see* Defense Mobilization Agencies, U.S.

De Gasperi, Alcide: *see* Gasperi, Alcide de.

Delaware. Delaware, on the middle Atlantic seaboard, one of the original 13 states of the United States, is called the "First state," having been the first to ratify the federal constitution, Dec. 7, 1787. The "Diamond state" is also a popular name. Area: 2,057 sq.mi. (land 1,978; inland water 79). Population (1950 U.S. census): 316,715, compared with (1940) 266,505. Of the latter, native white numbered 215,695; foreign-born 14,913; Negro 35,876.

History.—The 1951 regular session of the legislature took final action on a constitutional amendment creating a separate supreme court and simplifying the state court system. Further outstanding measures were the creation of a state commission on children and youth and the consolidation of welfare agencies into a state department of public welfare.

In June was celebrated the 300th anniversary of the founding of New Castle by the Dutch; delegates from the embassies of nine European governments were present. The $44,000,000 Delaware Memorial bridge linking the express highway systems of Delaware and New Jersey was opened in August.

The chief state officers in 1951 were: governor, Elbert N. Carvel; lieutenant governor, Alexis I. du Pont Bayard; secretary of state, Harris B. McDowell, Jr.; tax commissioner, Howard S. Abbott; bank commissioner, Randolph Hughes; chancellor, J. Collins Seitz; attorney general, H. Albert Young; insurance commissioner, William R. Murphy; state treasurer, Ralph W. Emerson; state auditor, George Daniel Enterline, Sr.; adjutant general, Brig. Gen. Joseph J. Scannell; director, legislative reference bureau, Robert W. Tunnell.

Education.—The state provided in 1951 for a building and school plant improvement program costing $16,424,318, of which the state's share totalled $10,580,313, the local share $5,844,005. An average of $150,000 per year was appropriated for education, training and transportation of handicapped children. During the fiscal year ending June 30, 1951, the state board of vocational education placed 433 disabled persons in earning jobs. The state superintendent of public instruction in 1951 was George R. Miller, Jr.

The cost of operating the public schools for the fiscal year was $11,816,938. The expenditure per pupil increased from $243.42 to $280.65. The 139 elementary schools had an enrolment of 29,960 and a teaching staff of 1,030. The 48 secondary schools had 17,580 pupils and a teaching staff of 906.

Social Insurance and Assistance, Public Welfare and Related Programs.—Servicemen's readjustment allowances paid in 1951 declined to $609; state unemployment compensation, $963,639; the number of active claims in the last week of Dec. 1951 was 1995. The cost of outside relief for the calendar year was $478,858 for an average of 950 cases per month. The cost was shared half and half by the state and the county in which the relief was given. In Dec. 1951, 1,623 persons were receiving old-age pensions compared with 1,614 in Dec. 1950.

During the fiscal year ending June 30, 1951, 843 children were cared for in their own or foster homes at a cost of $296,393; the number of dependent children aided was 2,899 at a cost of $699,714. The state appropriation for public welfare was $3,905,420 (not including additional grants to semipublic institutions). Included were Ferris school (industrial for boys) $220,950 and Kruse school (correctional for Negro girls) $55,130. The New Castle county workhouse which accepts some long-term prisoners from the other counties (there is no state prison) received 2,436 prisoners during the fiscal year and discharged 2,446. There were 322 inmates on June 30, 1951.

Communications.—The mileage of highways including rural roads under state control was 3,926. The income of the state highway department for the fiscal year ending June 30, 1951, including federal aid of $2,042,524, was $10,999,115. Railroad mileage was approximately 270.

For the calendar year tonnage at the port of Wilmington was 593,853 compared with 692,042 for the year 1950; the value of cargoes was $31,282,481 compared with $34,972,936 in 1950. Cargo tons (2,000 lb.) through the Delaware and Chesapeake canal in 1951 were 8,612,630; transits of vessels 15,802. The four certified air lines and one certified freight line carried 15,925 passengers, 120,311 lb. of air mail, 282,968 lb. of air express and 1,759,870 lb. of air freight. On Dec. 31, 1951, the state had 127,730 telephones in use.

Banking and Finance.—In 1951 there were 27 state banks, mutual savings banks and trust companies with 20 branch banks and branch offices; 13 national banks, 39 building and loan associations and 17 small loan companies. Total assets of all state banks June 30, 1951, were $659,470,853 compared with $651,190,763 on the same day in 1950; deposits June 30, 1951 were $589,263,396 compared with $580,305,507 in the same day in 1950. Assets of the national banks were $48,499,378 June 30, 1951, compared with $42,860,446 on the same day in 1950.

Total state revenue for the year ending June 30, 1951, was $30,522,936; nonrevenue income was $15,660,306; cash balance at the beginning of the year was $36,920,525. Expenditures were $53,339,626. The gross debt was $37,309,000. Total debt service (interest and redemptions) was $2,492,466.

Agriculture.—The estimated total cash income from agricultural production in 1951 was $110,000,000. Total livestock income (estimated) was $80,065,000 (including large broiler industry for which separate data were not available). The total from crops from January to October was $20,999,000.

Table I.—*Leading Agricultural Products of Delaware*

Crop	1951	1950	Average 1940–49
Corn, bu.	5,735,000	5,168,000	4,042,000
Apples, bu. (commercial)	554,000	525,000	626,000
Hay, tons	100,000	99,000	97,000
Wheat, bu.	1,189,000	1,020,000	1,231,000
Soybeans, bu.	884,000	882,000	465,000
Peaches, bu.	385,000	225,000	370,000
Oats, bu.	256,000	224,000	149,000
Barley, bu.	341,000	336,000	273,000
Potatoes, bu.	700,000	584,000	342,000
Tomatoes, tons (processed)	30,800	40,300	
Strawberries, crates	85,000	50,000	
Lima beans, tons shelled	18,340	15,610	

Table II.—*Principal Industries of Delaware*

Industry	1951	1950
Food	$53,664,118	$67,461,557
Clothing	19,782,981	75,811,606
Household supplies	961,488	1,129,538
Auto supplies	8,568,939	10,227,693
Drugs and medical supplies	16,923	3,274,467
Tobacco	3,598,239	433,938
Miscellaneous	128,283,488	126,934,254

Manufacturing.—Gross receipts of the 710 licensed manufacturers for the year ending June 30, 1951, were $214,876,246, compared with 979 licensed manufacturers the previous year with gross receipts of $285,273,053. The total number of employees under the unemployment compensation law June 30, 1951, was 111,314. Total wages paid for the year ending June 30, 1951, were $370,279,980. On Nov. 15, 1951, 549 plants in the Wilmington area reported an employment total of 65,754 compared with 62,785 for Nov. 15, 1950. New corporations chartered at Dover for the year ending June 30, 1951, were 2,592 compared with 2,464 the previous year. Corporations which became void totalled 1,171, the same as the previous year.

(J. En.)

Mineral Production.—Delaware has the smallest mineral output of any state, and that entirely in building materials. In 1949 the output included 33,212 short tons of clays ($46,293), 233,977 tons of sand and gravel ($196,451) and 37,240 tons of stone ($92,100); total value $334,844. In 1950 output increased to 41,000 tons of clays ($40,375), 367,524 tons of sand and gravel ($291,715) and 77,050 tons of stone ($190,113); total value $522,203.

Democracy.

Democracy in this article means that form of government and way of life which was developed in western Europe and North America, following the example of 17th century England, in the constitutional struggles of the 18th and 19th centuries. It is based upon a multiparty representative system in which the voters have the choice among alternative governments, upon respect for individual liberty and the independence of the judiciary from political influence, and upon freedom of discussion and expression in the political and cultural fields. This form of democracy, which strives to make opposition a constructive part in the process of government instead of declaring it a hostile force, has been regarded by Communists and fascists, however, as unable to cope with the industrial, international and cultural problems of the modern technological mass civilization. Communists and fascists have insisted upon the "immorality" of this democracy which they call "plutocracy" and have predicted its early and inevitable decay as a result of economic crises and social disintegration.

Contrary to these predictions, democracy in 1951 as in the preceding years showed no sign of collapse. It is true that in Italy and France, the two democratic countries in which com-

U.S.A.F. SEMINAR based on pictorial "stimulators" to provoke discussions about basic democratic principles, a 1951 experiment. Sample question to a picture: Should the driver swerve into a ravine and risk himself and truckload of troops to avoid hitting a child, or stay on the road?

munism exercised a strong appeal among the working classes, the peasants and a large part of the intellectuals, elections held in 1951 revealed the continuous strength of the antidemocratic forces. Elections in Italy were held for municipal and provincial assemblies, and though a number of important Italian cities replaced their former Communist mayors by democratic representatives, the total vote of Communists and Communist sympathizers showed no decline.

In the elections to the French national assembly in June 1951, the first national balloting in France since 1946, the number of Communist deputies was sharply reduced from 181 in 1946 to 103. But this was not the result of any similar drop in the popular vote for the Communists. It was the effect of the new electoral law which encouraged voting alliances among the centre parties against the Communists. While the popular vote for the Communists declined by 9%, nevertheless they still received the largest number of votes for any single party, 26.5% of the total vote as against 28.2% in the elections of 1946. The chief sufferers in the election, as compared with 1946, were the Popular Republican movement (M.R.P., a democratic Catholic party) and the moderate Socialists, while the greatest gain was made by the Rally of the French People (R.P.F.), the party led by Gen. Charles de Gaulle. This party had not participated in the 1946 elections. It received 21.7% of the popular vote in 1951 and was the second strongest party in the national assembly.

The impressive strength of democracy in countries where it is historically rooted was demonstrated in Great Britain's national election. In spite of the precarious economic situation and the continuing food rationing and shortages, the Communists polled only 21,640 votes or 0.07% of the total as against 91,746 or 0.3% of the total in the national elections of Feb. 1950. Nor had Great Britain any counterpart of a fascist or semifascist authoritarian party. The popular vote was almost equally split between the Labour party, which received 13,949,105 votes, and the Conservative party with its 13,730,742 votes. Though the Conservatives captured a majority of the seats in the new house of commons and thus were able to form the new administration under Winston Churchill, the outcome of the elections confirmed the stability of Britain's democracy. A crushing defeat of Labour or a Conservative landslide might have increased the social tension; the slight majority which the Conservative administration gained in the house of commons would probably force it to do its very best and to follow a cautious policy of recovery and efficiency.

The Greek elections in Sept. 1951 showed a consolidation of the centre parties. The Union of Democratic Leftists, which though not openly Communist was composed largely of Communist sympathizers, gained 10 of the 258 assembly seats. The Populist party of Constantin Tsaldaris, which represented the rightist elements in former Greek parliaments, was practically wiped out by the successes of the Greek Rally party of Field Marshal Alexander Papagos, which received 115 of the 258 seats.

Of special interest were the elections in the two border countries situated between Communist-controlled Europe and western Europe, Austria and Finland. In Austria elections for the office of the president were held in May 1951, the first nationwide voting since the parliamentary election of 1949. Austrians in the zone occupied by the Soviet Union voted as freely as those living in the areas under U.S., British or French occupation. Of the four major candidates (two minor candidates received a total of 7,542 votes), the candidate of the People's party (conservative and Catholic) received 1,725,695 votes; the candidate of the (moderate) Socialists, 1,682,786; the candidate of the league of Independents, 662,559; and the Communist candidate, 220,012. Under these conditions a runoff election between the People's and the Socialist candidates was necessary. The Socialist candidate, Theodor Koerner, who was a well known anti-Communist, was elected. He received 2,172,806 votes as against 2,004,290 for his opponent. The Communists had polled about 5% of the popular vote, about the same as they had done in 1946 and 1949. This was another proof of the stability of the democratic forces in this republic.

In the elections to the Finnish diet in July 1951 the Communists recaptured 7 of the 11 mandates they lost in the 1948 election. They remained the third strongest party, with 45 seats in a diet of 200 seats. The strongest party were still the anti-Communist Social Democrats, who received 53 seats. The Social Democrat voters in Helsinki, Finland's capital, returned as their choice with an impressive majority former Premier Vainoe Tanner, one of the men who were imprisoned after Finland's defeat in World War II on charges of having drawn Finland into the war against the Soviet Union. Thus, in both borderlands living under the shadow of the soviet military force, democracy held its own.

Democracy in Europe continued to be strengthened in 1951 by the progressive development of democratic federalism in the movements aiming at the creation of a European union or, on a wider scale, of an Atlantic union which would include the democratic countries of western Europe and North America. This democratic federalism, a development which began only after World War II, had its foundation in the need for common defense against totalitarian aggressiveness. Its aims were later extended beyond this initial purpose toward a closer cultural and economic integration of the various nations with a common democratic heritage.

In Latin America and in Asia democracy had no comparable historical roots. But the International Confederation of Free Trade Unions, which was founded in 1950 to counteract the Communist-dominated World Federation of Trade Unions, was successful in spreading free unionism among the workers in Asia and Latin America. In Jan. 1951 a western hemisphere branch of the International confederation was established at a conference in Mexico City, Mex. The inter-American regional organization had its seat in Havana, Cu. It refused to invite delegates from Argentina, the Dominican Republic or Panamá because they lacked independent workers' unions, and the International confederation was opposed to all totalitarianism, fascist as well as Communist. The Mexican Workers confederation (C.T.M.) refused to join the new regional unit. At the end of May a similar regional meeting for Asia was held in Karachi, Pak. The success of the United Nations under the leadership of the United States and other democracies in resisting Communist aggression had strengthened throughout Asia confidence in the democratic ability to halt further Communist expansion. Though the economic burden of armament in the wake of the Korean War appeared in 1951 as a potential brake on the rapid progress toward greater social well being in the democracies, it was felt that the growing close co-operation of the democracies might well preserve the gains which had been made and strengthen democratic vitality to cope with the great problems of the mid-20th century. (*See* also COMMUNISM; EDUCATION; ELECTIONS; EUROPEAN UNION; FASCISM; GREAT BRITAIN; SOCIALISM; UNITED STATES.) (H. Ko.)

Democratic Party. The year 1951 was a disturbing year for the Democrats as a result of congressional investigations of several executive agencies, more than 100,000 casualties in the Korean war and high prices and taxes accompanying the costly rearmament program. As the year ended, the administration of Pres. Harry S. Truman was clearly on the defensive in the face of its political enemies' attempts to capitalize on this combination of events.

The 1951 election results reflected an antiadministration swing. In ten special elections to fill vacancies in the house of representatives, the Democrats suffered a net loss of two seats, reducing their membership to 232, as against 201 Republicans, 1 Independent and 1 vacancy. They gained a senate seat with the death of Sen. Arthur H. Vandenberg of Michigan. Gov. G. Mennen Williams named Blair Moody, a fellow Democrat, to the vacancy. This made the senate alignment 50 Democrats and 46 Republicans. The G.O.P. contingent dropped to 45 with the death in November of Sen. Kenneth S. Wherry of Nebraska, minority floor leader, but Gov. Val Peterson named another Republican, Fred A. Seaton, to fill Wherry's place at the 1952 session.

The mayoralty elections on Nov. 6 were also adverse to the party in power, as the Republicans carried a majority of the cities in such industrial sections as New England, New York, New Jersey, Pennsylvania, Ohio and Indiana. However, Frank E. McKinney, Democratic national chairman, denied the outcome had any national significance, blaming the results on local issues. The upsets in New York city and Boston obviously disturbed Democratic leaders, however, since the principal issue in the three cities was government corruption at local and national levels.

In New York city the voters elected Rudolph Halley, an Independent, as president of the city council over Democratic and Republican opposition. Halley's principal asset was his role as counsel for the Kefauver crime committee, a senate group which exposed at televised hearings an alliance between some Democratic politicians and the underworld in New York city and elsewhere.

In Philadelphia, however, a Republican machine was driven from power after more than 65 years of control, when City Controller Joseph S. Clark, Jr., a Democrat, defeated Daniel A. Poling, a Baptist minister who had been nominated by the Republicans in an effort to placate the electorate.

The corruption issue figured in these and other contests not only because of local misrule, but also because of congressional revelations of alleged incompetency and laxity in the Reconstruction Finance corporation, the bureau of internal revenue and the department of justice.

The Fulbright committee, for instance, developed that Democratic politicians, including former National Chairman William M. Boyle, Jr., were able to obtain Reconstruction Finance corporation loans for friends even in the face of adverse reports by the agency's examiners. Numerous White House attachés were shown to have received expensive gifts and other favours from applicants for loans.

The Kefauver-Halley hearings disclosed the existence of a close relationship among Democratic officials, the police and the underworld in New York; New Jersey; Chicago, Ill.; St. Louis and Kansas City, Mo.; and Miami, Fla. These revelations had an unusually important and widespread political effect because they were televised.

Quite as harmful to the Democrats were the King committee's disclosures of corruption in the bureau of internal revenue. By the end of 1951, 166 internal revenue officials, including 6 presidentially appointed collectors, had been indicted, suspended or discharged.

President Truman precipitated a politico-military controversy in April when he removed Gen. Douglas MacArthur as United Nations commander in Korea on the ground that his statements, letters and actions violated administration policy. Returning home to tumultuous welcomes by congress, numerous cities and state legislatures, MacArthur delivered a series of speeches attacking "internal subversion, corruption and detailed regimentation" at Washington, D.C. A senate committee investigation of the ouster resolved itself into an inconclusive debate over the administration's far eastern policy.

In a follow-up inquiry, a senate judiciary subcommittee, headed by Sen. Pat McCarran of Nevada, sought to show that communistic influences in the state department had been responsible for the fall of China to Mao Tse-tung's red regime.

The president continued to have difficulties with southern Democrats of the states' rights school, headed by Sen. Harry F. Byrd of Virginia and Gov. James F. Byrnes of South Carolina. In combination with Republicans, the southern bloc prevented legislative action on the domestic Fair Deal, as they had done since Truman took office in 1945.

In a speech at Atlanta, Ga., on June 24, Byrd raised openly the flag of rebellion from the party, calling for defeat of a Truman-led faction in the 1952 presidential election.

Outwardly, Truman did not appear concerned by the year's untoward developments or by adverse popularity polls. He said that he did "not expect to be judged properly for 25 or 30 years." In early fall he said he had made his 1952 plans, but "was not telling anybody." He noted, however, that the 22nd amendment, which prohibits more than two terms, did not apply to him. (*See* also ELECTIONS; MACARTHUR INVESTIGATION; UNITED STATES.) (R. TU.)

Denmark.

A monarchy of north central Europe, Denmark has an area of 16,569 sq.mi. Pop.: (1945 census) 4,045,232; (preliminary 1950 census) 4,279,151. Capital: Copenhagen (731,707, or including Frederiksberg and Gentofte 927,404; 1948 est., 979,880). Other principal cities (1945 census): Aarhus (107,393); Odense (92,436); Aalborg (60,880). Religion: Lutheran Christian. Ruler in 1951: King Frederick IX; prime minister: Erik Eriksen.

History.—During 1951 Denmark was in full sympathy with the United Nations and the North Atlantic Treaty organization, but also felt small and helpless, and some critics accused the country of dragging its feet in the strenuous western effort to rearm. Gen. Dwight D. Eisenhower praised the Danish spirit in January, and in May urged the Danes to extend their 12-month period of military service to 18 months. This request the government rejected, partly because of the difficulty of training officers for the projected force of 100,000 men. A group of young officers went to the United States for special training, but the Danes felt keenly their long nonmilitary tradition and the annihilation by the nazis of what organization and equipment they had. Gradually government and people woke to the necessity for greater actual military strength. The increase in term of service to 18 months was finally approved by the *folketing* in December. The defense budget was increased, and at the close of the year a battalion was in process of organization to be turned over to the supreme commander of the Allied forces in Europe.

It was inevitable that the Soviet Union should charge that Denmark was being made into an advanced armed base of the western Allies. Ole Bjørn Kraft, foreign minister, when asked rhetorically why Denmark entered the Atlantic pact, answered, "Because we felt uneasy over developments, because we wished to do what was in our power to protect our peace and our freedom, and because we were and are convinced that the Atlantic Pact is a means to guard peace and to save the freedom which gives value to peace. . . . Who could think that Denmark with its geographic position, its whole view of life, and its military weakness should join a pact with aggressive aims?"

The United States extended varied kinds of aid to Denmark. The Fulbright system for exchange of scholars was in August extended to Denmark and the Economic Cooperation administration granted $325,000 of technical assistance funds for research on methods of increasing Danish agricultural and industrial production. The new Greenland agreement (*see* GREENLAND) went into effect in June. The general trade treaty between Denmark and the U.S. dating from 1826 was replaced by a more up-to-date treaty signed in Copenhagen in October.

Denmark's economic problems were largely problems of the world and its money. Denmark vigorously increased its production and doubled the quantity of its exports over 1947. But the prices paid for imported goods were rising 50% while the prices received for exports were rising only 5%. This squeeze made Danes tighten their belts, and made them complain about the United States restrictions on admission of Danish cheese. With Great Britain the Danish problem was to get adjustments in prices rapidly enough to keep up with rising costs. But neither the spring nor the autumn negotiations succeeded in doing so. Denmark began to realize that its dependence on the British market must be broken by agricultural changes. The wholesale price index rose from 283 to 386 (1935=100) between June 1950 and July 1951.

Denmark made new trade agreements during the year with the Netherlands, Switzerland, Portugal, Finland, Iceland, Sweden, Norway, Spain, Hungary, Greece, Argentina and Indonesia. Its trade with eastern Europe rose to 141% (in terms of equality of prices) of the prewar trade. This was in large measure the result of Danish need for Polish coal. In addition to a 1948 agreement to supply the U.S.S.R. with three tankers and five refrigerator ships, Denmark contracted in Jan. 1951 to deliver to the Soviet Union eight fishing boats of 250 tons each. Denmark also made a barter agreement with the U.S.S.R. to exchange 2,000 breeding cattle for 31,700 tons of potassium.

The Danes continued to be deeply disturbed by the refugee situation in Schleswig-Holstein. The Bonn government was obviously unable to move more than 1,000,000 people from the province. But the large numbers of refugees from east Germany and a new election law threatened in the fall to deprive of the vote a Danish minority of about 71,000. (F. D. S.)

Education.—Schools (1949): elementary, middle and secondary 4,112, pupils 494,905; technical 340, pupils 56,000; commercial 207, pupils 34,400; agricultural 26, pupils 2,300; adult 56, pupils 6,500; teachers' training colleges 18, students 2,400; universities 2, professors and lecturers 270, students 7,400; institutions of higher education 5, professors and lecturers 152, students 3,958. No illiteracy.

Finance and Banking.—Budget: (1950–51 est.) revenue 2,403,000,000 Kr., expenditure 2,391,000,000 Kr.; (1951–52 est.) revenue 2,700,000,000 Kr., expenditure 2,690,000,000 Kr. Gross national debt (March 1948) 9,630,000,000 Kr. Currency circulation (Aug. 1951) 1,491,000,000 Kr. Bank deposits (Aug. 1951) 4,725,000,000 Kr. Gold and foreign exchange (Sept. 1951) U.S. $97,200.000. Monetary unit: krone, with an exchange rate of 6.92 Kr. to the U.S. $1.

Foreign Trade.—(1950) Imports 5,890,000,000 Kr.; exports 4,592,000,000 Kr. Main sources of imports (1950): U.K. 32%; Germany 11%; U.S. 9%; France 9%; Sweden 8%. Main destinations of exports: U.K. 42%; Germany 19%; Sweden 6%; Norway 4%; Finland 4%. Main imports: coal, petroleum and products 17%; textiles 16%; machinery and vehicles 11%; wood, paper and manufactures 8%. Main exports: dairy products 33%; meat and products 22%; machinery 7%; live meat animals 6%.

Transport and Communications.—Roads (1950) 34,300 mi. Licensed motor vehicles (Dec. 1950): cars 117,000; commercial 62,000. Railways (1950): 2,996 mi.; passenger-miles 1,875,000,000; freight, ton-miles, 744,000,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 718; total tonnage 1,269,011. Air transport (1950): passenger-miles 92,000,000; cargo, ton-miles, 2,700.000. Telephones (1949): subscribers 542,000. Radio receiving set licences (1950): 1,236,274.

Agriculture.—Main crops (metric tons, 1951): wheat 275.000; barley 1,730,000; oats 780.000; rye 230,000; potatoes (1950) 1,850,000; sugar, raw value 360,000. Livestock: cattle (March 1951) 3,075,000, including 1,710,000 dairy cows; sheep (July 1950) 61,000; pigs (March 1951) 3,541,000; horses (July 1950) 503,000; goats (July 1949) 4,000; poultry (July 1950) 24,433.000. Dairy products (metric tons, 1950): milk 5,413,000; butter 179,000; cheese 61,000; eggs 132,000. Meat production (metric tons, 1950): total 510,000, of which beef and veal 168,000, pork 342,000. Fisheries (1950): total catch 235,000 metric tons valued at 165,000,000 Kr.

Industry.—Industrial establishments (June 1948): 109,288; persons employed 641,379. Fuel and power (1950): coal distributed 8,400,000 metric tons; lignite 768,000 metric tons; manufactured gas 377,400,000 cu.m.; electricity 1,814,400,000 kw.hr. Cement production (1950) 872,400 metric tons. New dwelling units completed (1950) 19,968. Index of total industrial production (1950) 118 (1948=100).

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Dentistry.

At its meeting in Oct. 1951, the American Dental association introduced for the first time the use of colour television as a method of demonstrating to large numbers of people operations and technical procedures within the mouth. By using eight television sets, more than 600 people were able to see at one time operations and technical procedures that were being conducted in a clinic several miles away. The colours came through clearly and accurately; visibility was excellent, and the pictures seemed to have a third-dimensional quality, although no stereoscopic projection was used. Previously, operations within the mouth could be demonstrated to not more than five or six people at one time and even then visibility was not always good.

According to a report of the Council on Dental Health of the American Dental association as of July 1, 1951, fluoridation of public water supplies was in operation in 102 towns and cities and in two state training institutions, and there were indications that the number was steadily increasing. In several parts of the country, some militant resistance to fluoridation appeared. This opposition was based on the ground that fluoridation is an undermining of individual freedom; that it is an insidious way of regimenting a community in regard to specific forms of medication; and that it forces people to consume daily a medicine which many people have no desire to take. To obviate these objections, the question of fluoridation was being submitted to the voters in some communities before authority was given to proceed with it.

In support of fluoridation, on Dec. 1 the American Medical association reported that such treatment of public water supplies to reduce the incidence of dental caries is a safe procedure.

LIVING TOOTH (the shorter one on the left) transplanted from one kitten to another in 1951 at the College of Physicians and Surgeons, Columbia university, N.Y. Interest in the experiment lay in the possibilities of replacing decayed human teeth with healthy living ones

The American Medical association's statement was prepared jointly by the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition. A subcommittee on fluoridation of the National Research council also issued a report urging that the procedure be considered by all fluoride-deficient communities.

A new method for removing decay in teeth and preparing them for filling and also for removing deposits and stains on teeth attracted wide attention in 1951. This was known as the "airbrasive" technique. A stream of abrasive is delivered to the tooth at high velocity, the abrasive particles travelling at speeds well in excess of 1,000 ft. per second. It was claimed that when a hard abrasive such as aluminum oxide is employed, any area of the tooth that the stream reaches is rapidly cut away. When a softer material is used, deposits and stains may be quickly removed without damage to the enamel of the tooth.

The airbrasive technique has as its objective the eliminating of the three objectionable characteristics of the dental drill—pressure, vibration and heat—and the pain that is often associated with them. During the year, the airbrasive method was being taught in some dental schools. (L. M. S. M.)

Dermatology.

Studies during 1951 indicated that seborrhoea and seborrhoeic dermatitis, characterized by bothersome oiliness, redness, scaling and itching of the face and scalp, might be the result of a metabolic defect in the skin which increases the local requirement for pyridoxine, a fraction of the vitamin B complex. Seborrhoeic dermatitis was experimentally induced in a group of persons by treating them with desoxypyridoxine, a pyridoxine antagonist. It was then eradicated by treatment with pyridoxine, suggesting that the condition might be an indication of human pyridoxine deprivation. Patients with ordinary seborrhoeic dermatitis, not experimentally induced, were then treated with large doses of pyridoxine both orally and by injection but without change in the lesions. However, when the pyridoxine was administered topically, in an ointment, the areas of seborrhoeic dermatitis cleared within a period of three weeks and reappeared shortly after therapy was stopped. Control areas were not improved.

The studies indicated that the skin converted pyridoxine *in situ* to a metabolically active substance, and, in a broader sense, the studies suggested also the interesting concept that disease may on occasion be caused by a local, probably conditioned deficiency state.

It was suggested that common baldness might be influenced by certain constituents in sebum, an oil secreted by human skin. This theory evolved from the observation several years before that a group of workers engaged in the synthetic rubber industry became temporarily bald. The hair fall was subsequently traced to a group of chemicals classed as intermediary polymers or dimers, and one of them, choloroprene, not only affected loss of hair in experimental animals but also affected the hair follicles and the sulfhydryl group of chemicals, which are normally present in hairs. It was postulated then that similar changes might be the result of naturally occurring chemical compounds and it was observed that one called squalene, a constituent of human sebum, when applied to the skin of experimental laboratory animals actually did cause depilation which was localized to the site of application and reversible. The mode of action had not been determined at the close of 1951, but the suggestion was made that squalene or a related unsaturated compound present in sebum might be a factor that exerted important influence on baldness.

A new form of penicillin, penicillin 92, was introduced with evidence to indicate that it had an antibacterial spectrum *in vitro* similar to that of procaine penicillin G, the form of penicillin usually administered; it also possessed highly desirable hypoallergenic properties. It was found in a comparative study with other antibiotics on 100 patients to be excellent for topical use against ordinary bacterial infections of the skin.

Two enzymes, hyaluronidase and streptokinase-streptodornase, were recommended for the treatment of chronic cutaneous ulcers. The former, a naturally occurring enzyme which is important in the control of viscosity of tissues, promoted rapid healing when applied to leg ulcers of many years' duration in three cases which had resisted all orthodox methods of treatment. The latter, a preparation of proteolytic enzymes elaborated by group C streptococci, employed as a lytic agent for medical *débridement* to liquefy and dissolve purulent and fibrinous deposits, was used successfully for the treatment of infected burns, wounds, ulcers, abscesses and areas of necrosis.

At last a significant amount of statistical evidence was presented to demonstrate that X-ray therapy, as it is usually employed by dermatologists for the treatment of benign skin diseases, does not cause cancer or increase the tendency to skin cancer. The conclusion was based on a study of 2,000 patients. A control group of 1,000 patients, who had never received X-ray therapy, was studied against 1,000 who had been treated with X-rays for from 5 to 23 years previously.

Thirty-four per cent of a group of 35 patients with xanthelasma, small yellow patches on the eyelids, showed clinical evidence of concomitant cardiovascular disease and 47% showed an increased amount of cholesterol in the blood serum. The blood serum exhibited also lipoprotein complexes of a large type characteristically found in such pathological conditions as diabetes, hypothyroidism and atherosclerosis. Because of these findings it was suggested that xanthelasma might be considered the herald patch of coronary disease.

A number of new dermatological entities were added to the list of diseases affected favourably by treatment with ACTH and cortisone during 1951. These were herpes gestationis, pretibial myxoedema, pityriasis rubra pilaris, erythema multiforme, sarcoid, acute irritant dermatitis and acute ringworm of the hands and feet.

Triethylene melamine and proteinamine, new agents for the treatment of cancer, were reported to be successful in effecting improvement in diseases such as certain leukemias, Hodgkin's disease (lymphosarcoma) and other lymphoblastomas. The action of triethylene melamine, administered by mouth, was similar to that of nitrogen mustard but it produced much less nausea, vomiting and central nervous system stimulation. Proteinamine (methyl-bis-betachloroethylamine) effected remissions in addition in two cases each of acute lupus erythematosus and polyarteritis. Results from proteinamine in 59 cases were as good as those obtained from treatment with nitrogen mustard, but proteinamine had certain advantages: practically no nausea or vomiting, it reduced blood system toxicity; it was tolerated by children; and it was used on ambulatory patients.

Quotane for topical administration and pronestyl for oral use were both recommended for the relief of itching. Quotane, an amino ether derivative of isoquinoline chemically unrelated to any of the popular "caine"-type local anaesthetics, was found to be more effective and safer than the latter compounds. Though it had been used for urologic instrumentation for some time, its use in dermatology was new. The first results indicated it to be no panacea but effective for the relief of itching.

Pronestyl, an amide of procaine used for cardiac arrhythmias, was also found to be effective as an antipruritic agent. It was found to be stable in the body, and the results from its use were encouraging. (*See* also MEDICINE.) (H. RA.)

Detergents: *see* CHEMISTRY.

Detroit. Detroit, Mich., one of the oldest cities in the United States, marked in 1951 the 250th anniversary of its French founding with a summer-long program of pageantry and civic celebrations, including dedication of the Detroit Historical museum.

As fifth-ranking city in the United States, Detroit had a population of 1,849,568 by the 1950 federal census and an area of 137.9 sq.mi. The urbanized area of which Detroit is a part had a population of 2,644,476.

Regarded primarily as an automotive centre, Detroit industry nevertheless ranges from steel to pharmaceuticals. During 1951 about half of its production workers were employed in other than automotive plants.

Detroit is the hub of the southeastern Michigan industrial complex, and the county seat of Wayne county. It is stituated on the Detroit river directly opposite Windsor, Ont., which, through a configuration of the international border, lies south of Detroit.

The river carries a substantial part of Detroit's commerce, especially automobile shipments and raw materials for manufactures. Ocean vessels dock at its wharves.

The municipal government is nonpartisan, and the nine-man common council is elected at large. As a result of the Nov. 1951 city election, the terms for the principal public offices were extended from two to four years.

Criminal cases originating in Detroit are tried before municipal courts, but are prosecuted by the county attorney. Civil issues are heard before county courts.

Public transportation is municipally owned but not tax-supported. It consists of buses, streetcars and trackless trolleys. On April 21, 1951, the system's operating personnel went on a strike which lasted for almost two months, said to have been the longest transportation strike in the annals of major American cities. Commerce and industry remained unimpaired.

The city was making rapid progress with an extensive river front development, including a civic centre, and with the construction of a system of depressed vehicular expressways. Also building was a city-county skyscraper to house public offices and certain courts. The Detroit Symphony orchestra was re-established in 1951.

Principal municipal financial statistics for the fiscal year which began June 30, 1951, were: assessed value, $4,196,857,-170; gross bonded debt (including notes), $287,748,221; net bonded debt (including notes), $171,613,516; net tax-supported debt, $181,426,000; gross appropriations (including school, library and utilities), $339,917,708; tax levy (including school and library), $138,626,559; tax rate per $1,000 valuation (including school and library), $33.04. (R. Ho.)

De Valera, Eamon (1882–), Irish statesman, was born in New York city on Oct. 14. (For his early career see *Encyclopædia Britannica.*) He was *taoiseach* (prime minister) and minister for external affairs from Dec. 1937 to Feb. 1948, and had been president of the assembly of the League of Nations in 1938. During World War II he kept Ireland to a policy of strict neutrality, though when Belfast in Northern Ireland was heavily blitzed, he at once ordered the Dublin fire brigade to its aid with every available engine.

After the Feb. 1948 elections, when De Valera's Fianna Fáil was returned as the strongest party but with a minority of the seats in the *dail,* John Costello was elected *taoiseach.* De Valera left in March for the United States where he spoke in favour of a united Ireland and was made an honorary citizen of New York city. In the following months he visited India and Australia, and in October opened a campaign in Great Britain for the ending of partition.

The Costello coalition broke up early in 1951 after a dispute with the Roman Catholic hierarchy over a health scheme for mothers and children. In the elections that followed in May, Fianna Fáil improved its position slightly, and in June De Valera again became *taoiseach* by 74 votes to 69. (R. Jan.)

Devaluation: *see* Exchange Control and Exchange Rates.

Dewey, Thomas Edmund (1902–), U.S. governor, was born on March 24 in Owosso, Mich. He was graduated from the University of Michigan, Ann Arbor, in 1923, and received his law degree from Columbia university in 1925. He began to practise law and joined the New York Republican organization. In 1931 he was appointed chief assistant to the U.S. attorney for southern New York, and in 1935 special prosecutor to investigate gambling and other rackets in the state. He was elected district attorney in 1937, and campaigned for governor of New York in 1938 but was defeated. He was elected governor of New York in 1942 and re-elected in 1946 and 1950. In 1944 Dewey was nominated Republican candidate for president, but was defeated by Franklin D. Roosevelt. Again Republican candidate in 1948, he lost the election to Pres. Harry S. Truman in what was termed one of the greatest political upsets in U.S. history.

Dewey generally supported the bipartisan foreign policy, and in Feb. 1951 he testified before the joint session of the senate foreign relations and armed services committees that he believed there should be no limit to the number of U.S. troops that could be sent overseas. He termed the dismissal of General of the Army Douglas MacArthur "the culmination of disastrous failure of leadership in Washington." He later toured Japan, Korea and the Philippines and on his return declared that the Communists must not be permitted to take southeast Asia. He said he would oppose any move to make him a presidential candidate in 1952.

Diabetes. The increase in death rates from diabetes in the United States from 1900 onward slackened by 1930 and almost came to a halt in 1940. This occurred despite the advancing average age at death of the population, from 35.2 to 59.2 years between 1900 and 1949. The crude rate in 1940 was 26.6 per 100,000 and in 1948, the last year of statistics based on the fifth revision of the census, 26.4. The age adjusted rates following a peak in 1940 showed a declining rate, although the actual difference in the last 15 years was small. The declining rates held for each age group up to age 60, but showed little change subsequently. With the sixth revision of the census in 1949, using the doctor's opinion as to chief cause of death, the rate was 16.9. The halt in incidence could be explained by earlier recognition and better treatment of all cases, both mild and severe, so that at death diabetes was overlooked as a cause.

Evidences that control of diabetes is possible accumulated: (1) The Quarter Century Victory medal had by the close of 1951 been awarded to 29 diabetics, who after having proved diabetes for 25 years were free from complications. These patients had undergone meticulous control during their early years. (2) Among 200 children, reported by Priscilla White, those who were nearly free from coma for more than 20 years exhibited few or no complications in the arteries and eyes, in contrast to a high incidence when coma, indicating poor control, was frequent. (3) Among 202 patients, whose diabetes began later (ages 15 to 30 years) and had lasted 10 to 29 years, Howard F. Root, Richard H. Sinden and Ralph Zanca found those with poor control had far more advanced arteriosclerosis, retinal and kidney lesions than those under better control. (4) Among 247 patients with onset of diabetes between infancy and 30 years of age, and in existence for 10 to 34 years, a clear relationship was evident between the various degrees of control of diabetes and the development of calcified vessels, retinitis and albuminuria. No patients with excellent or good control showed advanced calcification, retinitis or nephropathy. Among 103 cases with diabetes for more than 20 years under poor or only fair control, diabetic nephropathy developed in 62 patients.

Removal of 95% of the pancreas of rats produced no diabetes at first, but in two months incipient diabetes appeared lasting into the third or fourth month; thereafter manifest diabetes occurred with all its symptoms and signs. The slow onset of diabetes in such animals made them ideal subjects for learning what influences the development of diabetes or increases its severity and afforded opportunity for curative treatment at different stages. In these animals the frequency was higher in males, explained by the protective action of the ovaries and the provocative action of the testes. Removal of the testes diminished the incidence and of the ovaries increased it. Female hormones eventually attenuated or suppressed the diabetes, whereas male hormones caused an earlier appearance and increased its incidence and severity by producing hypertrophy of the islets of Langerhans. Estrogens and substances that increased the SH group in the tissues (cysteine, thiouracils) were the principal substances that prevented the appearance of diabetes in these rats.

F. G. Young produced diabetes in adult dogs and cats by injections of anterior pituitary extract, but in puppies and kittens these same extracts or pure crystalline growth hormone exerted instead a growth-promoting effect and no diabetes, proving a single agent stimulated growth in the immature young but development of diabetes in the old. However, some puppies, persistently injected for long periods, when they became adults and ceased to grow, developed diabetes. The rat even when old responds to the anterior pituitary extract by growing and never becomes diabetic. Maintenance of lactation in the cow parallels its diabetogenic activity in the dog. Growth and diabetes induced by growth hormone represent an alternative effect of the same general metabolic stimulus. Young supported this thesis by metabolic balances which showed increased deposition of protein and increased oxidation of fat. Glucose oxidation was inhibited. A level of pituitary activity appropriate for growth or lactation might exist, but with no physiological outlet available, diabetes could result. Before the onset of their diabetes some women gave a history of having had exceptionally large babies. Was this the result of excessive activity of the maternal pituitary which led later to the development of diabetes in the mother?

Priscilla White observed excessively rapid growth in some diabetic children preceding diabetes.

The extractable insulin of the pancreas was measured by Gerald A. Wrenshall at autopsy in diabetic and nondiabetic human subjects. In nondiabetic adults concentration of extractable insulin of the pancreas increased progressively with decreasing pancreas weight, those subjects with high concentrations being characteristically obese and having fatty yet small pancreases. The extractable insulin of the pancreas after death by coma was found to be very low and likewise low in diabetics whose diabetes was discovered during the growth period, but much higher in subjects who had reached full stature prior to onset.

(*See* also ENDOCRINOLOGY.)

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Diamonds.

The increased diamond output of 1950 was about evenly divided between the two leading producers, Belgian Congo and the Union of South Africa.

Table I.—*World Production of Diamonds*

(Thousands of carats)

	1944	1945	1946	1947	1948	1949	1950
Angola	799	804	808*	799	796	770	539
Belgian Congo.	7,533	10,386	6,033	5,474	5,825	9,650	10,147
French Africa .	130	163	139	161	197	218	338
Gold Coast . .	1,166	812	653	852	850*	433	950*
Sierra Leone .	609	504	559	606	466	494	655
South Africa. .	934	1,141	1,282	1,205	1,200*	1,254	1,748
S.W. Africa . .	154	153	164	179	201	280	488
Tanganyika . .	91	116	119*	92	148	192	195
Brazil	301*	275*	325*	275*	250*	250*	200*
Others	48*	30*	53*	90*	115*	94*	40*
Total. . . .	11,764	14,384	10,135	9,734	10,047	13,635	15,300

*Estimated.

Total sales by the sales syndicate advanced to a new record figure of £50,967,041, of which £38,357,698 was gem stones and £12,609,343 was industrial stones.

United States Imports.—There were sharp increases in the U.S. imports of all types of diamonds in 1950, the total amounting to 80% of the world output for the year.

Table II.—*U.S. Diamond Imports*

(Carats)

	Rough	Cut	Industrial	Total
1939	153,982	488,154	3,570,111	4,212,247
1940	227,886	321,471	3,809,856	4,359,213
1941	215,026	229,582	6,882,750	7,327,358
1942	278,437	126,004	11,204,754	11,609,195
1943	751,674	193,701	12,173,918	13,119,293
1944	896,547	169,097	12,656,823	13,722,467
1945	893,761	377,243	10,792,186	12,063,190
1946	1,044,517	604,638	4,705,118	6,354,273
1947	996,514	347,810	4,112,189	5,456,513
1948	909,871	388,499	10,648,250	11,946,620
1949	633,731	335,487	6,381,476	7,350,694
1950	819,083	492,671	10,967,005	12,278,759

The total value of imports rose from $87,396,996 in 1949 to $140,746,177 in 1950, of which $44,775,769 was rough stones, $58,524,902 was cut stones and $35,445,506 was industrial stones. (G. A. Ro.)

Dietetics: *see* NUTRITION, EXPERIMENTAL.
Diplomatic Services: *see* AMBASSADORS AND ENVOYS.

Dirksen, Everett McKinley

(1896–), U.S. senator, was born on Jan. 4 at Pekin, Ill. He studied at the University of Minnesota, Minneapolis, from 1913 to 1917 and served with the United States expeditionary forces during World War I. After the war he became engaged in several businesses and in 1932 was elected to the U.S. house of representatives on the Republican ticket from the 16th Illinois district. He was a member of the 73rd-80th congresses (1933–49) and while in Washington, D.C., completed his law studies and was admitted to the Illinois and District of Columbia bars. A forceful orator, he attracted attention in congress for his heated criticism of the New Deal; however, he generally supported Pres. Franklin D. Roosevelt's foreign policy after Sept. 1941. In the election of Nov. 7, 1950, Dirksen defeated Scott W. Lucas, Democratic majority leader, as senator from Illinois. On Jan. 12, 1951, Dirksen was appointed chairman of the senate Republican campaign committee. In the senate he frequently criticized U.S. involvement in the support or defense of foreign countries. He voted against universal military training and service (March 9), against sending four additional U.S. divisions to Europe (April 4), and in favour of reducing foreign economic aid funds by $500,000,000 (Aug. 31).

Disabled American Veterans: *see* VETERANS' ORGANIZATIONS.

DiSalle, Michael V. (1908–), U.S. government official, was born in New York, N.Y., on Jan. 6. He moved with his family to Toledo, O., where he attended school, and later studied law at Georgetown university, Washington, D.C.

DiSalle began practising law in Toledo, and in 1933 became assistant district counsel of the Home Owners Loan corporation. In 1937 and 1938 he served a term as representative in the Ohio legislature and in 1938 sought unsuccessfully to win a seat in the upper house. He was assistant city law director of Toledo, 1939–41. From 1942 he spent five terms as a member of the Toledo city council, acting as vice-mayor, 1944–47.

In 1945 he came to national attention as originator and first chairman of the Toledo Labor-Management Citizens committee, which brought about industrial peace in the strike-ridden city; under the name of the "Toledo plan," it was widely imitated by other cities. The city council of Toledo, under its city-manager form of government, elected him mayor in 1947 and he was re-elected in 1949.

In Nov. 1950 Pres. Harry S. Truman named him director of price stabilization, and on Dec. 12, 1950, he was sworn into office. The economic stabilization director, Eric A. Johnston, delegated price control authority to him on Jan. 24, 1951. DiSalle was admitted to practice before the U.S. supreme court on Dec. 11, 1951.

Disasters. During 1951 loss of life and property in disasters included the following:

Aviation

Jan. 10	Near Edwards Air Force base, California. All eight persons aboard a B-50 bomber lost their lives when the plane crashed.
Jan. 11	Near Seguin, Texas. A B-29 Superfortress crashed, killing six of the 11 crewmen.
Jan. 14	Philadelphia International airport. Seven persons were killed when a DC-4 transport plane crashed and burned on landing; 21 escaped largely through the heroism of Stewardess Mary Frances Housley who showed the way through the flames to safety, then herself died while trying to rescue a child.
Jan. 16	Near Edwall, Wash. Ten persons were killed when an airliner crashed in a snowstorm.
Jan. 27	Near Tarquinia, Italy. Fourteen persons were killed when a four-engined Italian transport plane crashed.
Jan. 28	Eastern Formosa. A four-engined British royal air force flying boat crashed, killing all 16 aboard.
Jan. 31	Between Reykjavik, Iceland, and Vestmanaeyja. An Iceland airways two-engined transport plane crashed in a blizzard, killing all 20 aboard.
Jan. 31	Near Victoria beach, Terceira Island, Azores. A Portuguese army plane crashed into the sea killing all 14 persons aboard.
March 2	Sioux City, Ia. Sixteen persons were killed, nine survived when a DC-3 crashed while landing in a snowstorm.
March 11	Hong Kong Island. A Thai Skymaster crashed on Parker mountain. All 24 aboard were killed, including 3 American crewmen.
March 23	Atlantic ocean. U.S. air force C-124 Globemaster with 53 aboard disappeared while en route across the Atlantic. Wreckage found March 28 indicated there were no survivors.
April 6	Santa Ynez mountains, Calif. Twenty-two died when a transport plane crashed on a 20-minute flight from Santa Maria to Santa Barbara.
April 8	Charleston, W.Va. A U.S. air force plane carrying 21 men as a funeral escort for an air officer crashed into a fog-shrouded hill, killing 19.
April 9	Off Hong Kong. A Siamese airways transport plane crashed killing all 16 aboard.
April 25	Key West, Fla. Forty-three persons died in the mid-air collision of a Cuban airliner and a U.S. navy twin-engined trainer plane.
April 27	Over central Oklahoma. The pilot of an F-51 fighter plane and 12 crewmen of a B-36 bomber were killed when the planes collided; four of the bomber crew parachuted to safety.
April 29	Fort Wayne, Ind. A transport plane crashed on its approach to the airport during a thunderstorm; all 11 aboard died.
May 6	Albuquerque, N.M. Twenty-three crewmen of a B-36 bomber died when the plane crashed and exploded on attempting to land during a sandstorm.
May 23	Near New Lisbon, Ind. A U.S. air force 200-passenger transport plane crashed and burned, killing seven of the 12 persons aboard.
June 3	Near New Boston, Tex. Ten military personnel were killed when a U.S. air force cargo plane crashed in a thunderstorm.
June 8	Near Richmond, Ind. Eight planes in a flight of F-84 Thunderjets crashed in an electrical storm; three pilots were killed. The planes were part of a flight of 71 en route from Dayton, O., to Selfridge Air Force base, Mich.
June 22	Near Sanoye, Liberia. A transport plane en route from South Africa to New York crashed in the jungle, killing all 40 persons aboard.
June 30	Rocky Mountain National park, Colo. Fifty persons aboard a trans-continental transport plane were killed when the craft struck a peak.
July 12	Near Aracaju, Brazil. Thirty-two persons died when a Brazilian transport plane, flying in low visibility, crashed into a hill.
July 21	Near Juneau, Alaska. A Canadian four-engined transport plane bound for Korea with a crew of seven and 31 passengers, mostly U.S. military men, disappeared with all aboard.
Aug. 6	Puget Sound, Wash. Nine men died when a four-engined U.S. navy patrol plane plunged into the water.
Aug. 13	Seattle, Wash. A four-engined U.S. air force B-50 bomber went out of control, shortly after taking off from Boeing field, and smashed through a three-story apartment house, killing 11 and possibly 12 persons, and injuring 12 others.
Aug. 20	Fort Dix, N.J. Two U.S. air force officers and 11 infantrymen were killed when a two-seater jet training fighter plane plunged into a bivouac area; 23 other soldiers were injured.
Aug. 24	Near Oakland, Calif. Fifty persons aboard a commercial DC-6B luxury transport plane were killed when the craft crashed near the airport and burned.
Aug. 31	Tanaga Island, Alaska. Nine persons died and one survivor was found injured after a U.S. navy patrol bomber crashed; this was reported to be the 11th aircraft wrecked or missing in Alaska in six weeks, and the total number dead or missing was disclosed to be 87 persons.
Sept. 4	Off Montauk Point, L.I., N.Y. Seven U.S. navy fliers plunged to their deaths when their patrol bomber went out of control and struck the sea while on air-sea manoeuvres.
Sept. 4	Mountain Home, Idaho. A U.S. air force B-29 bomber on a routine training flight crashed and exploded on taking off, killing all seven aboard.
Oct. 15	North Atlantic Ocean. A U.S.A.F. transport with 11 aboard was lost at sea.
Oct. 17	Near Nanaimo, British Columbia. A flying-boat transport crashed, killing 23 persons.
Oct. 27	Near Flores, Guatemala. Twenty-seven Guatemalan fliers and entertainers were killed when a Guatemalan army plane crashed in the jungle.
Nov. 13	Mt. Dore, France. Thirty-six U.S. soldiers, airmen, wives and children were killed when a U.S.A.F. Flying Boxcar used as a hospital plane crashed on a flight from Frankfurt to Bordeaux.
Nov. 21	Calcutta, India. An Indian air liner crashed at the airport, killing 16.
Nov. 27	Off San Diego, Calif. A U.S. navy flying boat went down with 11 aboard. All perished.
Dec. 3	Near Lowry Air Force base, Denver, Colo. A U.S.A.F. B-29 bomber, trying to make an emergency landing, crashed into five houses, killing eight of the 14 persons aboard and injuring an occupant of one of the houses.
Dec. 6	Off the Azores. A B-29 bomber with 16 persons aboard crashed, killing all hands.
Dec. 6	Near Marseille, France. A U.S.A.F. C-47 transport plane crashed, killing 10.
Dec. 16	Elizabeth, N.J. A nonscheduled plane carrying 56 persons en route from Newark to Florida crashed after an engine caught fire; all aboard died.
Dec. 22	Near Tehran, Iran. An Egyptian air transport crashed, killing the crew of five and 15 passengers, among them Henry G. Bennett, chief of the U.S. Point Four program for overseas aid.
Dec. 29	Salamanca, N.Y. A nonscheduled transport plane crashed in overcast weather on a flight from Pittsburgh to Buffalo; 26 died; 14 survived.
Dec. 30	Near Phoenix, Arizona. A U.S.A.F. C-47 transport plane crashed and brought death to 28 aboard, of whom 19 were West Point cadets on Christmas vacations.

Fires and Explosions

Jan. 3	Near Chimbote, Peru. A delayed dynamite blast set off an Andes avalanche that killed at least 132 railway workers.
Jan. 18	Near Kermit, W. Va. Eleven miners were killed and two were injured in an explosion in a coal mine.
Jan. 30	Hoquiam, Wash. Fire that swept through a rest home killed 20 elderly persons.
May 13	Kaho, northern Nigeria. More than 317 persons died in a fire that destroyed a movie theatre.
May 17	Nha Trang, Indochina. Fifty-five French troops died and 130 were injured when a French LST was ripped by an explosion and fire.
May 19	Kushiro, Hokkaido, Japan. Thirty-five children and three adults were burned to death when flames from ignited motion picture film spread throughout a movie house.
May 29	Easington, England. An explosion in a coal mine killed 83 miners and a rescue worker.
May 31	Hamm, Germany. An explosion 3,000 feet underground in a coal mine killed 14 miners, and injured 20 others.
June 3	Hikone, Japan. Fire that began when motion picture film caught fire killed 23 girl silk-factory workers, most of whom died in a crush at the exits.
June 15	Montreal, Quebec. Thirty-five persons, most of them aged women, died when flames swept through the Hospice of Sainte Cunegonde, a shelter for aged and orphans.
July 5	Berlin, Germany. An excursion boat overcrowded with school children bound for a Communist-sponsored outing exploded and burned; about 30 persons, mostly children, died.
July 7	Haifnen-la-Bassée, Nord, France. Seventeen persons were killed, three others were missing, and 13 additional workmen were hospitalized as the result of an explosion in a munitions plant.

RESCUE WORK amid the wreckage of the Pennsylvania railroad's packed commuter train which plunged from an overpass at Woodbridge, N.J., in Feb. 1951 and took the lives of 85 persons

July 7 Newark, N.J. Seventy tanks of propane gas exploded, hurling flaming debris over a wide area of the Port Newark region, and causing damage estimated at more than $5,000,000. Eleven persons were injured.

July 11 Thuringia, East Germany. The second mine disaster within a week was announced by the east German cabinet, which said 7 miners were killed and 28 injured in the blast; it was simultaneously reported that in the first accident a week earlier nine miners had died.

July 12 Indianapolis, Ind. Seven men were killed and another critically injured in an explosion at a jet-engine test plant.

July 22 San Francisco, Calif. Eight persons died and 10 others were injured in a fire that routed 100 persons from an apartment building.

Aug. 20 Near Singapore. Two explosions, followed by fire aboard the tanker "Dromus," killed 22 men, injured 30 others and left 2 more men missing and presumed dead.

Sept. 8 Oshima, Japan. Eleven miners were killed and four others were injured in a coal mine explosion.

Sept. 16 Mexico City, Fourteen persons died in a flash fire that swept through a night club.

Sept. 17 Wood River, Ill. Explosion in an oil refinery brought death to 13.

Oct. 15 Near Morgantown, W.Va. Gas explosions in a coal mine were blamed for the deaths of 10 miners.

Oct. 31 Kayford, W. Va. Twelve persons died in a coal mine explosion.

Nov. 23 Copenhagen, Denmark. Fire and explosion wrecked the Holmen station of the Royal Danish navy and killed 17 persons.

Dec. 11 Near Summerville, S.C. Fire in a lumber worker's home killed nine persons, of whom seven were children.

Dec. 21 Near West Frankfort, Ill. A gas explosion killed 119 miners in the worst mine explosion in the U.S. in 23 years.

Dec. 22 Tijuana, Mexico. Forty-one persons were killed in a fire at a children's holiday party.

Marine

Jan. 31 Belfast, Northern Ireland. Sixteen workers were killed when a gangway collapsed between the dock and the ship "Juan Perón."

April 16 English channel, off the Isle of Alderney. The British submarine "Affray" sank on a dive with 75 persons aboard. All perished.

April 20 Gulf of Mexico, off Morgan City, La. Two tankers collided in a dense fog, and in resultant fires a total of 40 crewmen of the vessels were killed.

May 14 Off Cape Henry, Va. Thirty-six lives were lost in a collision between the U.S. navy seaplane tender "Valcour" and the collier "Thomas Tracy."

May 25 Newport, R.I. Nineteen U.S. navy personnel drowned when a crowded launch capsized in Newport harbour during a storm.

June 10 Long Island sound, off Plum Island, Conn. Eleven persons drowned in the sinking of a charter boat.

June 16 Off Cedros Island, Pacific coast of Mexico. A cannery fishing boat with 37 persons aboard capsized in high seas, and 23 aboard were lost.

July 5 Mississippi river, above New Orleans, La. Five crewmen were drowned and four were injured aboard a towboat that sank after a collision with a tanker.

July 29 Lake Caron, near Edmunston, N.B. Five persons were drowned when a hand-operated cable ferry capsized.

Aug. 12 The North sea between England and Denmark. The Norwegian freighter "Bess" capsized, shortly after it was abandoned in heavy seas; nine survivors were picked up, two bodies were recovered and 20 other persons were reported missing and presumed lost.

Sept. 1 Off Montauk Point, L.I., N.Y. The captain and 45 passengers aboard the fishing boat "Pelican" were drowned, while 19 were saved, when the boat capsized in heavy seas after suffering engine failure on a holiday fishing cruise.

Oct. 5 Off Cape Hatteras, N.C. Seventeen persons died and six were rescued when a U.S. ore ship broke in two.

Nov. 6 Off the Pacific Northwest coast of the U.S. The U.S. freighter "George Walton" was lost at sea; six crewmen were unaccounted for.

Nov. 28 Boston harbour. Fifteen seamen were killed in a collision between a trawler and a tanker.

Miscellaneous

Sept. 16 Campinos, Braz. The roof of a motion-picture house collapsed, killing 28 children.

Oct. 28 Atlanta, Ga. Moonshine liquor made of wood alcohol killed 36 persons and hospitalized more than 200; two men were held on charges of murder; 12 on lesser charges.

Natural

Jan. 3 French Morocco. Floods that swept the Rharb plain area of Morocco left 71 persons known dead and 60 missing.

Jan. 4 Comoro Island, between Madagascar and Africa. A two-day tornado left an estimated 500 persons dead.

Jan. 18-21 Mount Lamington, near Port Moresby, New Guinea. An estimated 4,000 Papuan natives and 34 Europeans were reported killed when this volcanic mountain erupted in a series of explosions that destroyed 20 villages.

Jan. 19-24 The Alps of Switzerland, Italy, Austria and France. Avalanches precipitated by record snowfalls killed about 300 persons in this period.

Jan. 31-Feb. 9 United States. An estimated 200 persons died in a nationwide cold wave that brought new record lows to parts of the north and northwest.

May 6-7 El Salvador. Earthquakes killed at least 375, leaving 25,000 homeless, with the greatest losses occurring in the cities of Jucuapa and Chinameca.

May 12 Faridpur district, East Bengal, Pakistan. A total of 200 persons were reported killed or injured in a tornado.

June 15-July 1 New Mexico, Arizona, California, Oregon, Washington, British Columbia. Thousands of acres of forests were destroyed by fires.

July 1 Kyushu, Japan. At least 13 persons were killed and widespread property damage was inflicted by a typhoon that struck Japan's southernmost island.

July 7-8 Wisconsin and neighbouring states. Winds of hurricane force swept across six midwest states, causing property damage of more than $1,000,000 and leaving at least six persons dead.

July 12-14 Western Japan. Floods caused the deaths of nearly 100 persons, while leaving more than 200 injured and 200 missing.

July 11-25 Kansas, Oklahoma, Missouri and Illinois. In the most disastrous flood in the history of the U.S. the Missouri river and its tributaries, swollen by unseasonable rains, roared through a succession of cities. Property damage was given at more than $870,000,000.

	Nearly 200,000 persons fled their homes. About one million acres of fertile farmlands were covered with muck and debris. The number of dead was believed to be about 40.
Aug. 3	Potosi, northwest of Managua, Nicaragua. Earthquakes split the sides of a dormant volcano, sending water from its crater down to inundate this coastal port, which was reported virtually destroyed with heavy casualties among its population of 1,000.
Aug. 1-22	Central Texas. At least 44 persons died in a prolonged heat wave that also caused heavy damage to crops.
Aug. 13	Changra, Turkey. Earthquakes that centered in northern Turkey caused a reported 54 deaths and injuries to 150 persons.
Aug. 15-25	Caribbean and Gulf of Mexico areas, from Jamaica to Mexico. A prolonged hurricane swept from Jamaica across the Yucatan peninsula and into Tampico, Mexico, killing a total of 260 persons. Scores more were injured or missing, and damage was estimated at between a half-billion and a billion dollars. Among the deaths in Mexico were many caused by floods from storm-swollen rivers, including 42 persons who were drowned when a dam crumbled at Cardenas.
Aug. 20	Manchuria. Floods were reported by the Mukden radio to have killed 1,800 persons, while 3,000 others were still missing. The radio reported the floods had occurred two weeks earlier and had washed out the main rail line between Mukden and Dairen.
Aug. 24	Wondervu, Colorado. Lightning set off 10 or 12 cases of dynamite being used on a construction project for a dam and tunnel; nine workmen were killed and nine others were injured.
Sept. 26-27	Pescadores Islands and Formosa. More than 100 died in a typhoon.
Sept. 26	Wisconsin, Illinois and Michigan. Storms and tornadoes killed 12 persons.
Oct. 4	Southern Japan. After a typhoon, 448 persons were reported dead.
Nov. 14	Iran. Floods near the Caspian sea were reported to have demolished the village of Roodsar, leaving about 225 dead or missing.
Nov. 1-20	Po River valley, Italy. Three weeks of storms and floods left a reported 150 persons dead and about 150,000 homeless.
Dec. 4-13	Camiguin Island, Philippine Islands. Repeated eruptions of a volcano killed at least 248 persons, left about 500 missing, and about 20,000 homeless.
Dec. 10-13	Central Philippines. Reports indicated that as many as 724 persons were dead in typhoons.
Dec. 25	Epi Island, New Hebrides. Hurricane killed a reported 100 persons.

Railway

Feb. 6	Woodbridge, N.J. Eighty-five persons were killed and about 500 were injured in the third most disastrous rail wreck in the history of the U.S., when a commuter train was derailed at a temporary overpass.
April 24	Yokohama, Japan. A broken power line fell on the roof of a train, and in ensuing fires 104 persons, including three U.S. soldiers, were burned to death; 66 others were injured.
May 18	Bryn Mawr, Pa. Eight persons died and 63 were injured when a railroad flier crashed into the rear of a passenger train that was halted by an automatic signal.
June 8	Near Rio de Janeiro, Brazil. 54 persons were killed when a train struck a stalled gas truck near Nova Iguacu, 20 mi. from Rio de Janeiro. It was Brazil's worst railway disaster.
Aug. 10	Near Simmesport, La. Eleven persons were killed and at least 60 others were injured when a troop train collided head-on with a passenger streamliner.
Aug. 24	Near Metz, France. Twenty-one persons, including six Americans, were killed and more than 30 persons were injured when a Basel-Calais train rammed into the rear of a Frankfort-Paris train standing outside Sary-sur-Nied station ten miles east of Metz.
Nov. 12	Near Evanston, Wyo. Two transcontinental passenger trains collided in a snowstorm, killing at least 16 and injuring many more.
Nov. 25	Near Woodstock, Ala. Sixteen persons were killed and 70 were hurt when two passenger trains collided head-on.
Dec. 17	Near Carneiro, Ceara state, Brazil. Fifty-three were killed when a train jumped the rails.

Traffic

Dec. 29-Jan. 1	United States. Traffic deaths over the New Year's holiday totalled 304.
April 29	Weirton, W.Va. Ten persons were killed and 51 injured when a crowded bus went out of control on a mile-long hill and crashed into a concrete wall.
Aug. 13	Near Bolzano, Italy. Thirty-four persons on a holiday excursion aboard a bus were drowned when the vehicle plunged into a lake.
Sept. 1-3	United States. A new record for holiday traffic deaths was established when 461 persons were killed in highway accidents over the Labor day holiday.
Nov. 21-23	United States. Traffic accidents over the Thanksgiving holiday throughout the U.S. brought death to a reported 135 persons.
Dec. 4	Chatham, England. Twenty-three boys were killed when their Royal Marine cadet formation was struck by a suburban bus.
Dec. 28	United States. Traffic deaths over the Christmas holidays throughout the U.S. were set at a reported 555.

Disciples of Christ.

In 1951 the total membership of this movement for Christian unity in the United States and Canada was 1,802,157, and in the world, 1,945,607; there were 7,914 churches in the United States and Canada, and 8,738 congregations in the world. The international convention, usually held annually, was by-passed in 1951. In its place 17 area assemblies were held, with a total registration of 17,581. These were held in representative centres for a three-day period. More than 200 speakers participated in the 17 programs, using the theme "The Assurance of Things Hoped For." These assemblies were the occasions of launching a ten-year long-range program for the Disciples of Christ with specific objectives as follows: 500,000 new members; 4,450 new ministers; 1,830,000 new pupils in the church school; doubled giving for all causes within the ten-year period; the establishment of 200 churches; and the recruitment, training and commissioning of 250 new missionaries.

The Disciples of Christ participated in the formation of the National Council of the Churches of Christ in the U.S.A., with personnel serving on the divisions of Christian life and work, foreign missions, home missions and Christian education.

At the close of the year there were 210 missionaries and 2,393 nationals serving in 12 mission fields. The United Christian Missionary society, a board of missions and education, located in Indianapolis, Ind., is the major administrative office for missions, Christian education and church development.

Headquarters: 516 K. of P. building, Indianapolis, Ind.; Marvin O. Sansbury, president; Gaines M. Cook, executive secretary; Gertrude Dimke, recording secretary; H. B. Holloway, business manager. (*See* also CHURCH MEMBERSHIP.)

(G. M. CK.)

Displaced Persons: *see* CHILD WELFARE; IMMIGRATION AND EMIGRATION; REFUGEES.

District of Columbia: *see* WASHINGTON, D.C.

Divorce: *see* MARRIAGE AND DIVORCE.

Dodecanese: *see* GREECE.

Dog Shows: *see* SHOWS.

Dominica: *see* WINDWARD ISLANDS.

Dominican Republic.

The eastern two-thirds of the mountainous island of Hispaniola is the Dominican Republic, with an area of 19,129 sq.mi. The population is predominantly Afro-American. Population (census of Aug. 6, 1951) 2,121,000; that of the capital, Ciudad Trujillo (known until recently as Santo Domingo, whence the name of the nation), 181,000 (with 241,000 in the national district) and that of the four leading provincial cities, Santiago de los Caballeros, 56,000; San Pedro de Macorís, 16,000; San Felipe de Puerta Plata, 14,000; and Barahona, 14,000. The president in 1951 was Gen. Rafael Leónidas Trujillo y Molina.

History.—The sugar production of the Dominican Republic in 1951 was the greatest on record—nearly 530,000 metric tons. All of it was sold to Great Britain, the normal market for Dominican sugar, at prices above those of 1950. As in recent years, the entire coffee crop was sold early. British purchases of Dominican products were again substantially greater in value than those of the United States. The Dominican government took the occasion of the coming into effect on June 6 of the tariff changes agreed to at Torquay, Eng., to emphasize all the concessions made to the United States and to stress the merit of a modest increase in the Dominican quota in the U.S. sugar market. The turnover of goods in domestic trade continued to slow down, as in 1950, but unemployment did not increase. The price level and wage level did not change perceptibly. The government continued to build up its cash resources, but established no increases in tax rates.

The seizure on July 26 of a Guatemalan vessel, en route from Cuba to Guatemala, by a Dominican naval vessel gave rise to renewed recriminations between the Dominican Republic, which imprisoned the crew and passengers as enemy elements, and Cuba and Guatemala. The Guatemalans were released, but the Cubans were sentenced to 20 years' imprisonment. Nevertheless, on Christmas day, 1951, President Trujillo released the Cubans also, and lessened the tension with Cuba.

Relations with Haiti were more cordial than for some years. (C. Me.)

Education.—In June 1951 there were 2,749 schools (including 1,208 emergency schools), all of which were maintained by the state except 107 semiofficial (state-aided) and 95 private schools. The total number of pupils was 262,499. The University of Santo Domingo had 2,254 students and 172 faculty members. The 1951 budget allocated $4,629,398 for education. The 74 motion-picture theatres had seating capacity of 30,963.

Finance.—The monetary unit is the peso, officially pegged at par with the U.S. dollar. Revenue in 1950 totalled $96,590,000, expenditure $90,881,000. The 1951 budget totalled $74,606,200. The internal debt amounted to $21,261,000 on June 30, 1951; there was no external debt. Notes in circulation on Sept. 30, 1951, totalled 29,510,000 pesos; gold reserve $8,100,000; checking deposits in commercial banks 50,780,000 pesos (including government deposits); time deposits 12,820,000 pesos. The cost-of-living index at Ciudad Trujillo stood at 250 in Sept. 1951 (1941 = 100).

Trade and Communications.—Exports in the year 1950 were valued at $83,500,000; imports were $43,000,000. Leading exports were sugar (47%), cacao (17%), coffee (15%) and tobacco (6%). Leading customers were the U.S. (44%) and the United Kingdom (42%); leading suppliers, the U.S. (73%), the Netherlands Antilles (5%), the United Kingdom (2%) and Germany (2%).

There were 170 mi. of public railway, all owned and operated by the government, and about 650 mi. of industrial railway, operated mainly by the sugar companies. In 1949 the mileage of surfaced highway was about 500; that of all roads was about 3,000. Motor vehicles in 1948 included 3,124 automobiles and 2,390 trucks.

Agriculture.—In the 1950–51 season, a record total of 587,343 short tons of sugar and 25,813,275 gal. of blackstrap molasses was produced. In the period Jan. 1–Sept. 30, 1951, 496,209 short tons of sugar and 16,392,557 gal. of molasses were exported. Other important crops were coffee (1950–51: 326,899 bags of 132 lb. each), cacao (1950–51: 34,000 short tons), tobacco (1949–50: 24,200 short tons) and bananas (1949–50: 5,237,168 stems). In 1950 there were 1,140,000 pigs, 340,000 goats, (1949) 602,000 cattle, 140,000 horses and 126,000 mules and asses.

Manufactures.—On Dec. 31, 1947, there were more than 4,200 industrial establishments representing a total investment of $98,000,000, of which the sugar industry accounted for more than two-thirds. Important manufacturing enterprises in 1951 included 16 sugar mills, a large chocolate plant, an industrial alcohol plant, 2 cotton textile mills, 2 breweries and a cement plant. (J. W. Mw.)

DANNY KAYE (left), Vivien Leigh and Sir Laurence Olivier singing at the Palladium in London during a 1951 benefit performance for the family of Sid Field, British comedian who died the previous year

Donaldson, Jesse M. (1885–), U.S. postmaster general, was born on Aug. 17 near Shelbyville, Ill., and attended school at Oconee, Ill., and at Shelbyville. He began teaching school in the vicinity, and eventually left his teaching position to accept a post as letter carrier in 1908. He held in succeeding years various positions of increasing importance in the postal service, becoming, by 1945, first assistant postmaster general. He became postmaster general in 1947, the first post-office career man to attain this position.

Under his administration in 1951 an investigation was launched into the "sale" of postal jobs in Mississippi, as a result of which the post office dismissed or filed charges against 56 employees. In October the congress passed legislation to raise postal rates by about $117,000,000 a year and to institute postal pay increases amounting to about $250,000,000 a year.

Donations and Bequests. Philanthropy in the United States apparently reached a record high in dollar volume in 1951. While official statistics of contributions recorded in income tax returns had not been published at the close of the year, preliminary estimates indicated that total philanthropy in the country in 1951 was in excess of $4,250,000,000. The estimated total of philanthropy in 1950 was $4,110,000,000. The latest official figures were for 1948, when the tax returns showed contributions by individuals and corporations estimated at $3,742,483,000.

Publicly announced giving in ten major cities, compiled by John Price Jones Company, Inc., showed contributions 21% greater in 1951 than in 1950 and an increase of 29% in bequests. These increases, however, represented philanthropy in metropolitan areas and were probably higher than the average for the nation.

Rising costs in philanthropic institutions and organizations continued to cause serious concern, and were not wholly offset by increased giving. This concern increased as new taxes, enacted late in 1951, took effect and there was conjecture as to whether increased taxation would lessen total giving.

John Price Jones Company, Inc., questioned 175 persons throughout the United States, all of whom had public records as practising philanthropists, or were acknowledged leaders in the philanthropic field. Seventy-two per cent of these persons believed higher taxes would not adversely affect giving, while 28% expected some decline because of higher taxes. There was a fairly unanimous opinion among those questioned that giving by corporations for philanthropy would increase with more complete advantage taken of tax deductions allowable for contributions.

Such records as were available at the close of the year indicated that corporate giving in 1951 was greater than ever before and probably was in excess of $500,000,000. In 1948 income tax figures showed corporate giving as $239,337,000.

With continued prosperity in 1952 there was every reason to expect the generosity of the American people to hold up to its established level. As competition for the philanthropic dollar became greater, however, philanthropic causes most likely to flourish were those which could present a sound and rational case. The day of easy emotional giving was believed by many to have passed. (J. P. J.)

Great Britain.—The National Thanksgiving fund, launched by the lord mayor of London on March 21, 1950, in gratitude for food gifts from the commonwealth and the United States, was officially closed in July 1951. Sir Denys Lowson, lord mayor of London, announced that of the original target of £2,000,000 only £800,000 had been raised. The following first allocations were made from the fund: £600,000 for halls of residence for women and married students and U.S. men students; £100,000 to London house for maintenance; and £35,000 to the Burn, the parallel establishment in Scotland to London house. These allocations enabled the original purposes of the fund to be carried out.

After the loss on April 16, 1951, of the submarine "Affray," the mayors of Chatham, Rochester and Gillingham launched a relief fund which amounted to £177,492 by December. Eton College launched a building appeal for £1,000,000; by the middle of

November £390,000 had been raised. In August an appeal for £150,000 was launched to endow a chair of commonwealth studies at Cambridge university as a permanent memorial to Jan Christiaan Smuts.

The Nathan committee on charitable trusts, set up in Jan. 1950, continued to receive evidence during 1951; the creation of the committee was welcomed in the sixth report of the Nuffield foundation, published in June 1951. In August the vice-chancellor of the University of Cambridge announced that the trust had granted £37,000 to the university. At the same time a grant of $82,500 was announced from the Rockefeller foundation. The Carnegie United Kingdom trust had granted £4,065,555 since its creation in 1913. Of this sum more than £1,500,000 had been expended on library services. The Pilgrim trust, in its 20th annual report issued in May, forecast "a somewhat less liberal grant policy." In 1950 the trust had made grants of £143,823. (*See* also COMMUNITY CHEST; SOCIETIES AND ASSOCIATIONS, U.S.)

Douglas, Paul Howard

(1892–), U.S. economist and senator, was born on March 26 in Salem, Mass., and spent his boyhood on a farm in Maine. He worked at a variety of jobs to put himself through Bowdoin college, Brunswick, Me., where he was graduated in 1913. He did graduate work at Columbia and Harvard universities and began teaching at the University of Illinois, Urbana. He was a labour disputes arbitrator for the Emergency Fleet corporation in 1918 and 1919, and in the latter year he returned to teaching, successively at the University of Washington, Seattle, and at The University of Chicago. He wrote books on economic theory and served on a number of boards and commissions dealing with such subjects as unemployment, utility rates, old age pensions and labour-management relations.

Douglas was an alderman of the city of Chicago from 1939 until 1942, when he enlisted as a private in the U.S. marine corps. He was wounded and spent 14 months in hospitals, leaving the service as a lieutenant colonel. In 1948 he was elected U.S. senator from Illinois.

In 1951 Douglas was chairman of a senate labour subcommittee investigating ethics in government which helped uncover irregularities in federal offices. Douglas opposed Pres. Harry S. Truman's nominations for two federal judgeships in Illinois, and on Oct. 9, 1951, the senate supported Douglas by rejecting the president's appointments.

Draft: *see* SELECTIVE SERVICE.
Drama: *see* THEATRE.
Dress: *see* FASHION AND DRESS.

Drew, George Alexander

(1894–), Canadian political leader, was born on May 7 at Guelph, Ont., and educated at Guelph Collegiate institute, Upper Canada college and the University of Toronto.

He became leader of the Ontario Conservative party in 1938, member of the Ontario legislature in 1939 and premier of Ontario and minister of education in 1943. In the 1948 Ontario election, although his government won 53 of the 90 seats, he was personally defeated and entered federal politics. On Oct. 2, 1948, he was chosen leader of the national Progressive Conservative party, and was elected to parliament on Dec. 20 of that year. In the June 27, 1949, general election Drew retained his seat in Carleton. As leader of the opposition in parliament, he was the government's chief critic, and repeatedly urged strict parliamentary control of government costs, increased efficiency in government services and substantial reduction of nondefense expenditures. He took the stand that Canada was bound to honour its commitments to the United Nations and under the North Atlantic Treaty organization, but he expressed dissatisfaction with Canada's preparedness. During 1951 Drew's program included emergency price controls, higher pensions for veterans, increased industrial production, encouragement of housing and faster immigration. Fortified by five federal by-election victories, he was vigorous in the house of commons, and succeeded in getting the government to create a special committee to examine all defense expenditures. (C. Cy.)

Drought: *see* METEOROLOGY.

Drug Administration, U.S.

The Food and Drug administration of the Federal Security agency directed 75% of the criminal actions alleging drug violations in the 1951 fiscal year against illegal sellers of prescription drugs. These cases were based on aggravated abuses —sales of dangerous drugs without a doctor's prescription or refills of prescriptions without the physician's authorization. Leads to these violators often came from police officers and social workers or from the families of barbiturate addicts. Drugs involved in the 1951 illegal sales cases included not only habit-forming barbiturates, but also amphetamines, sulfonamides, penicillin and potent hormones too dangerous for use without medical supervision.

Congress recognized the regulatory problems caused by the fringe operators, whose indifference to the public health reflects on the pharmacy profession as a whole, and amended the Federal Food, Drug, and Cosmetic act on Oct. 26, 1951, to provide more direct and effective control of prescription sales and refills.

Manufacturing controls in drug plants had shown gradual improvement—there were fewer recalls and seizures of drugs failing to meet labelled standards. In 1951, 10 dangerous drugs were recalled from the market because of manufacturing errors, faulty controls or unusual reactions in patients, in contrast to 17 in 1950 and 33 in 1949.

In proprietary remedy cases, the courts were especially critical of untrained persons who prepared and promoted medicines represented as cures for serious diseases. Two were sentenced to prison and others warned to stay out of the drug business. Cure-alls, promoted by unprincipled or ignorant operators, still hoodwinked the unwary, the gullible and the incurable who from desperation grasped for any promised benefit. Two promoters of worthless "cures" for cancer and other serious diseases were enjoined.

Therapeutic devices seized included clinical thermometers that did not meet the standards, as well as various types of electrical apparatus, misleadingly labelled as weight reducers or cures for disease. Apart from the vicious claims many made for the treatment of serious diseases, some of the seized devices were dangerous in themselves, including an X-ray machine being used to remove superfluous hair by beauty shop operators without training in the X-ray field, heating pads without thermostatic controls and a device intended for massage of the prostate.

A statistical breakdown of the Food and Drug administration's enforcement activities for the year indicates that 26.5% of enforcement time was devoted to drugs and devices produced within the U.S.; 1,954 drug factory inspections were made; and 5,418 samples were collected. Drug and device seizures numbered 209, and 102 criminal prosecutions were brought in the federal courts for alleged violations.

During the fiscal year, 538 new-drug applications were received and 427 were permitted to become effective, including 171 for veterinary products. No application was formally revoked or refused. The criterion for approval is safety, when used as directed by the labelling. Therapeutic claims of efficacy are subject only to the general drug-provisions of the law, applicable after the new drug is marketed. Many of the applications involved combinations of antihistamines with other drugs; others were a blood plasma extender, a number of ACTH and cortisone products, a synthetic morphine substitute, preparations of the antibiotic drugs neomycin and polymixin B, a number of curare-like drugs and some new anticoagulants.

Predistribution testing and certification is required of certain drugs and of coal-tar colours which cannot be controlled adequately under usual regulatory procedures. The Food and Drug administration certified 296 batches of drugs composed wholly or partly of insulin and 17,391 batches of antibiotics, including penicillin, streptomycin, aureomycin, bacitracin and chloramphenicol. The administration certified 4,466 batches of coal-tar colours for use in foods, drugs and cosmetics. (*See* also FEDERAL SECURITY AGENCY; NARCOTICS AND NARCOTIC TRAFFIC.)

(C. W. CR.)

Drugs: *see* AGRICULTURAL RESEARCH ADMINISTRATION; ALLERGY; BIOCHEMISTRY; BLOOD, DISEASES OF; CHEMISTRY; CHEMOTHERAPY; DERMATOLOGY; DRUG ADMINISTRATION, U.S.; ENDOCRINOLOGY; HORTICULTURE; MEDICINE; NARCOTICS AND NARCOTIC TRAFFIC; STOMACH AND INTESTINES, DISEASES OF; TROPICAL DISEASES; VETERINARY MEDICINE. *See* also articles on specific diseases, such as CANCER; DIABETES; etc.

Drug Traffic: *see* NARCOTICS AND NARCOTIC TRAFFIC.

Drunkenness: *see* INTOXICATION, ALCOHOLIC.

Dry Point: *see* ETCHING.

Duff, James Henderson

(1883–), U.S. senator, was born on Jan. 21 at Mansfield (later renamed Carnegie), Pa. He took his bachelor's degree at Princeton university in 1904 and his law degree from the University of Pittsburgh in 1907. He practised law in Pittsburgh from 1907 to 1943 and as early as 1912 became active in Republican politics. In Jan. 1943 he became attorney general of Pennsylvania and in 1946 was elected governor of the state. On Nov. 7, 1950, he was elected U.S. senator from Pennsylvania despite the powerful opposition of Joseph R. Grundy, Republican political boss of the state, defeating the senate Democratic whip, Francis J. Myers.

Generally identified with the liberal Republican group in congress, Duff in 1951 supported the sending of additional U.S. troops to Europe and upheld Pres. Harry S. Truman's dismissal of Gen. Douglas MacArthur. On Sept. 18 he voted (with eight others) to sustain President Truman's veto of a bill granting veterans pensions for nonservice disabilities. During the year he was also active in promoting the presidential candidacy of Gen. Dwight D. Eisenhower.

Duke Endowment: *see* SOCIETIES AND ASSOCIATION, U.S.

Dulles, John Foster

(1888–), U.S. attorney and international law expert, was born Feb. 25 in Washington, D.C., graduated from Princeton university, Princeton, N.J., in 1908 and was awarded a law degree at the George Washington university law school in 1911. As a specialist in international law he assisted the U.S. state department in Panamá, where he arranged for that republic's war declaration in 1917. In World War I he served as a major on the army general staff, and after that war went to the Paris peace conference as U.S. counsel on reparations and other financial matters. He drafted several of the treaty clauses. Between the two wars he became a prominent international lawyer. After a trip to Europe in 1937 he underwent, by his own account, a "spiritual change," and became convinced of the need for a Christian ethical basis to win a lasting peace. He became chairman of the Federal Council of Churches Commission on Just and Durable Peace. He was a member of the U.S. delegation to the 1945 conference to organize the United Nations at San Francisco, Calif., and was high in U.S. councils at many postwar international conferences.

In 1951, as U.S. ambassador-at-large, he travelled to both Asia and Europe to arrange for agreement among the World War II allies, the U.S.S.R. excepted, to a peace treaty with Japan. For these measures he was repeatedly denounced by high soviet officials, but he won general support for the treaty terms, and it was signed in San Francisco on Sept. 8 by Japan and 48 non-Communist nations, with Dulles one of the members of the U.S. delegation. He was also, on May 12, 1951, re-elected chairman of the Carnegie Endowment for International Peace.

Dutch Overseas Territories: *see* NETHERLANDS ANTILLES; NETHERLANDS NEW GUINEA; SURINAM.

Dyestuffs.

The volume of production and sales of U.S. dyestuffs in 1951 maintained essentially the same high level established during the preceding year. The needs of the civilian economy were generally fulfilled with some minor exceptions. Through technological advances in dyeing and finishing and the increased use of vat and other fast colours, the quality of dyed merchandise was better than ever before. The industry continued its policy of close co-operation with the armed services; defense requirements accounted for 80% of the consumption of such vat colours as khaki, brown and olive. Increases in the costs of raw materials and labour were not reflected in the prices of dyes, most of which remained at the 1950 parity. Despite aggressive competition from foreign dye exporting countries, credit restrictions and other economic and political factors, the U.S. industry held approximately the same volume supplied to export markets in 1950.

Several new synthetic fibres possessing unusual characteristics were introduced commercially. They could be used alone or combined with those of natural origin to form unique fabric constructions. These new fibres and their resultant blends imposed numerous technical difficulties of coloration which were largely overcome through the combined knowledge of the textile and chemical industries.

Production of U.S. dyes in 1950 was 195,713,000 lb., an increase of 40% or 56,324,000 lb. over 1949. The output in 1950, however, was 8% less than the record production of 212,000,000 lb. in 1947. In 1950 sales of all dyes amounted to 188,382,000 lb. valued at $190,786,000, compared with 136,244,000 lb. valued at $142,513,000 in 1949, an increase of 38% in quantity and 34% in value. The average unit value of sales of all dyes declined to $1.01 per pound from $1.05 in 1949, largely because of increased production of a number of cheaper dyes. The vat colour group continued to hold the top position in both production and sales accounting for 34.9% of the 1950 total, an increase of 2.8% over 1949. Direct dyes represented 21%, sulphur dyes 12% and acid dyes 11%.

Production of anthraquinone vat dyes increased 32%, azo dyes 28%, indigoid dyes 89% and sulphur dyes 37% over the 1949 figures. The greatest increases in terms of quantity were for synthetic indigo, 95% higher, and sulphur black, up 44%—both low-priced dyes—while only relatively few dyes showed a decline in production compared with 1949 figures.

Sales of vat dyes exclusive of indigo amounted to $51,409,000, direct dyes $43,563,000, acid dyes $22,940,000 and sulphur dyes $7,628,000, the latter being exceeded in total value by the acetate, azoic and basic dyes. Production and sales figures for 1951 were not available at the end of the year.

The United States bureau of customs indicated an increase in dye imports from $2,200,000 in 1949 to $4,100,000 in 1950 (foreign value). Switzerland supplied 73% of the total quantity imported, Germany 19% and the United Kingdom 8%.

(A. G. Br.)

Europe.—French, Swiss and German technical organizations held a meeting in 1951 to consider international agreement on methods of testing colour fastness and expressing the results; delegates from 14 countries attended. Nine countries assented to proposals put forward at the final session but others, including Great Britain, reserved a decision. The British observers called attention to the fact that the International Standards organization was already studying the problem. A subcommittee on colour fastness had been set up when the textile committee of the organization met in England in 1949. Later, the committee held another meeting and consideration was again given to colour fastness. Considerable progress was made and agreement in principle was reached on about a dozen tests.

Like many other British industries the dyestuff industry was threatened by the sulphur shortage in the earlier part of the year. But the cuts in United States exports proved less drastic than had been feared and certain economies in the use of sulphur were effected. Nevertheless, the sulphur situation and tightness in the supplies of various coal-tar chemicals made trading in dyestuffs during much of 1951 more difficult than it had been.

A court of appeal in Paris, Fr., ordered the restoration to the former owners of that part of the shareholding of Francolor, the French dyestuffs combine, which had been held by I. G. Farbenindustrie, the German dyestuffs combine, during World War II and subsequently sequestrated by the French government. Following the Paris court order a new company, Cie. Française des Matières Colorantes, was formed to take over the management of the assets of Francolor.

The Allied High commission in Germany issued its final plan for the splitting up of the former I. G. Farbenindustrie. There were to be three large groups, together with a number of smaller ones producing a variety of goods including dyes. Considerable interest was taken in the introduction in Germany of new members of the important copperphthalocyanine group of colours.

(L. E. Ms.)

Ear, Nose and Throat, Diseases of.

The Common Cold and Antihistamines.—It was suggested by Edmund P. Fowler, Jr., in 1951 that colds involve overaction of either the sympathetic or the parasympathetic nervous system of the nose. Since histamine or histaminelike substances are involved in the autonomic balance, antihistamines sometimes interfere in its action enough to produce symptomatic relief. First, they produce on the peripheral vessels an effect of a stimulant, like epinephrine, and perhaps secondarily they act as a paralyzing agent, like procaine or atropine. At any rate, they apparently ameliorate the effects of histamine in the allergic type of cold. It also seemed possible that the antihistamines must have some effect on secondary processes developing after physical or psychic stimuli which tend to predispose to the infectious type of cold in some people.

Observations indicated that a specific hypersensitivity and imbalance of the involuntary nervous system is fundamental in the allergic type of cold. Histamine or histaminelike substances appear to contribute to the symptomatology. The allergic individual is, apparently, the constitutional type in whom there is a comparatively reduced functioning of the sympathetic response from his autonomic nervous system with overaction of the parasympathetic response. This may result either from lack of adequate opposition or from sensitization to parasympathetic stimuli. Either could be influenced by antihistamines, which were shown to have adrenergic (sympatheticomimetic) as well as atropinelike properties.

Whether one could assume that the person who develops the infectious cold does so from overaction of the sympathetic side of his autonomic nervous system was not clear. The theory was presented that when and if the antihistamines have an effect on the infectious cold they block secondary parasympathetic tissue responses in the psychic or physical stimuli stages of certain colds and so produce symptomatic relief. They may also reduce the action of histamine as it is released by infection in the early invasion stages of a mild cold.

The adrenergic action of antihistamines may tend to make the later stages of a cold worse. Whether there is also eventual destruction of the cilia and changes in the cells of the mucous membranes, as with ephedrine and other nose drops, had not been proved by the close of 1951, nor was increased permeability of the epithelium to bacteria and to viruses; but these were not unreasonable expectations. Laboratory experiments indicated that therapeutic doses of the common antihistamines would not be of value in well-developed infectious colds. They might give some help in the early stages of the infectious cold or such colds in which an allergic factor is present. If it be assumed that from 10% to 30% of all so-called "colds" may have a strong allergic or vasomotor component in which antihistaminic drugs would be expected to be beneficial, it must be concluded that antihistaminic agents do not cure the majority of cases of the common cold.

Lipoid Pneumonia.—A survey of 389 chronically ill patients by Bruno W. Volk and his associates, reported in 1951, revealed 57 cases (14.6%) of lipoid pneumonia diagnosed by microscopic examination of the sputum, aspiration from the lung and roentgenologic studies of the chest. Most of the patients used mineral oil as a laxative. Others had used nose drops of various oil-containing medications. The sputum of 55 patients showed lipophages or abundant amounts of free lipoid material characteristic of lipoid pneumonia. Aspiration from the lung also revealed typical lipoid-containing macrophages. Twenty patients showed characteristic roentgenographic manifestations of lipoid pneumonia. Thirteen revealed retrocardiac changes consistent with oil aspiration pneumonia in lateral, oblique and, when indicated, overexposed film studies, although the posteroanterior films did not show such lesions. A significant number of patients had a productive cough and positive physical signs, most frequently observed over the base of the right lower lobe. The fact that the disease progressed after discontinuance of the incitant oily factors was possibly the result of reaspiration of disintegrated lipophages.

The diagnosis of lipoid pneumonia depends upon eliciting the history of prolonged oil ingestion, together with the demonstration of oil in the sputum. For the purpose of identifying the oil in the sputum, three samples are obtained before breakfast. The application of lens paper or cigarette paper to the surface of the expectorated material often reveals the telltale oil drops. Failing this, the oil can be demonstrated by microscopic examination of the sputum, the oil droplets staining characteristically with scarlet red or Sudan III.

The course of lipoid pneumonia is variable, but it should be remembered that a paraffin tumour resembles other tumours, particularly if it occurs on one side only. While the presence of fat in the sputum should not mitigate against an exploratory operation in questionable cases, the demonstration of fat in the sputum in conjunction with a history of prolonged ingestion of oily substances suggests the possibility of lipoid pneumonia as an explanation of a unilateral infiltration in the lung.

Psychological Preparation for Tonsillectomy.—According to Abraham Z. Barhash, all children have a great deal of anxiety about being in hospitals. The failure of physicians to instruct their patients is especially true in the performance of tonsillectomies in children. If one considers the damage that tonsillectomies have brought about by traumatizing children emotionally and causing them to have future states of tension and unhappiness by making them feel less whole and less able to care for themselves in a hostile world, and by making them less able to derive full benefit from the ministrations of the physician, then the tonsillectomy looms as a potentially serious procedure.

As a first requirement in the prevention of such effects, Barhash believes that the physician ought to be honest with the child, and that he should be informative rather than secretive. Depending on the age and the level of understanding of the child, the child should be told what is wrong, what the anatomical facts are, what is going to be removed, how it is going to be removed and what the effects will be. If possible, the patient should be introduced to the scene before the actual operation. When he is taken from his mother, it should be by one with whom he is acquainted rather than by a total stranger. One of the parents should be with the child to the point where he is anaesthetized, and also immediately on awakening. Above all, the physician should avoid anything that encourages fear and confusion.

Maintenance of the Airway-Tracheotomy.—When a patient becomes too ill to expel secretions from his throat and lungs, tracheotomy should be done without delay. Drainage is thereby made more effective than with a nasal catheter, and the larynx is not injured. Life is often saved, and even in hopeless cases the airway is cleared and bronchopneumonia is prevented. Roy W. Dickman and Ivan D. Baronofsky operated at the first indication of respiratory obstruction. The trachea was opened by them in 14 surgical cases involving such grave conditions as severe head injury, chest wounds with fractured ribs, haemothorax or tension pneumothorax, third-degree burn from inhalation of hot fumes, ruptured ulcer with peritonitis and separation of an esophageal suture after the resection for carcinoma.

If secretions collect and air flow is reduced, mucus rapidly becomes more viscid, clogging the cilia and dulling the cough reflex. As more air is cut off, cyanosis, cerebral anoxia and stupor develop, still further deadening the response to bronchial irritation.

The unconscious patient, originally free of pulmonary symptoms, is too often suffocated by the sticky mucoid accumulation. If the subject is stuporous, a nasal catheter drainage requires a laryngologist rather than a nurse, and the procedure may be necessary every 30 minutes for several days. The larynx is inevitably damaged as a result.

Even in the deepest coma, a catheter inserted through the tracheotomy tube arouses a vigorous cough reflex which empties the small bronchi and bronchioles. Both air and sputum are passed more easily than through the larynx and the patient's respiratory efforts are much reduced.

Artificial drainage should be started when obstruction is severe enough to cause cyanosis, rapid pulse and tachypnoea. The breathing may be deceptively loud, since air sometimes enters the pharynx, larynx and upper trachea freely when the bronchioles and alveoli are blocked with mucus. However, auscultation of the chest will reveal poor breath sounds and bronchial rales.

Large amounts of tenacious sputum are sometimes removed, and suction may be continued for almost 20 minutes at a time. This may be carried out by experienced nursing personnel. Obstructive symptoms immediately subside, complications seldom develop and the wound heals two to seven days after withdrawal of the tube.

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(F. L. LR.)

Earnings, Company: *see* BUSINESS REVIEW.

Earthquakes: *see* DISASTERS; SEISMOLOGY.

East Africa, British: *see* BRITISH EAST AFRICA.

East Indies, Dutch: *see* INDONESIA; NETHERLANDS NEW GUINEA.

Eclipses of the Sun and Moon, 1952: *see* ASTRONOMY; CALENDAR, 1952 (page xxxii).

Economic Cooperation Administration: *see* EUROPEAN RECOVERY PROGRAM.

Economics.

The Korean war began to take on the appearance of a stalemate during 1951 with some prospects of a cease fire and armistice by the end of the year. Back of this conflict was a persistently touchy and potentially explosive situation as between the United States and the U.S.S.R., each nation flanked by a sizable group of allies. To complicate matters Great Britain ran afoul of serious economic and political difficulties in the middle east at about midyear.

The problem of economic mobilization forced all other issues into low priority positions on the agenda of both governmental officials and economists. Serious rearmament was initiated in 1950 out of a situation closely approximating full employment and continued to encounter the resistance of established high standards of consumption. While the price upswing characterized by scare buying in the latter half of 1950 had perceptibly abated by the middle of 1951 it left its trail in price and wage distortions which presaged a continuing although slower upward movement. A prospectively unbalanced federal budget at least until mid-1953, in spite of a tax program designed to raise an unprecedented $60,000,000,000 to $70,000,000,000 per year, made this appear all the more certain. The gross national product reached a $328,000,000,000 annual rate, also unprecedented, at the end of the year and seemed destined to climb to close to $345,000,000,000 in 1952. Economists in the United States and, as a matter of fact, throughout the western world, were concerned during 1951 with the closely related problems of mobilization, inflation and fiscal policy.

There was, however, another group of equally pertinent issues. United States dependence on and commitments to the North Atlantic Treaty organization joined with British difficulties in the middle east to force attention on the problems of international trade, international investment and aid both to allies and undeveloped countries.

At the annual December meeting of the American Economic association in Boston, Mass., more than half the papers were related directly or indirectly to one or the other of these two groups of topics: mobilization-inflation-fiscal and trade-aid-international. Papers with a purely theoretical orientation were few in number. This problem emphasis had characterized both academic and scientific economics for at least a decade.

Aggregative income-flow analysis continued to hold dominant sway over the textbooks. Those containing the elaborate traditional models or even newer ideas on price theory were subject to severe criticism at the hands of reviewers. Oligopoly and olygopsony, separately or in combination, seemed to be about the only ones of the customary price patterns worthy of further attention. In the minds of many, even these more realistic types of analysis had their sure and conclusive justification only in their ability to contribute to existing knowledge of the pattern of monetary flow. Locational theory and the study of technological change assumed a somewhat more prominent place in the science during the year. (G. J. C.)

Economic Stabilization Agency: *see* DEFENSE MOBILIZATION AGENCIES, U.S.

Ecuador. A republic on the west coast of South America, straddling the equator, after which it was named. Ecuador is bounded on the north and east by Colombia, on the east and south by Peru and on the west by the Pacific ocean. It has an area of 104,510 sq.mi. (including the Galápagos Islands, a dependency of 3,029 sq.mi.) and a population of (preliminary figures, 1950 census of the Americas) 3,076,933. About 60% of this figure represents Indians, 30% mestizos, 9% "whites" and 1% Negroes. Quito (pop., 1947 census, 200,185) is the capital; other major cities (with pop. est.) are Guayaquil, the main port (235,000); Cuenca (53,520); Riobamba (28,500); Jipijapa (23,000); Vinces (22,350); Chone (22,280); Ambato (22,300); Loja (21,560); and Latacunga (21,750). The predominant religion is Roman Catholicism. President in 1951: Galo Plaza Lasso.

History.—President Plaza's term was to expire in 1952, and political activity during 1951 in part reflected attempts of the political parties to prepare for the election of his successor. In midyear the Socialist party announced the formal termination of its opposition to the Plaza administration, paving the way for a broadened anticonservative coalition likely to emerge for the 1952 elections. Following the Socialists' action, President Plaza reorganized his cabinet to include in it two Socialists, one Radical Liberal, one member of his own National Civic Democratic movement and four independents.

In May Pres. Harry S. Truman invited President Plaza to visit the United States, which he did from June 20 to 30. While he was in Washington, Plaza received assurances of additional U.S. aid in repairing the damage done by the disastrous earthquake of 1949, and also was given a pledge of more Point Four assistance for his country. In New York city, Plaza addressed the United Nations general assembly. On the way back to Ecuador, he stopped off in Mexico and in Venezuela.

Ecuador's century-old border dispute with Peru was reopened in August when the Quito government charged that. between Aug. 8 and 15, Peruvian forces launched ten small attacks against the Ecuadorian border province of Santiago-Zamora. The charges were denied at Lima, and the matter was referred to the U.S., Argentina, Brazil and Chile, the four states which had mediated the 1941 Peru-Ecuador border war. A mediation conference was called for Aug. 29; when that parley opened at Rio de Janeiro, Braz., the frontier skirmishes had ceased and no further action was deemed necessary. (G. I. B.)

Education.—In the school year 1949–50 there were 2,544 government primary schools with 225,571 pupils, 390 municipal schools with 34,222 pupils and 357 private schools (mostly Roman Catholic) with 61,138 pupils. There were 73 government secondary schools with 16,999 pupils, 11 municipal schools with 2,515 pupils and 72 private schools with 7,882 pupils. Institutions of higher learning included four public universities with 4,512 students, the Catholic university of Quito (164) and the polytechnical school (58).

Finance.—The monetary unit is the sucre, valued at $0.0660 U.S. currency, official rate, and $0.0571, free rate, on Nov. 26, 1951. The budget for 1952 balanced ordinary revenue and expenditure at 465,000,000 sucres (1951: 470,000,000 sucres). Total revenue in 1950 (ordinary and extraordinary; excluding autonomous entities) was 679,594,000 sucres; expenditure, 669,849,000 sucres. The foreign debt in June 1951 was $42,634,000; internal, 141,937,000 sucres. Notes in circulation on Sept. 30, 1951, totalled 453,000,000 sucres; gold reserves $22,400,000; commercial banking deposits 440,000,000 sucres; time deposits 125,000,000 sucres; government deposits 96,000,000 sucres.

Trade and Communications.—Exports in 1950 (Ecuadorian ports only) totalled $63,300,000 (excluding gold); imports through the port of Guayaquil, $42,300,000. Chief exports were coffee (30%), cacao (29%), rice (13%) and bananas (12%). Leading customers were the U.S. (55%), Italy (8%), Peru (8%), Colombia (5%) and Germany (4%). The leading suppliers were the U.S. (67%), Belgium (7%), the United Kingdom (6%), Germany (5%) and Sweden (3%).

The length of the nine nationalized railroad lines in operation in 1949 was 698 mi. Highways (1947) included 1,591 mi. of main roads and 1,121 mi. of branch roads. In 1948 there were 2,921 automobiles, 4,245 trucks and 945 buses. Radios in use on Jan. 1, 1951, were estimated at 45,000.

Agriculture.—Production of the principal export crops in the 1950–51 crop year included cacao 30,707 short tons; coffee 210,000 bags of 132 lb. each and rice (paddy) 149,000 short tons. Exports in 1950 were coffee 341,917 bags; cacao 29,598 short tons; rice 71,051 short tons and bananas, about 8,695,000 stems. There were 1,600,000 cattle and 1,800,000 sheep in 1949. Forest exports in 1950 included tagua nuts 11,216 short tons and balsa and other unmanufactured woods 5,216 short tons.

Manufactures.—The most important manufacturing activity was the textile industry, which produced cotton (principally), silk, woollen and rayon textiles. The manufacture of *toquilla* (Panamá) hats was also important. Cement production in 1950 was 63,516 short tons.

Mineral Production.—Production in 1950 included gold 83,071 fine ounces (excluding placer production); silver 273,200 fine ounces; copper 1,160,000 lbs. and lead 496,000 lbs. Production of petroleum, concentrated on the Santa Elena peninsula in Guayas province, was 2,632,266 bbl. (J. W. Mw.)

Education. The major events in education in the United States during 1951 were (1) the persistent shortages in school facilities, materials and teachers; (2) the rising school population and the costs of school construction and maintenance; (3) the declining student enrolments and budgets in the colleges and universities; (4) the static situation regarding federal aid to public education; (5) the creation of the Ford foundation's funds for the advancement of education and for adult education, with respective initial grants of $7,154,000 and $3,000,000; (6) the scandals in higher education involving cheating on tests by cadets of the United States Military academy and the acceptance of bribes by college basketball players; (7) the passing of the Universal Military Training and Service act amendments granting temporary deferment to certain high school and college students whose work is satisfactory; (8) the rather slow progress in breaking down the barriers of racial segregation in higher education in the south; (9) the record enrolment of more than 30.000 students from other countries in the colleges and universities; (10) the successful repudiation by faculty personnel at Ohio State university, Columbus, of most of the restrictions imposed upon visiting speakers; (11) the abrogation by the regents of the University of California of the anti-Communist oath; and (12) the vigorous counterattack by U.S. educators and laymen against the extreme critics of public education.

Statistics.—The office of education of the Federal Security agency estimated in September that the total enrolment in public and private schools was as follows: elementary schools, 24,468,000; high schools, 6,168,000; colleges 2,225,000; grand total 33,121,000, marking an increase of about 420,000 over the previous year. There were rises in enrolment in elementary and secondary education, but a decline in higher education. The office of education announced that the 1951 figure was the highest ever attained.

In November the office of education reported the findings of its fourth annual national survey of attendance in colleges and universities. The revised over-all figure was 2,116,000 for 1,806 institutions, a drop of 10.8% in male students and of 1.3% in female students below the registration of 1950. The number of male freshmen decreased by 12.1%, while that of women freshmen dropped by 3%. The general percentage of decrease for the year was 7.8. The number of veteran students declined by 32.1%. The type of institution which suffered the greatest drop in enrolment was the teachers' college, which had 170,034 students as compared with 190,745 in 1950, a loss of 10.9%. The freshman students in the teachers' colleges numbered only

Above: SWEDISH MASS CALISTHENICS for coeds at Michigan State college, East Lansing, a course introduced there during the academic year 1950–51

Above: NEGRO STUDENT (centre) in the dining hall of the University of Missouri, Columbia, in 1951. He was one of the first ten Negroes admitted to the university following a circuit court ruling in their favour

Below: STUDENTS at Rollins college, Winter Park, Fla., volunteering for odd jobs to help ease a college deficit in 1951. A number of small U.S. colleges faced similar hardship during the year caused by reduced enrolments and rising costs

Below: ARAB BOYS learning to make shoes in 1951 at one of the elementary schools of the El Karameh camp maintained in Jordan by the U.N. Relief and Works Agency for Palestine Refugees in the near east

44,081, a decrease of 15.9%.

The 32nd annual census of college enrolments by Raymond Walters, president of the University of Cincinnati, showed that there were 1,275,404 full-time and 489,133 part-time students, 1,764,537 in all, in 818 approved institutions of higher learning. In contrast to 1950, there was a full-time reduction of 11.4%; a part-time increase of 4.6%; and a general decrease of 7.8%, a figure which coincided with that of the office of education (*School and Society* [Dec. 22, 1951]). (*See* also Veterans Administration [U.S.].)

Federal Participation in Education.—As he had done in earlier years, Pres. Harry S. Truman requested congress in January to pass immediate legislation providing federal aid to public education. However, very little action was taken by congress during the year to make practical his recommendations. On Feb. 22 (legislative day, Jan. 29) Sen. James E. Murray of Montana and Sen. Brien McMahon of Connecticut introduced S. 947, Educational Finance Act of 1951, which authorized the annual appropriation of $300,000,000 to the several states for the reduction of the inequality of educational opportunity in elementary and secondary education. This bill contained a special provision that federal funds could be used to transport pupils of private schools, including parochial schools, in all states where such payments are legally permissible. Still another provision attempted to ensure that states maintaining separate schools for minority races should apportion the funds justly and equitably to all schools. Several months later, on June 14, Rep. Graham A. Barden of North Carolina, chairman of the house committee on education and labour, introduced H.R. 4468, a bill which provided federal financial help to the states and territories to set up "an adequate minimum program of education" in an effort "to more nearly equalize educational opportunities in public elementary and secondary schools." According to this Public School Assistance Act of 1951, an annual sum of $314,000,000 was to be given toward the support of public, but not private, schools. In both cases, the bills were referred to the committees in the respective legislative chambers, but the year ended with no further congressional action.

An unusual event was the veto by President Truman early in November of H.R. 5411, a bill authorizing the government to construct, maintain and operate elementary and secondary schools in communities where federal defense activities were an excessive burden on school facilities. This bill was passed unanimously by both houses of congress, but it incurred the opposition of the president because of the presence of a clause which would perpetuate the segregation of the races in schools. Congress passed public law 51 during June. This law amended the Universal Military Training and Service act to allow high school and college students who are doing well scholastically to be deferred temporarily from military service. Other educational bills which were introduced in congress but which were not acted upon were S. 337, an attempt to set up an emergency five-year program of scholarships and grants for students of medicine, dentistry and allied professions; H.R. 910, a program of grants and scholarships to aid nursing education; S. 1452, an annual grant of $750,000 to the several states for the development and improvement of public library service in rural localities which lack any libraries or adequate library facilities; and H.R. 5215, an appropriation of $300,000 to the National Science foundation. The sum in the last-named bill was a reduction by 98% of the $14,000,000 requested by the foundation. Such action by the house of representatives led to a resolution in September by the American Chemical society that congress restore the full amount.

Elementary and Secondary Education.—After a six-month survey of conditions in the rural schools, the *New York Times* reported in March that the prevalence of inadequate courses of study, not fully qualified teachers and below-standard buildings and facilities resulted in the situation whereby one out of every four pupils in the rural schools was receiving "only a second-rate schooling." These conditions were in evidence, stressed the report, in spite of the fact that efforts had been expended in recent years to improve rural education. Also in March, the National Child Labor committee reported the results of a national survey which indicated that the rate of dropping out prior to graduation by high school boys and girls had increased. According to this study, pupils in 119 representative school systems in various parts of the country dropped out of school chiefly on account of tension and uncertainty over the draft, as well as of greater opportunities for employment. In June William Jansen, superintendent of schools in New York city, made the startling revelation that one out of every 200 pupils in the high schools under his supervision was a probable user of narcotic drugs. A possible clue to these unfortunate developments was evident in the report released in October by the Commission on Life Adjustment for Youth, a group sponsored by the office of education. On the basis of a study lasting three years, the commission concluded that the high schools did not furnish satisfactory training for the 60% of the high school boys and girls who did not plan to enrol in college or to take up a specific trade. In line with this finding, the commission suggested revisions in the curricula of the high schools in order to make the studies more responsive to the needs of boys and girls.

The use of television in education expanded during the year. When the schools of Minneapolis, Minn., were closed in January because of a strike by school janitors, pupils were taught by means of television at home. Snow and ice kept pupils in the vicinity of Memphis, Tenn., confined to their homes for several days, but lessons in arithmetic, biology and history went on through the co-operation of television station WMCT. The great popularity of television among youth was attested to by a study made by Paul Witty, professor of education at Northwestern university, Evanston, Ill., in which it was shown that high school pupils devoted a larger share of their time to watching television programs than to motion pictures, radio programs and the reading of books. Other interesting developments were the reports in October of bribery offers to high school football players in Connecticut and to basketball players in Kentucky, and the strike by pupils in four Catholic high schools in Pittsburgh in December as a protest against the discontinuance of football by the diocesan athletic committee.

Higher Education.—The knotty question of how to finance colleges and universities again came to the fore in 1951. Inflation and the decline in funds from tuition pointed to curtailment of curricula and reduction of teaching personnel. That no substantial crisis ensued was attributed to the increased appropriations by municipal and state legislatures, additional contributions by alumni and other citizens and grants by various foundations and other organizations. An important debate during the year concerned the acceleration of studies to make it possible for students to complete their degrees in three years, as was the practice during World War II. The Korean crisis did not prevent 55% of 205 colleges and universities from regarding acceleration as unnecessary and undesirable, according to the results of a survey reported in March by the American Council on Education. Another controversy dealt with the executive order by President Truman setting up a plan of draft deferment based on superior scholastic performance in college. The presidents of Harvard and Princeton universities looked upon this plan as undemocratic, while the heads of Columbia and Yale were more favourably disposed toward it. In the meantime, more than 175,000 students were given aptitude tests in mathematics, vocabulary and reading comprehension in order to determine whether they would be deferred from military service. The results of these examinations, released in October, indicated that 37% of the students tested failed to obtain the passing score of 70. Unless these students were in the upper levels of their classes, they would be inducted into the armed forces. In this way, the provisions of public law 51 granting temporary deferment to qualified students were being administered.

In the realm of curriculum, Harvard inaugurated its widely heralded general education program; Johns Hopkins university, Baltimore, Md., allowed qualified undergraduates to start graduate study without a bachelor's degree; and two Catholic institutions, Fordham university, New York city, and the University of San Francisco, San Francisco, Calif., introduced courses on communism. Foreign studies prospered as a result of the opening of the American Academy of Asiatic Studies in San Francisco, the Institute of War and Peace Studies at Columbia university, New York city, and the expansion of Russian and Asiatic studies at Columbia; Cornell university, Ithaca, N.Y.; Dartmouth college, Hanover, N.H.; and Michigan State college, East Lansing. On the level of professional education, Columbia co-operated with 12 liberal arts colleges to offer a combined five-year plan granting the B.A. and B.S. degrees to students continuing work in engineering at Columbia. Campaigns were organized to improve instruction in nursing, a profession which was experiencing an acute shortage of qualified practitioners. To provide adequate funds to train properly the record number of medical students—26,191 in 1950–51—the National Fund for Medical Education was established.

Among other events of interest to higher education in 1951 were the reports about the inadequate service rendered by the majority of college libraries; the availability of exceptionally well-paid positions to the 500,000 students who graduated in June; the termination of new educational benefits under the G.I. Bill of Rights, a program to which the government had already paid $12,600,000,000; the increase in graduate enrolment over that of 1950; the pact by five southern universities, operating under the regional educational program, to develop and improve on a co-operative basis their instruction in forestry; the use of colour television in the teaching of medicine at the University of Kansas, Lawrence; the publication of *God and Man at Yale* by William F. Buckley, Jr., an exposé of alleged secularist and leftist tendencies at that institution, which aroused discussion and debate in higher educational circles all over the nation; the enrolment of more than 30,000 students from other countries, mainly in the fields of engineering, liberal arts and social sciences, in 1,400 institutions, with Columbia university, the University of California and New York university having more than 1,000 students each; the commencement of a recruiting campaign in the colleges for personnel for the U.S. foreign service; the graduation in December of 93 men in the U.S. air force as competent Russian-language specialists after an intensive course of 11 months at Syracuse university; the completion of a study which revealed that the lack of qualified personnel had prevented the development of programs of social work all over the nation and that improvement in social work education was necessary; and the announcement in December, based on a survey by the office of education, that there were 125,000 scholarships totalling $27,000,000 for undergraduate students and 14,000 fellowships for graduate students valued at $9,500,000, or one grant for about 20 students in all types of colleges.

"DOES IT BOTHER YOU—" a cartoon by Manning of the McNaught Syndicate, Inc., published in 1951

The greatest amount of public attention was focused upon the revelations regarding the status of intercollegiate athletics. The authorities at the United States Military academy dismissed 90 cadets on the charge of having cheated in examinations. These students, according to the superintendent of the academy, composed a group of football players and their friends.

After widespread publicity to this affair both at home and abroad, many of the ousted cadets gained admittance to other colleges, with 21 having their expenses paid at the University of Notre Dame, Notre Dame, Ind., by an anonymous benefactor. Another national scandal, this time in basketball, affected seven colleges in the east and midwest. Basketball players of national repute were arrested for allegedly having accepted money to "fix" the results of intercollegiate games. As these facts were disclosed, a wave of criticism emanated from college and lay sources. Some institutions announced reforms in the administration of athletics, such as the removal of subsidies to athletes and greater stress on intramural than on extramural sports. In November the American Council on Education appointed a committee of ten college presidents to look into the abuses in the organization and administration of college athletic programs.

The Teacher Situation.—The annual survey of teacher supply and demand, conducted by Ray C. Maul, professor of education at the Kansas State Teachers college, Emporia, for the National Education association, reported that only 32,000 new elementary school teachers were available to meet the minimum of 80,000 vacancies.

Adult Education.—For the most part, the outstanding developments dealt with the use of radio broadcasts to keep the public informed about social conditions in areas under Communist domination, a phase in the propaganda war, and with the educational role of television. In January the National Association of Educational Broadcasters sent a complaint to the Federal Communications commission regarding the practice of television stations of devoting 10% of their time to adult crime plays, but no time for child care, economics, U.S. history and the fine arts. The chairman of the commission, Wayne Coy, announced the results of a survey that showed as many as 23.9% of television owners reading newspapers less often than prior to obtaining their sets. Interestingly, the *Statistical Yearbook* of the United Nations placed the U.S. in seventh place as a newspaper-reading nation. Throughout 1951 there was a debate about the allocation of television channels for educational uses.

Race and Religion.—While the pattern of racial segregation in southern institutions of higher education, by virtue of U.S. supreme court decisions in previous years, was slowly breaking down, there was ample evidence that there would be considerable resistance. Moreover, it was apparent that the struggle to retain segregated schools would be especially intense with regard to elementary and secondary education.

Early in January the U.S. supreme court ruled that Louisiana State university, Baton Rouge, must admit Roy S. Wilson, a qualified Negro student, to its law school. In October the same court ordered the university to permit Negro students to study in the school of nursing. The fact that the federal district court of Tennessee handed down a decision in April compelling the University of Tennessee, Knoxville, to admit Negroes to its professional schools did not remove the barrier of segregation; it was necessary for four Negro students to submit an appeal in December to the U.S. supreme court regarding their application for admission to the university. The University of North Carolina, Chapel Hill, announced in April that it would accept its first Negro medical student and in November, after some debate, it allowed Negroes to sit beside white students at varsity football games. However, the University of Georgia, Athens, did not allow a Negro student to enter the law school, while Florida State university, Tallahassee, refused to play a football game with Bradley university, Peoria, Ill., because of the presence of Negro players on the latter team.

The greatest opposition to the removal of segregation practices was manifest in Georgia and South Carolina. On Jan. 31 the speaker of the Georgia house of representatives introduced a constitutional amendment, reputedly originating with Gov. Herman Talmadge, to preserve segregation in spite of adverse court decisions by assigning all Georgia schools and the university system to private individuals. The following month the legislature passed an appropriation law which would withhold state funds from all common schools if a Negro should be admitted to a single white school and from the entire university system if a Negro should enter one unit. Late in May Negroes challenged the constitutionality of the practice of educational segregation in federal court, Clarendon county, S.C. Other court actions along similar lines took place in Wilmington, Del.; Topeka, Kan.; and Pensacola, Fla.

The office of education announced the presence of 74,526 students in Negro colleges during 1950, whereas in 1900 there were only 2,624 enrolled.

Unlike 1949 and 1950, there was no nation-wide controversy between Protestants and Catholics over the question of federal aid to parochial schools. However, there were disagreements in limited areas. Thus, in February, Catholic educators denounced a teacher training bulletin published by the board of education of New York city as "atheistic" and critical of Catholic philosophy and values. The New Mexico school board banned in March the wearing of religious habits by Catholic nuns and brothers teaching in the public schools. In Wisconsin, a Protestant parent brought suit in September against the practice of allowing nuns to teach in the public schools. The plan of releasing children one hour each week for religious instruction was declared constitutional in June by the New York state court of appeals, but protests continued for the rest of the year. An official body of Reform Jewish rabbis passed a resolution against released time instruction, a move which brought forth much criticism from the Catholic clergy. In December the U.S. supreme court agreed to review the constitutionality of this type of religious teaching. The custom of religious baccalaureate services was characterized as religious instruction and hence illegal in school buildings, according to a ruling by the New York state commissioner of education in June. As the year was drawing to a close, two controversies were going on: a protest by physicians, ministers and others against the decision by the New York state board of regents omitting all questions about the germ theory of disease from high school regents' tests as offensive to Christian Scientists; and support and condemnation of the regents' suggestion that each school day be started with a nonsectarian prayer.

Communism and Academic Freedom.—The dispute which strained relations between the faculty and the board of regents of the University of California over a period of two years was settled by two actions. In October the board voted to discontinue the anti-Communist oath requirement, and in November it defeated an attempt to reconsider the first vote.

What started out as a similar *cause célèbre* in academic freedom came to a speedier conclusion. In September the trustees of Ohio State university issued a regulation that all speakers invited to the campus must be screened on the basis of loyalty and background. This touched off a chain of protests by the faculty, professional organizations, the American Association of University Professors and church groups. The tenor of all this criticism, which also included resolutions by educational bodies not to meet at the university, was that this "gag rule" constituted an infringement upon academic freedom threatening the spirit of freedom in higher education everywhere. For their part, the trustees justified their action on the ground that numerous protests were received after the speech on the campus in July by Harold Rugg, whose textbooks in the social studies had been described as "socialistic." In spite of some concessions made in the regulation early in November by Pres. Howard L. Bevis, the protests continued. Shortly afterward, the council of the American Association of University Professors declared that the trustees' rule was "subversive of the functions of a free university in a free society" (the *New York Times* [Nov. 11, 1951]). One month later, the trustees voted unanimously to approve a revised set of regulations which had been developed by means of joint faculty-trustee conferences. Although the faculty as a whole regarded the new regulations as a victory, it was not entirely satisfied because some of the restrictions remained.

The case of the eight teachers in New York city who had been suspended in March 1950 for having refused to say whether they were Communists also reached a definite conclusion. Early in February the board of education unanimously upheld the findings of the special trial examiner, who had recommended at the end of the previous year that these teachers be dismissed. A similar unanimous vote was delivered by the board in December regarding the policy of dismissing teachers who were proved to be members of the Communist party or other subversive organizations. In this connection, it is interesting to note that the Communist party of New York state withdrew in September its appeal to the U.S. supreme court to test the constitutionality of the Feinberg law, which bars from public school positions any members of groups described by the New York state board of regents as subversive. Resolutions to prevent the appointment of teachers who support communism were adopted in December by the New York State Associations of Elementary and Secondary School Principals. Also in December the New York state board of regents announced that it would appoint a commission of three persons, including the state commissioner of education, to conduct an investigation to determine whether school texts contained any subversive material. Elsewhere, the Ohio supreme court upheld in November the requirement by the Cleveland board of education of an anti-Communist oath of prospective teachers.

Of particular interest to the problem of academic freedom was the result of a survey released in May by the *New York Times*. Here was an indication that the faculty and students of 72 representative colleges felt that free inquiry was being stifled by the fear of being branded with the label of "red" or "pink."

International Educational Relations.—The Institute of International Education reported in April that there were more than 30,000 students from other countries attending 1,400 U.S. colleges and universities during 1950–51, as compared with the 26,433 in attendance at 1,210 institutions during the previous academic year. The report also made note of the fact that public funds such as those available under the Fulbright and Smith-Mundt acts paid for all or part of the expenses of about 13% of these students; and that an important factor in the rise in such enrolment was caused by the influx for the first time of students from many areas of Asia and Africa. The greatest concentrations of foreign students were at Columbia (1,414), the University of California (1,232) and New York university (1,211). At the Massachusetts Institute of Technology, Cambridge, they constituted 9.13% of the total enrolment. The subjects attracting most students were, in order of frequency, engineering, liberal arts and social sciences. In August Japan and the U.S. signed an agreement under which the program of Fulbright educational exchanges was extended to the former. In September more than 350 teachers and educational officials from 43 nations arrived in the U.S. to make a study of educational philosophies and practices.

The sixth annual conference of the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.), June 18 to July 11, at Paris was uneventful in comparison with the stormy session of 1950. Presided over by Howland H. Sargeant, head of the U.S. delegation, the conference stressed fundamental education to reduce illiteracy all over the world, technical aid to underdeveloped nations and work with youth. Perhaps the most significant resolution passed was to establish at an estimated cost of $20,000,000 a 12-year program for the training of teachers in the principles and practices of fundamental education at six geographically distinct centres. The first of these had already been opened in the spring at Patzcuaro, Mex., to train the teachers of the Latin-American area. The 1951 conference also decided to admit territories which still lacked full sovereignty, such as Cambodia, Japan, Laos, Viêt-Nam and western Germany, as associate members; to adopt a budget of $8,700,000 for 1952; and to hold conferences biennially after the 1952 meeting in Paris. The total membership of U.N.E.S.C.O. comprised 64 nations, with 3 countries from behind the "iron curtain" (Czechoslovakia, Hungary and Poland) and Ceylon and Saudi Arabia absent from the 1951 general conference. Other U.N.E.S.C.O. items of interest included a congress of French and German teachers of history during the summer at Mainz, west Germany, to study the problem of improving the content of history textbooks so as to serve the cause of international understanding; the report in November that Spain refused to permit the distribution of a shipment of U.N.E.S.C.O. picture albums which portrayed the struggle for human rights from early times to the present; and the announcement in December of the U.N.E.S.C.O. project for the publication of a six-volume history of mankind by a committee of 1,000 international scholars.

World Trends.—Undemocratic and anti-Semitic sentiments continued to manifest themselves in west Germany as during 1950 and earlier years, in spite of efforts by U.S. and other Allied officials to reorient the Germans toward democracy. In the soviet zone of Germany it was evident that the Communist pattern of higher education was being increasingly imposed over the universities. Educational work by the U.S. continued in Japan, even after the signing of the Japanese peace treaty, but signs of Communist influence were evident, as when 3,000 students sang the Communist hymn and heckled Emperor Hirohito in November at Kyoto. The South Korean government, in spite of the discouragement caused by the war, exerted itself to maintain and improve educational services.

The U.S.S.R. did not let up in its campaign to indoctrinate the peoples in the satellite countries with its political and educational dogmas; in fact, it intensified its efforts on many occasions at home and abroad. In February an influential committee of the Communist party demanded an increase in "scientific atheistic propaganda" by means of lectures in Moscow and its environs. A new minister of higher education, V. Stolstov, was appointed in February by the presidium of the supreme soviet, apparently in response to the publication of a severe criticism of antiquated educational philosophy and practice by *Pravda*. Other events behind the "iron curtain" included the taking over in February by the Chinese Communist regime of the Yenching university, sponsored for 32 years by the United Board of Christian Colleges in China, an organization with headquarters in New York city; and the resolution in June by the Politburo of the Czechoslovakian Communist party to supply new elementary and secondary school textbooks composed in the spirit of communism.

Events of significance in other countries included the passing by the French parliament in September, in reversal of the traditional policy of church-state separation, of two laws granting state scholarships to students of Catholic schools and funds to Catholic groups of parents of primary school children; the opening in Peru of 229 new primary schools and the introduction of educational reforms; demonstrations and disorders by Egyptian and Iranian students, in connection with protests against the British and other foreigners, which led to the closing of the universities in Cairo and in Tehran; the beginning of negotiations between Spain and the Vatican about a concordat to allow Catholic Church officials greater autonomy and freedom in the sphere of education; the launching in November of a defense college in Paris to train senior officers and civilian officials of the 12 nations constituting the North Atlantic Treaty organization in the procedures of international military co-operation; and the founding during the same month at Strasbourg, Fr., of the College of Free Europe, with 85 students who had emigrated from Communist countries, the only college of its kind in the world. In Israel, there were indications of progress in education. After the resignation of the government over the issue of religious education in the immigrant camps, there was a new election and the subsequent coalition government compromised with religious parties to the extent of appointing a religious deputy minister of education. The opening of the new school year in September showed an enrolment of 320,000, twice as many as enrolled in 1949. (W. W. Bn.)

Canada.—The Canadian research committee on practical education ended a four-year exhaustive study into secondary education during 1951 and published 45 specific recommendations, including more stress on arithmetic, grammar and composition; closer relationship between the school and business and industry; longer training for teachers; larger variety of courses for secondary schools; development of basic skills; and creation of a national bureau of educational research. By the end of the 1950–51 school year an estimated 20,000 classrooms in 6,764 schools listened to half-hour radio broadcasts specially written for schools. Although the Canadian Teachers' federation urged federal financial aid to education, and a private resolution in the house of commons called for such financial aid to equalize educational opportunities, the government rejected the proposal on the grounds that it would be a federal invasion of provincial rights. However, the government did propose, and parliament accepted, a grant of about $7,000,000 to Canadian universities.

British Columbia continued to be the province spending most per capita on education, or $13.87 against the low of New Brunswick's $6.60. Making the proceeds of the sales of school lands available for wider investment opened the way for more badly needed aid to Manitoba schools. In Ontario a new interpretation of the Separate (Catholic) School act meant a larger share of taxation for such schools. A $20,000,000 school construction program got under way in Quebec for the separate (Protestant) schools of that province. Newfoundland raised compulsory education from 14 to 15 years.

Parliament voted $1,250,000 to the provinces for 1951–52 capital expenditures for vocational schools, buildings and equipment. During 1950–51 the vocational training branch of the federal department of labour administered $5,670,920 for the training of 22,075 students in full-time courses and 157,000 in other courses. (C. Cy.)

Great Britain.—In Nov. 1950 the Durham county council threatened to dismiss any of its employees who were not members of a trade union or professional organization. The National Union of Teachers protested on behalf of its members and, failing to obtain satisfaction, in April 1951 made arrangements for them to resign from their posts. At this point the minister of education intervened with an order to the Durham authority to rescind its decision. For a while the council resisted, but finally gave way. In August the teachers' representatives complained to the minister of education that the authority was still operating the "closed shop" policy by insisting that applications for special leave or extension of sick leave benefit should be submitted through the employee's organization.

The first report of the National Advisory Council on the Training and Supply of Teachers, published in May, showed the number of teachers in maintained and assisted primary and secondary schools in 1950 to be 209,000. It estimated that by 1954, because of the increased birth rate, 229,500 would be required to maintain 1950 staffing standards. To meet the needs of the secondary schools, one-third of each year's output of arts and science graduates from the universities would be required. The supply of mathematics and science graduates had been insufficient, and there was a shortage of women teachers. In January the minister of education approved the Burnham committee's recommendations on salaries for teachers in maintained and aided schools. In April the president, former president and general secretary of the National Union of Teachers, at the invitation of the Soviet Teachers' union, paid a ten-day visit to the U.S.S.R.

In April King George's Jubilee trust held a conference attended by almost all the leaders of the youth service in the United Kingdom to discuss the principles on which the service was based and improvement in its practice. It was announced in September that a small "pilot" experiment in the use of television in schools was being planned by the British Broadcasting company and the School Broadcasting council. This would be followed by a "main" experiment a year later. The number of schools registered as making regular use of school broadcasts in 1951 was 22,411 compared with 20,192 in 1950. The first progress report of the Education Foundation for Visual Aids, set up in 1948, was published in October.

Approximately 800 pupils from 20 Glasgow, Scot., schools took part in summer visits to Belgium, France, Scandinavia and Switzerland, up to one-half their expenses being paid by the Education committee. (*See* also Blind, Education of the; Child Welfare; Law; Libraries; Motion Pictures; Negroes, American. For statistics of institutions *see* Universities and Colleges; *see* also under various states and countries.)

Films of 1951.—*Schools March On* (The March of Time Forum Films); *The Teacher* (Encyclopædia Britannica Films Inc.). (H. C. D.; L. Wn.)

Education, Religious: *see* Religious Education.

Education, U.S. Office of: *see* Education; Federal Security Agency.

Eggs.

Partly as a result of high meat prices, U.S. egg consumption in 1951 was at a new record high of about 406 eggs (52.9 lb.) per person, 7% more than the 395 eggs of 1950 and 42% more than before World War II. Farm production was estimated to exceed slightly the record of 5,003,800,000 doz. produced in 1950. The 458,700,000 potential layers on farms on Dec. 1 were about 3% more numerous than in 1950, and egg production at that time was 7½% greater than at the same time in 1950; it was indicated that an increased rate of about 4% would probably carry through the spring laying season of 1952, and that most of the forecast increase in 1952 over 1951 would occur in the first three quarters of the year.

Egg prices received by farmers in Dec. 1951 were 51.1 cents per dozen as compared with 45.2 cents per dozen in May 1951, the usual time of seasonal surplus, low prices and storage accumulation. In contrast, eggs had brought farmers 29.6 cents per dozen in May and 57.7 cents per dozen in Dec. 1950.

Total holdings of shell and frozen eggs in storage at the end of November were only about three-fourths as large as in 1950. Stocks of dried eggs were less than one-fourth as large as a year before; in 1950–51, 56,666,000 lb. of dried eggs, with a value of $19,375,000, were exported as compared with 36,172,000 lb., valued at $42,976,000, in the preceding year. The Commodity Credit corporation continued to dispose of its holdings, reducing from 40,411,022 lb. on June 30 to 17,027,427 lb. on Oct. 30.

Indicated world egg production in 1951 was about 1% greater than in 1950 and about two-fifths above prewar; decreases in northwestern Europe were offset by increases in the U.S., western Germany, Italy, Austria and Finland. The United Kingdom in the spring of 1951 granted a 5% increase in egg prices, to maintain production. (J. K. R.)

Egypt.

An independent kingdom of northeast Africa, Egypt is bounded north by the Mediterranean, south by the Anglo-Egyptian Sudan, east by Israel and the Red sea, west by Cyrenaica and the Sahara. Area: 383,000 sq.mi. Pop. (mid-1950 est.): 20,439,000. Language: mainly Arabic (97%). Religion: Moslem (mainly Sunnites) 91.4%; Christian (mainly Copts) 8.19%; Jewish 0.4%. Chief towns (pop., 1947 census): Cairo (cap., 2,100,506); Alexandria (925,081); Port Said (178,432); Tanta (139,965); Mahalla el Kubra (115,509); Suez (108,250); Mansura (102,709). Ruler: King Farouk I; prime minister in 1951: Mustafa el Nahas Pasha.

History.—The year 1951 was dominated by a severe deterioration in relations with the United Kingdom. The Wafd had negotiated the agreement of which the Anglo-Egyptian treaty of 1936 was the fruit, and it was this party, under the leadership of Nahas Pasha, which had stood firmly by the Allies during the military crisis of 1942. These circumstances had given rise to the expectation that the return to power of the Wafd in 1950 would be followed by another satisfactory adjustment of Anglo-Egyptian relations. Early expectations that this might be so were already diminished by the events of the first year of Nahas Pasha's new period of office.

In Jan. 1951 Egyptian and British naval units took part in joint manoeuvres, and in March land forces of the two countries engaged in joint exercises in the Sinai peninsula. In March a long-term settlement covering the use of Egypt's sterling balances was announced but, when it became apparent that political negotiations were in prospect, anti-British demonstrations made it clear that they would be beset with difficulties. On the British side, the house of commons, where there was a considerable irritation with Egypt, arising from the latter's policy of restricting the free use of the Suez canal in consequence of the continued official state of war with Israel, expressed anxiety at reports of the British government's intention to withdraw from the Suez canal, and in April the foreign secretary, Herbert Morrison, promised that the house would have an opportunity to veto any agreement that might be arrived at in this connection. In May, the Egyptian foreign minister, Mohammed Salah el Din, declared that British proposals were inadequate and that Egypt stood by its demand for complete evacuation and the unity of the Nile valley. Egyptian proposals involving the immediate evacuation of the Suez canal were rejected by the United Kingdom in June, and feeling was exacerbated when an Egyptian corvette stopped and searched the British supply ship "Empire Roach" in the Gulf of Aqaba. In July British forces in these waters were reinforced, and a week later Egypt officially rejected an invitation to attend a conference on African defense. In August Salah el Din publicly accused the British government of "closing the door" on further useful discussions and Aug. 26, the 15th anniversary of the signing of the Anglo-Egyptian treaty of 1936, was marked by demonstrations in Cairo which degenerated into rioting.

In August there was a good deal of talk in Egyptian circles of the abrogation of the 1936 treaty. The British government attempted to keep negotiations alive, but an important new factor made itself felt when it became known that a proposal to set up a joint middle eastern command had been agreed to in Washington, and that Egypt would shortly be approached to join such a body which would be linked to the North Atlantic Treaty organization. On Oct. 8, before the official approach to the Egyptian government in this connection, Nahas Pasha acted unilaterally by tabling decrees in the chamber of deputies to approve the abrogation of the 1936 treaty which provided the legal basis for the presence of British troops in the canal zone. At the same time he asked the Egyptian parliament to agree to the abolition of the Anglo-Egyptian condominium over the Sudan, with the proclamation of King Farouk as "King of Egypt and the Sudan." The next day the British government, through the foreign secretary, issued a statement taking the strongest exception to Egypt's action and announcing its intention to adhere to the treaty right by which troops were maintained in Egypt.

On Oct. 13 the proposals for joint defense which had been anticipated by Nahas Pasha's action were presented to the Egyptian government by the ambassadors of France, Great Britain, the United States and Turkey. These provided for the creation of a new middle east command in which Egypt would be an equal partner, and the British government indicated that it would agree, if these proposals were accepted, to the supersession of the treaty of 1936 and the immediate surrender of the Suez canal zone to the Egyptian government, on the understanding that it would become an Allied base with full Egyptian participation.

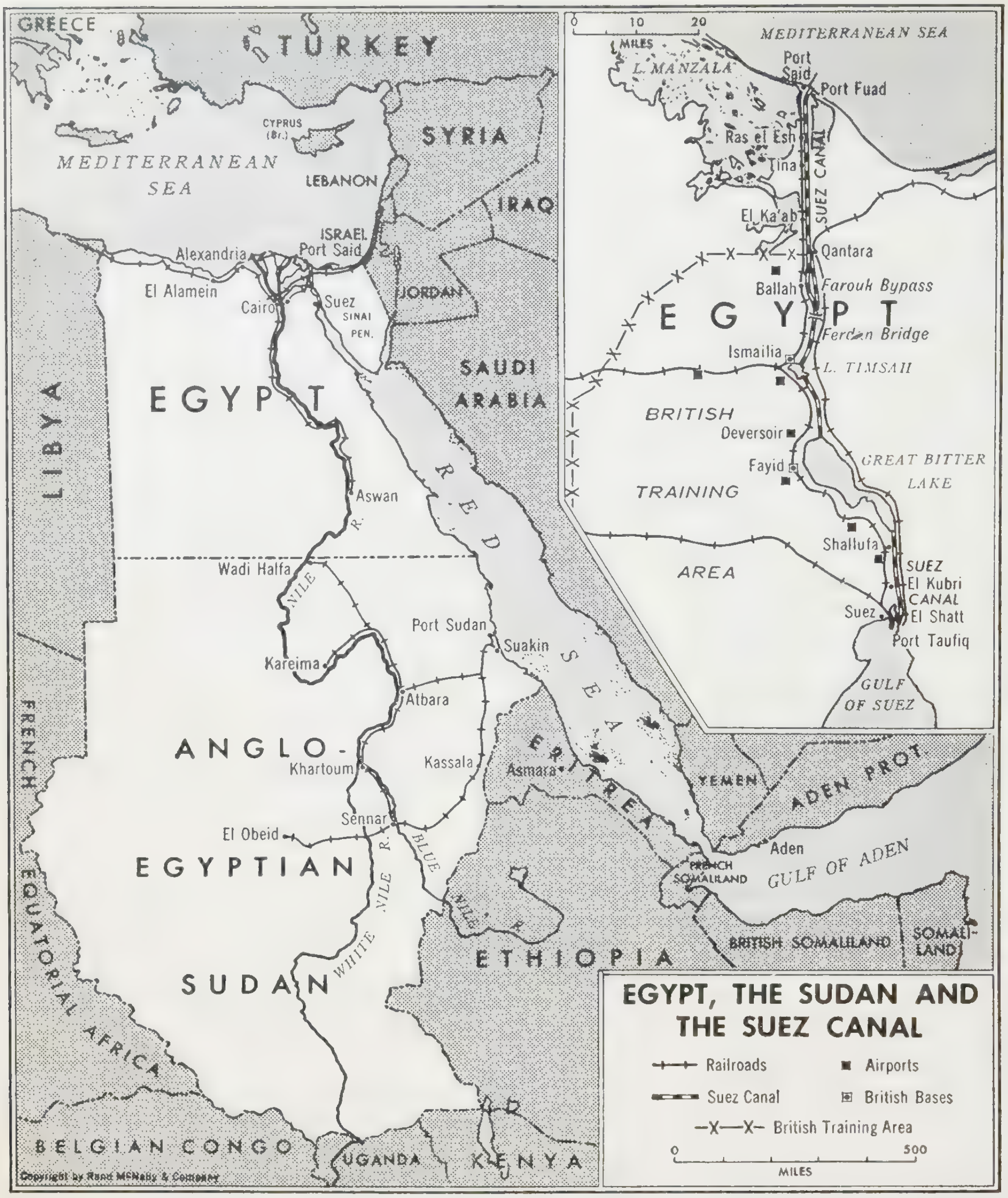
In mid-October a state of emergency was declared, and the British forces in the canal zone, heavily reinforced, began to prepare themselves as for a siege. The canal was kept in full operation. On the Egyptian side, the Arab league did not make the immediate rejection of the western military proposals which had been looked for.

Charges and countercharges were frequent during November, each side standing its ground, and there were some outbreaks of violence involving loss of life, but for the most part the situation remained comparatively calm, a notable feature being the continued close liaison of British and Egyptian armed forces. Bad feeling between the British and the Egyptian police in the affected areas was a major cause of such violence as occurred.

On May 6 King Farouk was married, for the second time, to Narriman Sadek, the daughter of a government official. Substantial measures for rearmament were planned and a £6,000,000 social security program was inaugurated at the end of January. A royal decree on May 12, appointing replacement for 36 term-expired senators, gave the Wafd a clear majority in that house. (*See* also ANGLO-EGYPTIAN SUDAN; MIDDLE EAST; SUEZ CANAL.) (H. S. D.)

Education.—Government schools (1948–49): kindergarten 57; primary 327, pupils 100,000; elementary 5,000, pupils 1,000,000; technical 70, pupils 17,136; commercial 17, pupils 5,481; agricultural 13, pupils 2,725;

EGYPTIAN TROOPS marooned temporarily on the western side of the Suez canal in Oct. 1951, when British forces occupied the El Ferdan bridge following anti-British disturbances in Egypt. The Egyptian forces' camp was on the eastern side of the canal



domestic science 15, pupils 1,763. Nongovernment schools: primary 452; secondary 76. Teachers' training colleges 53, pupils 8,382. Universities 3, students 20,259. Other institutions of higher education 8.

Finance and Banking.—Budget: (1950–51 est.) revenue £E178,000,000, expenditure £E206,000,000; (1951–52 est.) revenue £E212,400,000, expenditure £E231,000,000. National debt (April 1948): £E125,000,000. Currency circulation (Sept. 1951): £E177,100,000. Gold and foreign exchange (April 1951): U.S. $777,000,000. Bank deposits (May 1951): £E167,300,000. Monetary unit: Egyptian pound with an exchange rate of £E0.349 to the U.S. dollar.

Foreign Trade.—(1950): Imports £E196,500,000; exports £E175,400,000. Main sources of imports (1950): U.K. 19.4%; France 9.8%; Italy 7.3%; U.S. 5.9%. Main destinations of exports: U.K. 21.7%; India 12.5%; U.S. 8.8%; Italy 8.5%. Main imports: machinery 9.5%; wheat and flour 8.1%; fertilizers 5.9%. Main exports: cotton (raw) 85.4%; rice 4.4%; cotton yarn 1.4%; onions 1.2%.

Transport and Communications.—Roads (1947): 8,874 mi. Licensed motor vehicles (Dec. 1950): cars 59,000, commercial 17,000. Egyptian state railways (1949): 5,318 mi. Shipping (merchant vessels of 100 gross tons and over, July 1949): 57; total tonnage 105,462. Telephones (1948): subscribers 98,093. Radio receiving sets (1949): 183,000.

Agriculture.—Main crops (metric tons, 1950): ginned cotton, 377,000; maize 1,287,000; wheat 1,018,000; barley 91,000; millet and sorghum (1949) 567,000; paddy rice, 1,241,000; sugar, raw value 180,000; onions 217,000; potatoes 160,000; broad beans (1949) 321,000. Livestock (March 1947): cattle 1,321,000; sheep 1,875,000; goats 1,474,000; asses 1,125,000; horses 28,000; mules 12,000; camels 197,000; buffaloes 1,240,000; pigs 50,000; chickens 16,312,000. Fisheries (1948): total catch 48,350 metric tons.

Industry.—Crude oil production (1950) 2,343,000 metric tons. Raw materials (metric tons 1949): phosphate rock 350,000; manganese ore 138,000; salt 350,000. Manufactured goods: cotton yarn (1949) 38,720 metric tons; cotton piece goods (1949) 151,000,000 sq.m.; cement (1948) 768,000 metric tons.

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FILMS OF 1951.—*Cradle of Religion, Egypt's Hollywood, It's A Woman's World, Mehalla* (Hamilton Wright Organization Inc.); *Nile River Basin and the People of the Upper River, Nile River Valley and the People of the Lower River* (Academy Films).

Eire: *see* IRELAND, REPUBLIC OF.

Eisenhower, Dwight D.

(1890–), U.S. army officer, was born on Oct. 14 in Denison, Tex. He was graduated from the U.S. Military academy at West Point, N.Y., in 1915, and during World War I served as an instructor, camp commander and commander of tank troops. He was graduated later from the Army War college and the Army Industrial college, both in Washington, D.C., served in the office of the chief of staff in Washington, D.C.

In 1935 he saw duty in the Philippines as chief of staff to Gen. Douglas MacArthur.

During World War II he was commanding general of the Allied armies that conquered North Africa and Sicily (1943), invaded Italy (1943), landed in France (1944) and completed the conquest of Germany from the west in 1945. He was made commander of U.S. occupation forces in Germany in 1945 and chief of staff Nov. 20, 1945, retiring from that post Feb. 7, 1948, to become president of Columbia university. On Dec. 19, 1950, he took leave from Columbia to become supreme Allied commander of the integrated North Atlantic treaty forces set up for the defense of western Europe.

He spent much of 1951 organizing both U.S. and European participation in the pact armies, and on April 2 formally activated and assumed command of SHAPE—supreme headquarters, Allied powers in Europe. After touring west Europe early in 1951, he appeared before U.S. congressional committees to report on western European defense measures. He told the committee he would "instantly" use the atomic bomb in any new war if the net advantage was on his side.

Prominently mentioned as a possible presidential candidate, Eisenhower announced on Jan. 7, 1952, that he was a Republican. He said he would not ". . . participate in the pre-convention activities . . ." and would continue as SHAPE commander "In the absence . . . of a clear-cut call to political duty . . ." It was inferred that he would accept the Republican nomination, if it were offered him.

Various polls indicated that he would be a strong contender if nominated.

Elections, U.S.

The off-year elections of 1951 in the United States followed the pattern of a slight trend toward the out-of-power Republicans. The minority party made gains in ten special elections to fill vacancies in the house of representatives, and scored even more impressively in mayoralty contests held throughout the country on Nov. 6, especially in industrial centres.

In the special congressional contests, the Republicans retained four seats in normal Republican strongholds—the 3rd Maine district, the 3rd Nebraska, the 9th New Jersey and the 8th Pennsylvania. The Democrats did the same in the 6th Kentucky, the 33rd Pennsylvania, the 9th Texas and the 5th West Virginia districts.

But the Republicans picked up two new seats in the 11th Missouri and the 3rd Ohio districts. In the Missouri contest a Republican won by 6,000, as against a Democratic majority of 26,000 in 1950. The outcome in the 3rd Ohio district, which lies within the industrial city of Dayton, was regarded as an upset. The G.O.P. won by 12,727 votes, whereas Democratic majorities were 15,000 in 1950 and 31,000 in the presidential year of 1948.

The 6th Kentucky outcome also gave encouragement to the minority. In 1950 the Republicans did not enter a candidate in this normally Democratic border state of Vice-Pres. Alben W. Barkley. In the 1951 test they rolled up 44.7% of the vote in a light turnout at the polls.

As a result of these changes, the house membership at the year's end was 232 Democrats, 201 Republicans, 1 Independent and 1 vacancy. At the opening of the session in Jan. 1951, it had been 234 Democrats, 199 Republicans, 1 Independent and 1 vacancy.

The Republican gains in the mayoralty races occurred in such industrial and Democratic territory as New England, New York, New Jersey, Pennsylvania, Ohio and Indiana, indicating that the labour and regular vote had stayed at home or deserted the Democrats. Indianapolis, where the Republicans deliberately based their campaign on national issues, defeated a Democratic mayor by 10,000 votes. The mayoralty results in Indiana were typical of those in various other states. In all, the G.O.P. won 72 and lost 29 cities in the Hoosier state. They gained 36 cities and kept 36 they had held previously.

In New York city, Rudolph Halley, who had served as counsel to the Kefauver crime committee of the senate and was running as an Independent, won the presidency of the city council by a sizable majority over Democratic and Republican nominees. A newcomer to politics, Halley gained fame when, at televised hearings, he helped expose an apparent alliance involving Tammany officeholders, the police and the underworld. His victory served to emphasize the possible value of television as a factor in politics.

The Republicans were the losers in Philadelphia, and the upset there was likewise a showing of public resentment against corruption in government. A G.O.P. machine was driven from office after more than 65 years of control of the city hall. City Controller Joseph S. Clark, Jr., a lawyer, defeated Daniel A. Poling, a Baptist minister, by 122,210 votes. So general was the revolt against the machine that the *Philadelphia Inquirer,* historic Republican newspaper, supported Clark.

In Boston, Mayor John B. Hynes defeated former Mayor James M. Curley by 75,000 votes. Mayor Hynes's lead over Curley had been only 12,000 votes in 1949. But the latter had served a federal prison term in intervening years, and his power and popularity had vanished, despite a presidential pardon. So certain was defeat that Curley conducted no campaign.

A possibly significant event was the election of the first Republican mayor of Little Rock, Ark., in 70 years. The successful candidate was Pratt Remmel.

The only two gubernatorial elections were in Kentucky and Mississippi. Democratic Gov. Lawrence W. Wetherby won easily in Kentucky, where the Republicans had captured this post only three times in 40 years. Former Gov. Hugh White, an anti-Truman States' Rights Democrat, also won an easy victory in Mississippi.

Although understandably optimistic over the general trend of the 1951 elections, Republican leaders' rejoicing was restrained, insofar as omens for 1952s presidential election were concerned. They recalled that they had won even greater victories in the 1946 off-year elections, only to fail to capitalize on them in the national elections in 1948. (*See* also COMMUNISM; DEMOCRACY; DEMOCRATIC PARTY; REPUBLICAN PARTY; UNITED STATES; and under various states and various countries of the world.)

(R. Tr.)

Electrical Industries.

Continuation of the acceleration in industrial activity which took place in 1950 appeared in the records of the U.S. electrical industry for 1951. Energy produced for the public supply in 1951 rose to an estimated 372,000,000,000 kw.hr., an increase of 13% over the 329,141,343,000 kw.hr. generated in 1950. This increase of about 43,000,000,000 kw.hr. thus became the largest increase ever recorded in the industry's history, topping the record increase of 38,042,000,000 kw.hr. of the previous year by about 5,000,000,000 kw.hr. In generating this output in 1951, the average kilowatt of hydro capacity produced at name plate rating for 65.2 hr. out of every 100, surpassing any year on record for the second time in two years. Fuel-burning capacity produced at name plate rating for about 57 hr. out of every 100.

Fuel-burning power plants provided about 34,800,000,000 kw.hr. of the total increase, raising the proportion of fuel power generation from 71% in 1950 to 72% in 1951, the hydro plant proportion of output thus declining from 29% in 1950 to 28% in 1951. In the 12 months ended Oct. 31, 1951, the usage of coal, oil and gas was 150,170,000 tons of coal equivalent, as com-

TEST CHAMBER for street lights at the General Electric laboratories, Lynn, Mass. Acting as a camera, the chamber focused light on the test stand with its light intensity meter (far end) while circular curtains prevented any reflection of light

pared with the consumption of 138,420,000 tons of coal equivalent in 1950. Actual coal consumption in the 12 months ended Oct. 31, 1951, was 104,520,000 tons, as against 91,866,000 tons in 1950. In the same 12-month period, usage of oil dropped to 63,830,000 bbl. from 75,420,000 bbl. in 1950, while consumption of gas rose to 748,660,000,000 cu.ft. from 628,920,000,000 cu.ft. in 1950.

Of the total energy output in 1951, private power companies generated about 81.4% as compared with 81.1% in 1950, with plants owned by Rural Electrification administration (REA) co-operatives, municipalities, public utility districts, state projects and the federal government providing the remainder.

Power Plant Capacity.—The net increase in generating capacity in 1951 up to Nov. 1 was 5,795,000 kw., raising the total as of that date to 74,678,000 kw. The actual increase in 1951 was somewhat more than this, with some new generating units scheduled for operation in November and December. The reported new capacity installed in 1951, not all representing net increase, was 6,112,500 kw. Preliminary estimates set the non-coincident peak load at about 69,498,000 kw. and indicated that reserve capacity would be about 7.5% as compared with 11.9% reserve in 1950.

Ratios of fuel and hydro generating capacity remained little changed in 1951 from 1950. In the earlier year, fuel-burning capacity was 74.4% and hydro capacity 25.6% of the total; in 1951 the ratios were 74.9 and 25.1%. As of Nov. 1, 1951, private power companies owned 79.6% of the generating capacity as against 79.8% in 1950. Ownership of the remaining capacity was divided among REA co-operatives, municipalities, public utility districts, state projects and the federal government.

Electricity Sales.—Electric utility customers purchased an estimated 318,700,000,000 kw.hr. of energy in 1951, an increase of 38,161,000,000 kw.hr. over 1950. This increase may be compared with the 31,997,000,000-kw.hr. increase of 1950 over 1949. For the second time in two years industrial usage was responsible for more than 57% of the increase over the previous year. In 1950 large industrial customers bought 139,065,000,000 kw.hr., but in 1951 their usage rose to 161,700,000,000 kw.hr. Sales to residential and rural customers continued to increase. In 1951 sales to these customers were 83,700,000,000 kw.hr., about 9,270,000,000 kw.hr. more than sales in 1950, which in turn were 8,907,000,000 kw.hr. more than in 1949. The average annual residential use of electricity rose from 1,830 kw.hr. in 1950 to 2,012 kw.hr. in 1951, an increase of 182 kw.hr.

Revenues.—Customers paid the suppliers of electricity $5,640,000,000 in 1951, about $553,000,000 more than in 1950, a 9.8% increase. This was associated with an 11.9% increase in sales and reflected a continuation of energy usage at lower steps in rate, mostly because of industrial usage. The average revenue from all customers continued to decline, going to 1.77 cents per kilowatt hour in 1951 from 1.81 cents per kilowatt hour in 1950.

Residential customers continued to enjoy a decrease in the unit price they paid for electrical energy, 2.82 cents in 1951, as against 2.88 cents in 1950 and 2.95 cents in 1949. Because of their increased use of electricity, residential customers paid an average annual bill of $56.70, $4 more than in 1950. The 1951 increase of 182 kw.hr. in usage cost the average customer 2.2 cents per kilowatt hour.

Users.—The number of electric utility customers as of Oct. 31, 1951, was 46,774,129, an increase of 1,787,835 over 1950. The largest increase continued to be in the residential class, which rose by 1,699,310 to a total of 40,828,005. Industrial and commercial customers increased slightly from 5,700,909 in 1950 to 5,784,268 in 1951.

The number of people in homes served by electricity in 1951 was about 146,500,000 or approximately 96.5% of the total population.

Financial.—Securities issued by private power companies in 1951 reflected the trend of the cost of money on the open market. Although new capital entering the business in 1951 was $1,432,257,000 as compared with $1,300,040,000 in 1950, refunding operations showed a marked decline in going to only $9,690,000 in 1951 from $407,797,000 in 1950. The total financing in 1951 was thus $1,441,947,000 as compared with $1,707,837,000 in 1950.

The share of the revenue dollar available for dividends and surplus in 1951 decreased sharply because of higher taxes. In 1950 the proportion was 18.5 cents; in 1951 it was 16.3 cents. The gross operating revenue of private companies rose from $4,497,000,000 in 1950 to $4,955,000,000 in 1951. Net income in 1951 was $814,000,000, which amount was $17,000,000 less than the net income reported in 1950. This was the first time since 1942 that net income did not top the previous year's figure.

Electrical Manufacturing.—During 1951 the indexes for manufacturing activity were revised on the basis of 1947-49 = 100. Thus, in that year the board of governors of the federal reserve system estimated index of general industrial production was set at 119, 11 points above 1950 and 15 points above 1948, the record pre-Korean war year. The index for the electrical manufacturing industry rose to 149.5, or 13.4 points above 1950 and 51.1 points above 1949. The index for electrical appliances for domestic use dropped to 137.9 in 1951 from 161.5 for 1950, but was still 37.7 points above 1949 and 29.5 points above 1948. The industrial apparatus index continued to mount by going to 176.6, 62.5 points above 1950 and 91.5 points above 1949. (*See* also PUBLIC UTILITIES; RURAL ELECTRIFICATION; TENNESSEE VALLEY AUTHORITY.) (F. J. K.)

Canada.—Notable expansion of electric power generation facilities marked 1951. In British Columbia the Aluminum Company of Canada had more than 3,000 men at work creating a lake and driving tunnels for a power plant of 1,600,000-h.p. capacity to supply an aluminum mill being erected at Kitimat. The private British Columbia Electric Co., Ltd., was in a five-year $87,000,000 expansion program, and the public British Columbia Power commission was expanding at the rate of $7,000,000 for 1951. Ontario signed an agreement with the federal government for the creation of 1,100,000 h.p. of energy from the improvements to the St. Lawrence waterway between Prescott and Cornwall, and proceeded with the $157,000,000 development of 600,000 h.p. from Niagara falls by 1954.

Retail credit curbs were held responsible for midyear curtailment of production of electrical appliances, but there was improvement by October, and Canadian Westinghouse and Canadian General Electric went ahead with their expansion programs totalling $22,000,000. By October the electrical industries were using only 2% of their facilities for defense production, with the expectation that it would double by mid-1952. The industry formed the Canadian Adequate Wiring bureau to raise wiring standards in residences. (C. Cy.)

Europe.—*Generating Plant.*—The demand for generating plant, both for home use and for export, remained insistent during 1951. Shortages of labour and raw materials, occasioned partly by the rearmament drive, created difficulties. Nevertheless, the supply position showed some improvement. Early in the year it was announced that the British Electricity authority (B.E.A.) had placed orders for £21,500,000 worth of generating plant comprising 57 turboalternator sets with an aggregate capacity of about 2,500 megawatts. Hydrogen cooling for large turboalternators was being increasingly employed and among the hydrogen-cooled sets under construction were several of 60-Mw. capacity. The manufacture of water-turbine sets was also very active and a vertical reaction turbine supplied to Portugal by a British manufacturer was of 63,000 b.h.p. Work on generation by atomic power showed that there was a reasonable prospect of its large-scale development but the cost of energy would probably not differ widely from that generated by coal.

Transmission Equipment.—The increasing need for bulk transmission of power over long distances in several European countries was reflected in plans for stepping up transmission voltages and in the development of larger sizes of circuit breakers and other control equipment. In Sweden, France and western Germany 225-kv. systems had been in operation for several years, but to facilitate later interconnection of national systems, agreement was reached upon unification of new voltage levels. Two values had been adopted, namely 275/300 kv. and 380/400 kv. The plans for the B.E.A. supergrid were a first step up from the 132 kv. of the existing grid but provision was being made in tower designs for subsequent conversion to 380 kv. if this should prove economically desirable. The next step in countries already having 225-kv. systems was an increase to 380 kv.

Utilization.—One of the most interesting developments was the Pimlico, London, district-heating scheme which was formally inaugurated in July. From two 1,350-kw. back-pressure turbo-alternators, installed in Battersea power station for auxiliary power supply, heat was provided for a 30-ac. housing estate and for blocks of flats, both located on the opposite side of the river from the power station. Pipes carrying hot water were run under the river through an existing tunnel. Space heating and hot water were to be given eventually to 2,900 dwellings and some communal buildings, thus serving approximately 10,000 people. A large-capacity hot water accumulator facilitated co-ordination of heat and electric loads, giving a high annual load factor for the system. The estimated annual saving of coal was 10,000 tons.

An international conference on illumination was held in Stockholm, Swed. There was much interest in British research on high-speed flash photography using a xenon-filled tube with a hydrogen-filled thyration for pulse control. There was interest also in luminescence and particularly in the luminous capacitors being developed in the United States. These provided a low-intensity light source based on the electroluminescence of a phosphor under the influence of a rapidly changing electric field.

Published figures on the use of electric motors on British farms showed that the number had increased from about 3,500 in 1931 to 91,750 in 1950.

The use of electricity in mining increased and resulted in a greater output per man shift.

Research and New Developments.—Both through technical papers and "open days" at several industrial research laboratories, electrical research attracted considerable attention. The researches reflected contemporary preoccupation with generating-plant developments and with high-voltage transmission. They included investigations on metals for gas and steam turbines, on magnetic materials, using both optical and X-ray diffraction methods for determining crystal orientation, on the performance of transformers and other high-voltage equipment under impulse tests with voltages of 2,000,000 or more, and on the connections between the structure and dielectric properties of materials. High-tension switchgear and cables, mercury-arc rectifiers, high-voltage direct-current transmission, radio interference from power circuits, and wind power were other subjects of research.

Trade.—The value of all electrical goods and machinery exported from Great Britain in Sept. 1951 was £12,919,529, as compared with £10,111,528 for Sept. 1950. In August and July 1951 the totals of £14,162,700 and £13,974,738 respectively were both records for any month. (E. W. G.)

Electric Transportation.

Continued expansion of trolley coach operation was the most notable development of the year 1951 in the field of electric transportation in the United States. Inauguration of service on a new subway route in Chicago, Ill., was also a development of major significance. A moderate number of new cars was placed in service on the electric surface railway lines, and a substantial number of multiple-unit cars was added to the equipment of the electrified suburban railroads.

Electric Trolley Coaches.—At the beginning of 1951 a total of 6,500 electric trolley coaches were being operated on 42 transit systems. This was more than double the number of vehicles in operation ten years earlier. During this period the mileage of trolley coach routes had increased by 80%.

In 1951 about 636 additional trolley coaches were placed in operation, bringing the total at the end of the year to more than 7,100.

Preliminary figures indicated that riding on trolley coaches reached an all-time peak of nearly 1,300,000,000 revenue passengers in 1951. To handle this business a total of about 215,000,000 vehicle miles were operated, giving a ratio of slightly more than six revenue passengers per vehicle mile. The fact that this was the highest average of revenue passengers per vehicle mile of any type of transit service was an indication of the high degree of popularity enjoyed by trolley coach operation.

Delivery was started on the largest single order for trolley coaches ever placed in the United States—349 units for Chicago. A notable instance of trolley coach expansion during the year was the inauguration of service on the heavily travelled Grand river route at Detroit, Mich. A total of 80 new trolley coaches replaced streetcars on this route. Another significant development was the completion of the conversion from steel-wheeled to rubber-tired vehicles at Des Moines, Ia. This program was started a number of years earlier. After a thorough study of the situation the local transit operating company decided to use trolley coaches on all lines operating on headways of ten minutes or less, and to use motor buses on lines with headways of more than ten minutes. With the completion of the conversion a total of 159 trolley coaches were in operation.

Results were said to be extremely satisfactory.

Despite the large number of trolley coaches delivered in 1951, orders were placed during the year for 69 additional vehicles of this type. The new vehicles were scheduled for operation in New Orleans, La., and Indianapolis, Ind.

Surface Electric Railways.—In late years the operation of surface electric railway cars had been concentrated more and more on the heavily travelled lines in large urban centres. At the beginning of 1951 a total of 13,800 electric surface cars were in operation on 84 electric transit systems. However, 47 of these systems were classed by the American Transit association as interurban, and 30 of them operated only freight service. Thus the number of cars in interurban service was comparatively small, while the great majority were found on the 42 urban systems.

Rolling stock added during the year included 25 cars of the so-called president's conference committee type for San Francisco, Calif., and 50 of these cars for Boston, Mass. These brought the total of the modern vehicles in operation in the United States to 4,354.

Rapid Transit Lines.—In the cities of more than 1,000,000 population, rapid transit lines carry more passengers than any other type of public transportation service, and many improvements were being made in rapid transit facilities. All of the new construction begun or proposed during the past few years was in subway or open cut.

Elevated railways were being gradually eliminated. The same number of passengers were being carried in 1951 over the same mileage of track by approximately 10% fewer cars than were in use ten years before.

The most notable of the developments in the rapid transit field during 1951 was the inauguration of service on the new Milwaukee-Dearborn-Congress subway route in Chicago. This was the second and final step of the initial phase of that city's subway building program. The State street subway, completed in 1943, was the first step.

Both of these projects were started in 1938. The State street line is a two-track subway about five miles in length. Its total cost was approximately $34,000,000. At one end it connects with the north side elevated line and at the other with the south side elevated line, providing through north-south rapid transit service.

The Milwaukee-Dearborn-Congress line was started at almost the same time as the State street line, but construction had to be halted when it was about 60% finished, because of material shortages during World War II. Work was resumed in 1946 and the line was ready for operation early in 1951. It is a two-track subway about four miles in length, costing approximately $30,000,000. Extending northwesterly from a downtown terminal at La Salle street to a connection with the Logan square elevated line near Damen avenue, it has nine closely spaced stations in the downtown district and three more widely spaced stations along Milwaukee avenue.

Plans of the city of Chicago called for the construction of additional subways as extensions of the initial system as soon as internal conditions and financing problems would permit.

Heavy Electric Traction.—Delivery was made during the year 1951 of the remainder of a New York Central order for 100 multiple-unit cars for 600-v. D.C. operation in the Grand Central terminal zone. This resulted in a substantial improvement in commuter service in the New York suburban area. Delivery was also made on most of a Pennsylvania railroad order for 100 multiple-unit cars for operation on 11,000-v., 3-phase, 25-cycle A.C.

Eight straight electric locomotive units were delivered during the year for freight service on the Pennsylvania railroad. They were designed for operation on 11,000-v., single-phase, 25-cycle A.C. Four of these units, rated 3,000 h.p. each, were equipped with rectifiers and D.C. traction motors. Four, rated 2,500 h.p. each, were powered by single-phase A.C. traction motors, and as many as four units could be operated in multiple.

Two similar 2,500-h.p. units with A.C. traction motors were placed in service on the Great Northern railway for operation on mountain grades in the Cascade mountains in the state of Washington. (J. A. Mi.)

Canada.—The 1951 annual meeting of the Canadian transit association, a group representing civic and private mass transportation systems, revealed (1) that higher operating costs were putting many companies in the red, which forecast still higher fare boosts, (2) that manpower shortages were becoming critical, which foresaw the use of women as bus and streetcar operators, (3) that cost reduction was imperative, which made companies consider larger vehicles. However, fare increases seemed to be entering the law of diminishing returns phase, for during 1950 the Canadian transit companies carried 48,239,200 fewer riders than in 1949. Despite this trend, the Toronto transportation commission went from four to three tickets for 25 cents. The last streetcar in Calgary gave way to motor and trolley buses, Hamilton found trolley buses so effective it expanded its fleet by 30, and Ottawa at the end of the year began operating a trolley bus route.

The relative positions of the three main kinds of urban surface transportation are gained from the following 1950 statistics: city electric cars carried 687,317,172 passengers over 83,171,759 mi.; trolley buses carried 193,260,892 passengers over 27,448,593 mi.; and motor buses 575,962,102 over 106,705,554 mi. Electric transportation statistics for Canada for the first seven months of 1951 (compared with the same 1950 period) were: urban revenues $64,169,000 ($62,922,000); interurban revenues $25,370,000 ($24,533,000); urban electric car mileage 45,354,000 (49,320,000); urban trolley bus mileage 17,941,000 (15,214,000); interurban electric car mileage 2,878,000 (3,379,000). (C. Cy.)

Great Britain.—The report of the committee appointed by the British Transport commission was published early in 1951. The committee recommended the adoption as standard of the 1,500-v. D.C. overhead system for future electrification, except for an area to be allocated for the third-rail system of the Southern region. The retention of the fourth rail on the existing London Transport railways and its use on any extensions was recommended.

A committee appointed to investigate transport facilities in Glasgow, Scot., and the Clyde valley submitted to the British Transport commission an electrification scheme estimated to cost £10,000,000 and to save 70,000 tons of coal a year.

Austria.—Electrification expenditure for 1951 was estimated at £8,000,000. In July electrification was extended eastward from Linz to Amstetten (40 mi.) and conversion work was continued between Amstetten and Vienna (79 mi.), the only remaining steam worked section of the great trunk route Vienna–Bregenz (478 mi.). In Carinthia work was begun on the Villach–Tarvisio line (17 mi.), the last link of the electrified route from Salzburg connecting at Tarvisio with the Italian state railways' electrified main line to Udine.

France.—Electric working between Paris and Dijon had led to a considerable cut in timing, and work was well advanced on the Dijon–Lyon section of the Paris–Lyon electrification. There were 2,380 mi. of main line and 125 mi. of suburban route electrified by 1951.

This represented 10% of the whole French national system and carried about 24% of the total traffic.

In May the 50-cycle, single-phase electrification from Aix-les-Bains to Annecy was extended to La Roche-sur-Foron and future extensions were planned from La Roche-sur-Foron to Annemasse and to St-Gervais-les-Bains. The electrification of the Dunkirk-Lille-Mézières-Thionville line in the northern and eastern regions was being considered on this system. The scheme, in which the German federal railways were interested, also envisaged the inclusion of the line from Thionville to Trier and Koblenz in western Germany.

Complete renewal of the Paris Metropolitan rolling stock was planned and the first order was for 200 3-car articulated units valued at £9,000,000.

Italy.—The first electrified section of the Italian state railways in Sicily was opened between Messina and Barcelona-Castroreale (28 mi.). Work was also in hand on the next stage to Sta. Agata di Militello (38 mi.). These sections formed part of the Messina–Palermo (144 mi.) single track main line of which the line between Palermo and Fiumetorto (27 mi.) was being doubled. Power for this electrification was supplied from a new thermal station at Messina. The building of a similar thermal plant at Palermo and a hydroelectric station on the river Troina, south of Catania, was in hand. In addition, aerial power cables bridging the Straits of Messina to link the Sicilian supply with the mainland grid were under construction.

On the privately owned Nord-Milano railway, the line Saronno-Laveno (31½ mi.) via Varese Nord was electrified.

Norway.—Electric traction was introduced on the Lillestrom-Charlottenberg (71 mi.) line via Kongsvinger in June. The conversion on the 1,000-v. 16⅔-cycle single-phase system began in 1948, had cost about £1,253,000 and enabled trains to be worked electrically between Oslo and Stockholm with a saving in journey time of about one hour. Nearly half the total traffic in Norway was carried on 640 mi. of electrified track representing about 23% of the whole mileage.

Poland.—The electrification of the Katowice-Warsaw line via Czestochowa, and the Katowice-Wajcherowo-Pruszcz lines was planned in a six-year economic project. Meanwhile preliminary work on the Warsaw underground railway made progress and shafts were sunk in the centre of Warsaw and in the suburb of Praga. Motor coach equipment for the Warsaw electrified lines to replace wartime losses was delivered.

Spain.—Early in 1951 the Spanish government published its *Development of the General Reconstruction Plan,* covering the railway modernization and electrification program previously approved and more recent developments. On the Torre Branuelas section of the Leon Ponferrada mountain line with a heavy coal traffic, the capacity had been tripled with important economy in operation. The national railway administration planned to electrify, at 3,000 v. D.C., the trunk line from Hendaye on the French border to Algeciras (820 mi.), and sought foreign credit for the work.

Switzerland.—In October the Winterthur-Bauma-Wald standard gauge line (25 mi.) was converted to electric traction. The Swiss government agreed to the construction of a new railway from Sembrancher to Le Chable in the Valais. The line would facilitate tourist access to Verbier and the transport of materials for building the Mauvoisin dam.

The federal railways took delivery of six new lightweight steel restaurant cars, each seating 52. Each weighed 31.5 tons fully equipped. Electricity at 220 v. for the all-electric kitchen, maximum load 39 kw., was taken from a transformer in the 1,000-v. train heating circuit when the train was running at a speed above 25 m.p.h. When stationary or running below this speed, current was taken from a pantograph mounted on the car itself and which was automatically lowered if the speed exceeded 25 m.p.h. or the line supply failed.

Australia.—In February approval was given to the plan for the electrification of seven sections of line in the Brisbane suburban area involving 225 single-track miles. The total cost with ancillary works was estimated at nearly £9,000,000, to be spread over a period of about nine years. A contract valued at £3,000,000 was placed for 1,500-v. overhead track equipment for the extension of the Sydney suburban system. The line from Paramatta to Lithgow in the western coal field of New South Wales was to be electrified and heavy coal trains hauled over the arduous route in the Blue Mountains area. There were 236 single-track miles to be equipped, including four tracks between Paramatta and Doonside and two tracks from Doonside to Lithgow.

India.—Twenty-eight four-car multiple units, each with two 1,500-v. 700-h.p. motor coaches with two intermediate trailer coaches were supplied for the Bombay suburban services of the Bombay, Baroda and Central India and Great Indian Peninsula railways. Built in Great Britain, the coaches were nearly 26% lighter than the conventional types in use. They were subjected to a comprehensive series of practical tests at the makers' works in a specially designed test rig, capable of applying buffing loads up to 150 tons.

New Zealand.—Labour difficulties slowed down progress on the electrification of the Wellington-Hutt Valley line and also delayed completion of the Maraetai hydroelectric scheme. Despite existing 1,500-v. D.C. systems it was decided all future electrification would be single-phase A.C. (*See* also RAILROADS.) (J. W. GR.)

Electrification, Rural: *see* RURAL ELECTRIFICATION.

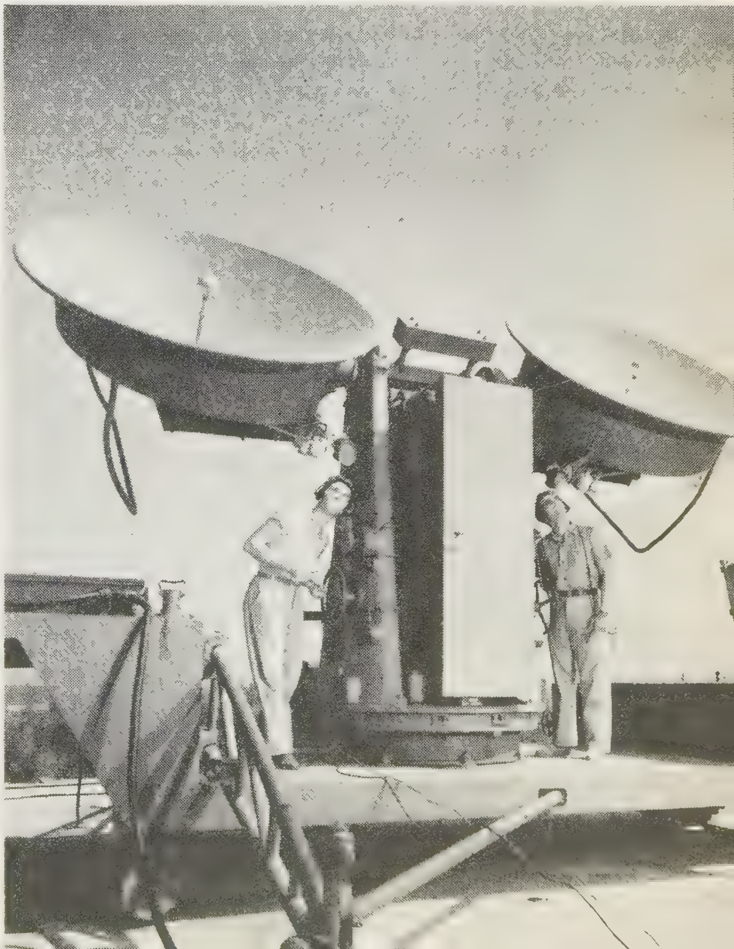
Electronics.

During 1951 there was a marked increase in interest in applications of cathode rays, with several research groups working on them. For example, they showed considerable possibilities in sterilizing materials, especially things like blood plasma, which may be damaged by heat. Cathode rays allow sterilization with very slight heating.

In addition, they can be used to accelerate certain chemical changes. J. V. Schmitz and E. J. Lawton, of the General Electric Research laboratory, reported that the rays induce polymerization, which is the linking of small molecular units into long chains. In this way they were able to convert various liquid raw materials into solid plastics, thus extending and confirming earlier work in the same laboratory by W. D. Coolidge, who had polymerized castor oil.

R. E. Hungate, M. P. Bryant and E. Hall, of the department of bacteriology, State College of Washington, Pullman, reported on a joint research with W. D. Bellamy and E. J. Lawton, of the General Electric laboratory. They showed that, by exposure to electrons of 800,000 v. energy, sawdust is made digestible by organisms found in a cow's rumen. This led to suggestions that sawdust might thus be converted into cattle fodder. The experiments, however, were performed only in test tubes, and no

DOPPLER RADAR UNIT for the continuous recording of the speed of rocket-powered pilotless aircraft at a research station on Wallops Island, Va. Operators kept antennas focused by sight, and later by sound through earphones



tests were made in feeding cattle with irradiated sawdust.

Another electronic development of biological interest, reported at the Cleveland meeting of the American Association for the Advancement of Science, was a miniature radio station that is carried by an experimental subject and broadcasts his brain waves or other signals, such as those indicating electrical activity associated with heart beats. This was described by N. J. Holter, of the Holter Research foundation at Helena, Mont., and J. A. Gengerelli, of the University of California at Los Angeles.

Normally, to obtain such records of brain or heart activity, the subject must be directly connected to the recording apparatus and his movements are severely restricted. The new device, however, includes a compact unit, containing the power sources, amplifier and radio transmitter. This weighs only a few pounds and is small enough to be carried in the subject's pocket or hung on a belt as he walks around, engaged in normal activities. The receiver picks up the signals and presents them on a television-type screen.

Usually electrocardiograms (records of heart activity) are recorded on photographic film. In a paper presented at the 1951 National Electronics conference, held in Chicago in October, James L. Murphy and Hilary W. Pavela, of the Armour Research foundation, announced a method for magnetically recording on tape the tiny electrical impulses originating in the muscles of the body. This was an adaptation of the tape recorder used for sound recordings. The new device was developed in a project for the University of Illinois, Urbana, and at the close of the year was in use in the university hospital.

A film record must be developed before it is available for study, but that on tape can be used immediately. In addition, it was said to be considerably more economical. Another useful feature is that the amplifier and recorder are of the "dual channel" type. This enables the scientists to record the electrical impulses and also, if they wish, a simultaneous spoken commentary describing what the subject is doing to produce the variations in voltage. The impulses range from about 30-millionths to three-thousandths of a volt, and are fed into a preamplifier which increases their strength about 20,000 times before they go into the amplifier proper.

A method of utilizing television techniques to extend the range, power and adaptability of the light microscope was announced by A. K. Parpart, chairman of the department of biology at Princeton university. It was developed with the cooperation of L. E. Flory and J. M. Morgan, of the laboratories division of the Radio Corporation of America.

The experimental installation was used primarily by Parpart at the Marine Biological laboratory, Woods Hole, Mass., in studying a wide variety of marine life. It consists of a laboratory microscope mounted beneath an RCA industrial television camera, about the size of a small 16-mm. motion picture camera, from which the picture is transmitted by cable to a standard receiver. The camera pickup tube, called a Vidicon, can be made sensitive only to a particular narrow band of colour. A red-sensitive and a violet-sensitive tube were used by Parpart. In some cases he employed a binocular microscope with a camera above each of the two eyepieces, and connected to two receivers. Thus simultaneous red and violet images could be examined side by side.

Using a single narrow band of colour, it was explained, it is possible to study in a living cell a particular material whose light absorption lies in that band, giving a degree of contrast between various chemical components of the cell that is superior to methods formerly used. These involved photographing through colour filters. Frequently the specimen had to be stained, a process which might kill it. In addition to the tubes for red and violet, others were under development which would extend the range of the microscope's vision into the invisible ultraviolet and infra-red regions.

The velocity of light, whose symbol is C, is one of the most important fundamental constants of nature, and a Stanford university (Calif.) physicist, Edward Ginzton, announced that electronic means had been used to determine its value with what was believed to be 10 to 20 times the precision of former methods. The speed was given as 186,280 mi. per second, compared with 186,272 mi. per second, considered the best previous value.

The new determination was estimated to be accurate to within 0.0002%.

Instead of visible light, radio microwaves a few inches long were used. These, like light and all forms of electromagnetic radiation, are known to travel at the same speed.

Just as sound from a tuning fork is greatly reinforced when it is held over a tube of such a length that the natural pitch of the tube corresponds to that of the fork, so a resonant cavity for radio waves can be constructed. It will resonate for waves of a particular length, but not for others. The wave length multiplied by the resonant frequency gives the speed of light. The cavity used in the new experiments was a cylinder 4.5 in. high and 9.8 in. in diameter. William W. Hansen, former professor of physics at Stanford, was credited with originating this technique.

The major part of the research, which took more than five years, was performed by Kees Bol and William J. Barclay. It was sponsored by the Sperry Gyroscope company.

The year 1951 saw the inauguration of a new and extremely precise master timekeeper in the Bell Telephone laboratories at Murray Hill, N.J. This was expected to vary less than a ten-thousandth of a second per day, which corresponds to a precision of a second in 30 years. The timekeeper was known as the Bell System Primary Standard of Frequency, and was used as a yardstick for precise measurement of time and frequency throughout the Bell system.

At the heart of the standard are four quartz crystals which are excited electrically to vibrate at 100,000 cycles per second. These vibrations, through circuits containing 600 electron tubes, control the frequency of a special alternating electrical current with a precision of 1 part in 1,000,000,000. The crystals, each about the size of a book of paper matches, are enclosed in containers from which air has been evacuated and then are maintained at a temperature constant to within a hundredth of a degree. The entire equipment is housed in air-conditioned rooms where the temperature never varies more than two degrees. The new frequency standard was said to be about ten times as precise as its predecessor, which operated similarly and had been in operation since 1937 at the New York headquarters of the Bell laboratories.

A shore-based radar and marine radiotelephone system to guide ships into the harbour even in dense fog was installed by the General Electric company at Los Angeles. In use, during such bad weather, the harbour radar operator locates the position of a vessel approaching the breakwater entrance, as well as of the pilot boat, with the harbour pilot aboard. Thus the pilot is guided to the incoming vessel, which he boards, carrying with him a portable "walkie-talkie" set, over which he can continue to talk with the radar operator on land. The shore operator advises the harbour pilot of marker buoys, beacons and other boats and ships, so as to avoid a collision, thus guiding him to the entrance and finally through the channel to the vessel's berth.

Another harbour radar system, designed and built by the Raytheon Manufacturing company to guide vessels in fog at the port of Le Havre in France, was tested in July on Deer Island in Boston harbour. A rotating antenna 41 ft. wide and weighing about five tons sends out the narrow radio beam which sweeps around the harbour and echoes back when it encounters a ship. Positions of ships are shown on the 16-in. diameter face of a tube similar to that in a television set. Four such indicators were used in the test, each showing a part of the harbour or the channel.

Another feature of the installation was a radio microwave relay link to transmit the radar information to a remote point, namely Boston's Commonwealth pier. On a standard indicator at the pier it was possible to see the picture then being displayed on any of the indicators on Deer Island. A possible use of such transmission, similar to that used in network television, was seen in a complicated harbour, where a chain of radar stations might be tied together for control of traffic under conditions of low visibility.

In October the General Electric company announced completion of a U.S. air force order for the largest and most complex radar systems yet produced. A number of these had been installed by the air force as major units of the radar "fence" protecting the U.S. and Canada against unexpected enemy air attack. Installations in the arctic regions were housed in rubberized fabric balloons, 54 ft. in diameter and 36 ft. high supported entirely by air pressure and capable of withstanding winds of 125 m.p.h.

Minute cracks in gun barrels, or other iron or steel tubes, can be quickly detected and plotted with a device developed by R. D. Kodis, formerly of the Watertown, Mass., arsenal, and R. Shaw, of the Graydon Smith Products company. An electric current through the barrel magnetizes it, and if it is perfect the magnetic field would be uniform all around. Cracks and other defects cause a distortion of the field. On a "crawler," which is pulled through the barrel by a chain at a speed of as much as six feet per minute, is a pickup coil that spins around, close to the bore of the gun, as fast as 1,800 r.p.m. This detects the irregularities of the magnetic field and a visible record is made on a strip of paper. When complete the record shows the defects as dark markings, as if the inside surface of the barrel were laid out flat.

Any combination of musical sounds, including many that cannot be played on any conventional instrument, can be made real with an electronic music box demonstrated to the National Electronics conference by Earle L. Kent, director of research for C. G. Conn, Ltd. He said that the device, which consists of a box with a panel of knobs and switches, would probably be of value to composers and arrangers, since any musical idea may be translated directly into music without the restrictions and limitations of ordinary instruments.

A new amplifying device, called the junction transistor, was announced by the Bell Telephone laboratories, who credited William Shockley with its development. It had the form of a bead about 3/16 in. in diameter with three wires extending from it and was capable of amplifying a weak electrical signal about 100,000 times. The smallest electron tube of the usual type that would perform the same job would be about 400 times as big. In addition, even though the original signal might have a power of as little as a millionth of a watt, a full watt of power is ordinarily required to amplify it in a conventional tube. The junction transistor, it was stated, would itself operate on about a millionth of a watt.

The heart of the junction transistor is a tiny rod of germanium, an element belonging to the class of materials known as semiconductors. The rod is treated so that both ends are electrically negative, with a thin positive layer sandwiched between them. The two junctions between the middle layer and the ends give the device its name. The entire rod is encased in a plastic bead, with wires from each of the three regions extending outside.

An electron tube of ceramic material instead of the usual glass, capable of producing radio waves about a foot in length and with power of one kilowatt, was announced by the General Electric company's electronics department. The first ceramic tube of its kind to operate at such power, it was intended for use in television transmitters in the new ultrahigh-frequency range. Though the Federal Communications commission had not opened up these bands for general use by the close of 1951, it was expected that when this was done they would greatly increase the possible number of television stations.

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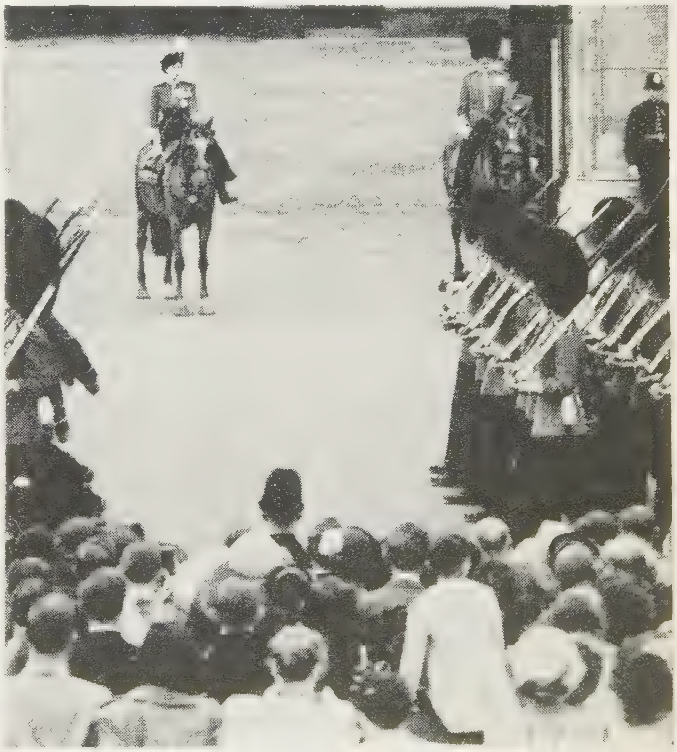
Elementary Education: *see* EDUCATION.

Elizabeth, (1926–), British queen, was born at London, on April 21. She was married on Nov. 20, 1947, to Prince Philip, duke of Edinburgh, and on Nov. 14, 1948, gave birth to a son, Prince Charles Philip Arthur George. A daughter was born to the royal couple on Aug. 15, 1950, and christened Anne Elizabeth Alice Louise.

On April 11, 1951, she and the duke went to Rome for a two-week private visit during which they were received by Pope Pius XII. During the illness of George VI (*q.v.*) she deputized for him on a number of occasions.

Elizabeth and the duke of Edinburgh left by air on Oct. 8 for a tour of Canada, arriving at Montreal the same day (*see* CANADA). They returned on Nov. 17 and drove through the streets of London by an extended route to Buckingham palace. On Sept. 29 Elizabeth had been made a member of the council of state which was to relieve the king of many of his



ELIZABETH representing King George VI during his illness in 1951. She is shown in her uniform of colonel of the Grenadier Guards as she left for the Trooping the Colour ceremony in London on June 7 formal duties after his operation and, on Oct. 9, it was announced that she and the duke of Edinburgh would carry out the tour of Australia and New Zealand the king had hoped to undertake in 1952. On the first stage of this tour, at Kenya, Africa, Elizabeth learned of the death of her father, Feb. 6, 1952. She returned by air to London and took the oath of accession as Queen Elizabeth II on Feb. 8, 1952.

Elks, Benevolent and Protective Order of: *see* SOCIETIES AND ASSOCIATIONS, U.S.
Ellice Islands: *see* PACIFIC ISLANDS, BRITISH.
El Salvador: *see* SALVADOR, EL.
Embassies, United States: *see* AMBASSADORS AND ENVOYS.
Emigration: *see* IMMIGRATION AND EMIGRATION.

Employment.

United States.—The civilian labour force (persons not in the armed forces and available for employment) numbered 64,208,000 in Aug. 1951, which represented a decline of 659,000 from Aug. 1950. (Data on the net strength of the armed forces and total labour force were not available after Jan. 1951.) Coupled with this decline in the civilian labour force was a decrease in unemployment, the Aug. 1951 total of 1,578,000 being 922,000 less than the Aug. 1950 total of 2,500,000.

Table I.—*Number of Employees in Nonagricultural Establishments, by Industry Division, United States**

(In thousands)

Industry division	Aug. 1951	July 1951	June 1951	Aug. 1950
Total estimated employment	46,670	46,436	46,559	45,080
Mining	926	907	925	950
Contract construction	2,796	2,749	2,687	2,629
Manufacturing	15,970	15,829	15,950	15,450
Transportation and public utilities	4,195	4,180	4,159	4,120
Trade	9,627	9,657	9,733	9,474
Finance	1,914	1,907	1,893	1,837
Service	4,842	4,851	4,835	4,827
Government	6,400	6,356	6,377	5,793

*The estimates include all full- and part-time employees in private nonagricultural establishments who worked during, or received pay for, the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants and personnel of the armed forces are excluded. These employment series have been adjusted to levels indicated by social-insurance programs data for 1947 and have been carried forward from 1947 bench-mark levels.

Source: United States Bureau of Labor Statistics, *Monthly Labor Review.*

Males in the civilian labour force declined from 45,818,000 in Aug. 1950 to 44,720,000 in Aug. 1951. This decline of more than 1,000,000 was a direct result of the build-up of the armed forces following the outbreak of the Korean war. The number of civilian unemployed males in Aug. 1951 was 956,000, a decrease of 708,000 from Aug. 1950.

Table II.—*Employees in Manufacturing, by Major Industry Groups, United States*

(In thousands)

Industry Group	Aug. 1951	July 1951	June 1951	Aug. 1950	Net Change Aug. 1950 to Aug. 1951
All manufacturing	15,970	15,829	15,950	15,450	+520
Durable goods	8,900	8,855	8,996	8,294	+606
Ordnance and accessories	49.4	44.4	42.2	25.0	+24.4
Lumber and wood products (except furniture)	823	814	837	845	—22
Furniture and fixtures	330	332	335	367	—37
Stone, clay and glass products	561	553	562	532	+29
Primary metal industries	1,353	1,341	1,357	1,256	+97
Fabricated metal products (except ordnance, machinery and transportation equipment)	993	993	1,019	972	+21
Machinery (except electrical)	1,576	1,598	1,615	1,374	+202
Electrical machinery	927	919	932	853	+74
Transportation equipment	1,505	1,502	1,520	1,347	+158
Instruments and related products	309	299	299	252	+57
Miscellaneous manufacturing industries	474	460	478	471	+3
Nondurable goods	7,070	6,974	6,954	7,156	—86
Food and kindred products	1,654	1,624	1,533	1,718	—64
Tobacco manufactures	95	81	83	89	+6
Textile mill products	1,240	1,256	1,296	1,316	—76
Apparel and other finished textile products	1,147	1,106	1,117	1,208	—61
Paper and allied products	496	493	501	479	+17
Printing, publishing and allied industries	757	758	761	741	+16
Chemicals and allied products	756	745	742	684	+72
Products of petroleum and coal	266	266	264	254	+12
Rubber products	275	272	275	258	+17
Leather and leather products	384	373	382	409	—25

Source: United States Bureau of Labor Statistics, *Employment and Payrolls.*

Table III.—*Indexes of Production Worker Employment and Weekly Pay Rolls in Manufacturing Industries**

(1939 average=100)

Period	Employment	Weekly Pay Roll
1945 (average)	157.0	293.5
1946 "	147.8	271.7
1947 "	156.2	326.9
1948 "	155.2	351.4
1949 "	141.6	325.3
1950 "	149.7	371.7
1951 "	159.4 (8 mo.)	430.2 (7 mo.)

*Data have been adjusted to levels indicated by social-insurance programs for 1947 and have been carried forward from 1947 bench-mark levels.

Source: United States Bureau of Labor Statistics, *Monthly Labor Review.*

Females in the civilian labour force totalled 19,488,000 in Aug. 1951, representing an increase of 439,000 over the Aug. 1950 total of 19,049,000. Unemployment in this classification declined from 836,000 in Aug. 1950 to 622,000 in Aug. 1951.

The number of employees in nonagricultural establishments was 46,670,000 in Aug. 1951, an increase of approximately 1,600,000 from the total for Aug. 1950. During this period every division of nonagricultural employment showed an increase, with the exception of mining, in which the number of employees declined by 24,000. (The largest decline within this division was a 35,000 decrease in the number of employees in the mining of bituminous coal.) The greatest changes occurred in manufacturing, contract construction and trade, where the increases numbered 520,000, 167,000 and 153,000, respectively. These increases were a continuation of the 1950 trend, although the rate of increase had declined in 1951 as full employment was approached.

Most of the increase in employment in manufacturing between Aug. 1950 and Aug. 1951 occurred in the durable goods industries, the increase being greatest in the machinery, transportation equipment and primary metal industries. In the same period employment in the nondurable goods industries declined by 86,000. The increase in employment in some nondurable goods industries (particularly in the chemical industry) was more than offset by the drop in employment in the textile, food and leather industries.

Preliminary figures for Sept. 1951 indicated a continuation of these trends. In this month the number of employees in nonfarm establishments was at an all-time peak of 46,900,000, nearly 1,200,000 higher than a year earlier. With unemployment in September about 300,000 below the previous postwar low for the month, the over-all employment situation continued favourable in the nation as a whole.

Employment in durable goods manufacturing in Sept. 1951 was almost 9,000,000, or 500,000 more than in Sept. 1950.

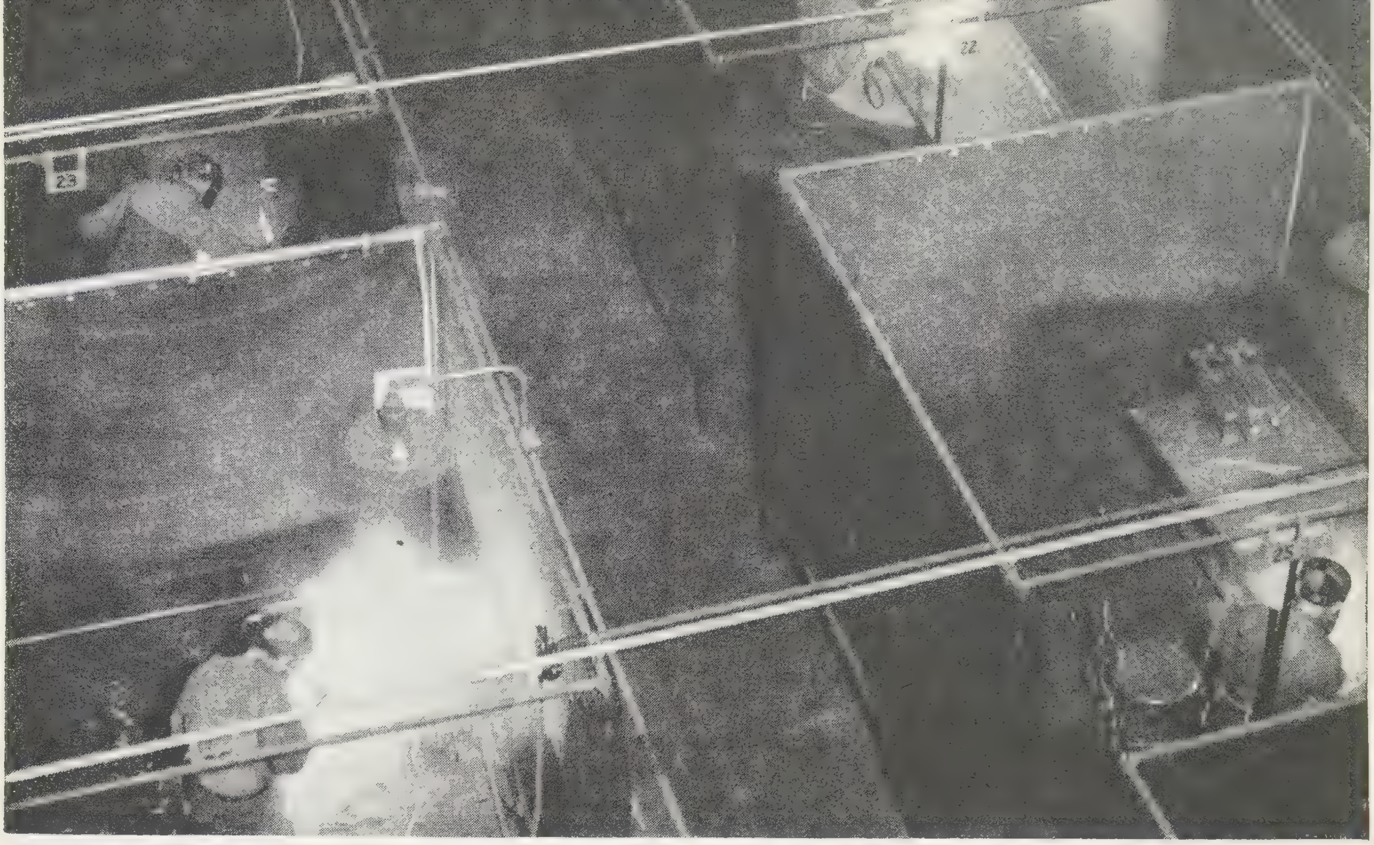
Employment in nondurable goods manufacturing declined by

Table IV.—*Analysis of Civil Employment by Industrial Groups, Great Britain*

(In thousands)

Industry or service	Aug. 31, 1951	July 31, 1951	Dec. 31, 1950
Basic industries			
Coal mining	770	773	762
Gas, electricity, water	364	363	361
Transport, communication	1,790	1,786	1,776
Agriculture, fishing	1,190	1,185	1,129
Other	80	80	80
Manufacturing			
Chemicals, etc.	497	494	484
Metals, engineering, vehicles	4,130	4,105	4,086
Textiles	1,030	1,030	1,033
Clothing	718	716	714
Food, drink, tobacco	828	826	803
Other	1,520	1,512	1,500
Building and contracting	1,453	1,446	1,409
Distributive trades	2,661	2,650	2,654
Professional, financial and miscellaneous services	3,962	3,960	3,915
Public administration	1,407	1,406	1,394
Total in civil employment	22,402	22,332	22,100

Source: *Ministry of Labour Gazette* (London).



APPRENTICE WELDERS training at the Cadillac tank plant in Cleveland, O., in 1951, as defense orders reached U.S. factories in a steadily growing stream

about 40,000 between mid-August and mid-September in contrast to an average August–September increase of 100,000 in the past few years. Employment in the textile, apparel and leather industries was 8% below the Sept. 1950 level, and the lowest for the month since 1945.

The employment and weekly pay-roll indexes for manufacturing industries reflected the continued reversal of the 1949 decline in employment.

The employment index for manufacturing industries increased from 149.7 in 1950 to 159.4 for the first eight months of 1951. For the same industries the weekly pay-roll index for the first seven months of 1951 was 430.2 as compared with the 1950 value of 371.7.

The expanded rearmament program continued to be the major factor affecting employment and wage structures.

In Jan. 1951 a national manpower mobilization policy was promulgated by the president. Following this, the Wage Stabilization board ordered a general ceiling on wage increases, later followed by a series of orders relaxing the "freeze" for various groups of wage earners. A new wage policy was formulated by the board in Aug. 1951 whereby all workers, both organized and unorganized, might receive wage adjustments related to changes in the cost of living.

Canada.—The civilian labour force increased from 4,933,000 in July 1950 to 5,332,000 in July 1951, while for the same dates unemployment changed from 140,000 to 85,000. This increase in employment was reflected in the general employment index (1939=100) which rose to 183.4 as of July 1, 1951, as compared with a value of 170.8 for July 1, 1950. The Canadian index value for employment in manufacturing (1939=100) was 177.5 in 1950 and averaged 189 for the first eight months of 1951.

Great Britain.—On Aug. 31, 1951, the total working population of Great Britain (analogous to the labour force in the United States) was 23,449,000, which represented an increase of approximately 100,000 from the 1950 total for that date. The total working population of Aug. 31, 1951, was composed of: 22,402,000 in civil employment; 835,000 in the armed forces and women's services; 205,000 registered unemployed; and 7,000 men and women on release leave who had not yet taken up employment.

During the first eight months of 1951, civilian employment increased by 302,000, with every industry or service category participating in this increase with the exception of the textile industry, employment in the latter having declined slightly. The largest increases during this period were in agriculture and fishing; metals, engineering and vehicles; building and contracting; and miscellaneous services.

Australia.—The general employment index (July 1939=100), excluding agriculture but including forestry and fishing, was 147.1 for 1950 and averaged 151.3 through June 1951. Employment in manufacturing (1937=100) was 169.6 for 1950 and 173.5 for the first six months of 1951.

Chile.—Excluding salaried employees, the manufacturing index (1937=100) for Chile averaged 126.2 for January through May 1951, which was below the 1950 value of 134.3.

France.—The general employment index for France (excluding agriculture) was 110.0 for 1950, and for the first five months of 1951 this index value had risen to 111.2 (1937=100). Using the same base year, the index of employment in manufacturing had a value of 116 for the January through May period, 1951, as compared with a 1950 value of 113.6.

Japan.—With Oct. 1947=100, the general employment index (excluding agriculture) was 105.1 in 1950 and 114.5 for the first five months of 1951. The index for employment in manufacturing (July 1950=100) was 111.2 in Dec. 1950, and averaged 114.2 for the first four months of 1951.

Norway.—On the basis of an index including all nonagricultural employment (1949=100) the general employment index was at 102.3 for 1950 and 102.5 for the first five months of 1951. An index of employment in manufacturing (1949=100) had a value of 102.6 in 1950 and 105.1 in 1951 (January–May).

Union of South Africa.—In 1950 the general employment index (1937=100, and excluding agriculture and commerce) was

136.7 and for the first six months of 1951 averaged 139.1. Based on 1937 = 100, the index of employment in manufacturing was 161.0 in 1950 and 168.8 for the first six months of 1951.

West Germany.—In 1950 the general employment index (June 1948 = 100) was 107.3, and increased to 110.8 for the five-month period beginning in Jan. 1951. The index for employment in manufacturing (June 1948 = 100) was 118.0 in 1950 and 125.1 in 1951 (five months). (*See* also BUSINESS REVIEW; CENSUS DATA, U.S.) (P. TA.)

Endocrinology.

The centre of the endocrine stage during 1951 was again occupied by the adrenal cortex. Research in this field reported during the year contributed to a better understanding of the chemical steps by which adrenal steroids are produced in the body, indicated some of the mechanisms by which the gland is stimulated to oversecretion, and partially explained the manner in which the active steroids such as cortisone and compound F (17-hydroxycorticosterone) influence the inflammatory expressions of many diseases.

Perfusion of the isolated, surviving beef adrenal gland (O. Hechter) revealed the following facts about the biological synthesis of the adrenal hormones: the parent substance is cholesterol, which the gland can synthesize from acetic acid. Under the stimulus of ACTH (adrenocorticotropic hormone) the adrenal cell changes cholesterol to pregnenolone. The latter steroid is then transformed through successive steps to the biological end products, which are compound F and compound B (corticosterone). Both of these steroids are active in restoring to normal the metabolism of foodstuffs and of electrolytes in the adrenal deficient animal. The perfused glands have a high capacity for steroid manufacture, which is in agreement with previous observations that under stress the adrenal delivers comparatively huge amounts of active steroids to the tissues.

The means by which the anterior pituitary gland is signalled to increase its output of ACTH during stress had not been completely elucidated. The work of the year made it appear likely that more than one type of signal is used (G. Sayers). There seemed no doubt that whenever the circulating level of adrenal cortical hormones falls, ACTH is liberated, and by its action on the adrenal serves to bring back the level to a normal value. This type of homoeostatic mechanism accounts for many of the adjustments observed, but not for all. Evidence had accumulated to show that adrenaline can evoke ACTH secretion by a direct effect on the pituitary gland, and that stimulation of the central nervous system (even in the absence of the adrenal medulla) leads to increased adrenal cortical secretion.

During the past few years the great number of experimental and clinical studies dealing with the effects of ACTH and cortisone upon inflammatory phenomena under various conditions inevitably led to some initial confusion and contradiction in interpretation. However, during 1951, a large number of observations were correlated and it became possible to establish a more unified concept of the mode of action of these hormones. The anti-inflammatory effect seems to be nonspecific, *i.e.*, equally exerted whether the inflammatory agent be a living bacterium, a nonliving protein antibody or a simple chemical irritant. The tissue elements which are acted upon are the small blood vessels (capillaries, arterioles, venules), the fibroblast cells and the materials produced by them (ground substance, fibres). The C_{11}-oxysteroids, *e.g.*, cortisone, modify the response of the small blood vessels to drugs, and prevent damage to the endothelial cells lining such blood vessels. The proliferation of fibroblasts which follows tissue irritation is sharply reduced as is also the outgrowth of new capillaries. These actions were shown to be exerted locally upon the lesion and not through the mediation of a special organ or of some general bodily response. Most workers in the field agreed that cortisone does not interfere with the formation of antibodies or with their fixation to a sensitized group of cells. It does inhibit the usual inflammatory reaction of the connective tissue elements to the fixed antibody.

Anterior Pituitary.—Diabetes insipidus is a disorder of water excretion caused by a deficiency of antidiuretic hormone (A.D.H.), secreted by the posterior pituitary gland. The kidney becomes unable to hold back water efficiently, and the result is a urinary volume which may reach 15–20 litres per day. It had been known for many years that an activity of the anterior pituitary was also involved in this disorder, because damage to both parts of the pituitary gland did not result in diabetes insipidus. During 1951 it was shown that the growth hormone or a factor associated with it acts in an opposite fashion to A.D.H. It promotes the excretion of water. It became evident that the regulation of body water is complex and that at least three hormonal factors are involved: A.D.H., growth hormone and the adrenal cortical steroids.

Thyroid.—Long before 1951 the observation had been made that the cells of a small area of the midbrain seemed to concentrate iodine. No explanation for this phenomenon was forthcoming. During 1951 D. E. Clark and his co-workers studied the problem with the use of isotopic iodine (I^{131}). They found that there was no particular concentrating capacity for inorganic iodine in any part of the brain. However, thyroxine (possessing isotopic iodine) accumulated in certain areas of the midbrain. This work served to stimulate interest in two aspects of thyroid physiology: the well-known effects of thyroxine on the autonomic aspects of brain function, and the equally well-established effects of central nervous stimulation on the rate of thyroid function. It began to appear that both of these aspects might have their seat of action in the midbrain. (RA. L.; S. SO.)

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England: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

English Literature.

In English writing in 1951 intelligence, industry and ability were applied in good measure, but that extra *élan* needed to lift the writer's prose above the level of mediocrity was too seldom evident. The predicaments of the times were much in writers' minds. E. M. Forster's occasional pieces had long stimulated a desire for a new large-scale work from his pen. This did not seem to be forthcoming, but some consolation was to be derived from *Two Cheers for Democracy,* a stimulating collection of essays, lectures and broadcasts on political and aesthetic themes which reflected an alive, creative intellect.

Bertrand Russell, in his *New Hopes for a Changing World,* made a plea for courage to overcome and discard obsolete fears and hatreds which had brought oppressive gloom instead of the happiness that modern knowledge and skill rendered possible.

From the time of *The Great Illusion* (1910) onward Sir Norman Angell had campaigned for sane political thinking, and this appeal to reason was reiterated in his autobiography, *After All,* which gave, too, a full account of the vicissitudes of a life spent largely in the cause of peace and service of others. The dangers which Charles Morgan believed threatened the mind and spirit of man were examined in *Liberties of the Mind,* a collection of essays; while *The Estate of Man,* the last work of Michael Roberts, poet, philosopher and teacher, was an inquiry into "the limits of man's capacity to adapt himself to the conditions which he has helped to create."

Something of Stephen Spender's efforts to adapt himself to his times, his private and public life and his political preoccupations and personal friendships were described in *World Within World;* and the second part of Freya Stark's autobiography, *Beyond Euphrates,* concerned with the years 1928–33, illuminated the author's thoughts and beliefs, as well as her life in Baghdad, Iraq, and travels in Persia (Iran) and other lands.

A group of royal portraits ranged from the duke of Windsor's memoirs, *A King's Story,* and Lord Sysonby's impressions of court life with Queen Victoria, King Edward VII and King George V, *Recollections of Three Reigns,* to Dorothy Margaret Stuart's study of Princess Charlotte of Wales and her family, *Daughter of England,* and A. Aspinall's edition of the unpublished correspondence of Mrs. Jordan and the duke of Clarence, later King William IV, *Mrs. Jordan and Her Family.*

Steven Runciman presented, in the opening volume of *A History of the Crusades,* a political and military narrative of the first crusade. Austin Lane Poole's *From Domesday Book to Magna Carta,* a scholarly volume in the "Oxford History of England," concentrated on documentation and facts, and was a valuable contribution to the study of one of the most remarkable passages in English history.

The changes brought about in Great Britain's international position between 1830 and 1841 were surveyed in Sir Charles Webster's two volumes on *The Foreign Policy of Palmerston,* and rewarding studies of more recent statesmen and politicians included the fourth volume of *The Life of Joseph Chamberlain* (1901–03), written by Julian Amery, who undertook completion of the task after the death of J. L. Garvin; Thomas Jones's satisfying "interim, unofficial" portrait, *Lloyd George,* based on his own intimate acquaintance with affairs and with the former prime minister; *The Life of George Lansbury,* by Raymond Postgate; and *The Last of the Radicals,* Cicely V. Wedgwood's biography of her uncle, Josiah Wedgwood.

While Winston Churchill was continuing his story of World War II—the fourth volume, *The Hinge of Fate,* was devoted to Jan. 1942–June 1943—biographies of two kindred spirits, fighting admirals of World War I, whose talents Churchill recognized when first lord of the admiralty, were being completed. *The Life and Letters of David, Earl Beatty* was authoritatively written by Rear Adm. W. S. Chalmers; the career of Roger Keyes was ably and affectionately recorded by General Aspinall-Oglander.

Two important works on literary and linguistic criticism were John William Hey Atkins' *English Literary Criticism: The 17th and 18th Centuries* and William Empson's brilliant *The Structure of Complex Words,* which was a worthy successor to his *Seven Types of Ambiguity* (1947). (A. Ck.)

Fiction.—During 1951 most of the leading novelists produced work of some kind, if not, in some cases, their best. Foremost among them was Ivy Compton-Burnett whose characters in her new novel *Darkness and Day,* from rebellious bootboy to tragipathetic children, were ruthlessly and superhumanly articulate as ever and haunted, as in all her books, by the menacing but always mentionable sins of the fathers.

Graham Greene's preoccupation with sin and sex was dispiriting, if cathartic, in *The End of the Affair;* physical passion was brilliantly conveyed in a guilt-ridden tale of adultery that ended with minor miracles. It could be objected that the submergence of personality through lust, though convincing, made of its hero something less than a man.

The Masters by Charles P. Snow was an erudite and tense tale of college politics and Machiavellian dons, although Snow's avowed aim to follow his hero through the differing strata of English life was perhaps more sociological than literary. Charles Morgan's *A Breeze of Morning* was a tale of subtly differentiated shades of love and longing told urbanely, at times poetically, against the background of a classical education. In the same tradition was Anthony Powell's slight but civilized autobiographical novel *A Question of Upbringing.* In *A Way through the Wood* Nigel Balchin's treatment of the theme of adultery was somewhat similar to Graham Greene's, with, characteristically, more stress on psychology than religion. William Sansom in *The Face of Innocence* gave, less convincingly, the case history of a tiresome female psychopath. Francis King's *The Dividing Stream* saw the return of the unspoiled child of nature. *My Fellow Devils,* a new work by L. P. Hartley, and Victor S. Pritchett's *Mr. Beluncle* were published toward the end of the year.

Among historical novels Lord Belhaven's *The Eagle and the Sun,* an inspiring account of the march of the 10th legion into Arabia in the time of Augustus, was well-documented and written in soldierly, if sometimes overdisciplined prose. John Cowper Powys' *Porius* was a vast, shrouded chronicle of the time of King Arthur. Of the semidocumentary novels of contemporary history Robert Harling's *The Paper Palace* and, in the thriller class, Eric Ambler's *Judgment on Deltchev* were outstanding. Of the war novels the greatest demand was for Nicholas Monsarrat's *The Cruel Sea.* Robin Maugham showed signs of family talent in *The Rough and the Smooth,* a well-planned if somewhat uneven story of a tawdry *femme fatale.* Anthony West in *Another Kind* proved himself to be a more mature and sophisticated writer, but this, his second novel, was overambitious.

In 1951 few collections of short stories called for special comment. The most noted event was probably the publication in three volumes of W. Somerset Maugham's collected tales. Herbert E. Bates's stories in *Colonel Julian* seemed at times mechanical. Compassion for the underdog was vitiated in some of them by a stultifying bitterness. Noel Coward's *contes* in *Star Quality* were typical—rather dated, a little like nostalgic gramophone records. The theme throughout Denton Welch's posthumous *A Last Sheaf* was the plight of the sensitive, even soft, individual in a hard world. In novels and short stories alike there was less satire than in the previous year. Preoccupation with sex could be seen as an escape through the senses from a world that was viewed, sometimes with perplexity, sometimes with compassion, often with despair. Apathy rather than stoicism set the literary mood. Heroes were notably unheroic. Helen, not Penelope, was the woman of the year. (L. Ps.)

Poetry.—The year 1951 was not outstanding in English poetry. The Arts council of Great Britain instituted a poetry competition for narrative and lyric poems to be judged by a panel of university dons and, perhaps for this reason, few established poets competed. The winning entries did not discover any remarkable new young talent, unless it was that of Robert Conquest, one of the lyric winners. These poems were published by Penguin Books.

The Hand and Flower Press and the Latin Press produced works of taste and promise by poets whose names were unfamiliar to the public; *e.g.,* Thomas Caddick and Guido Morris.

Of the older, established poets, Walter de la Mare published a long poem, *Winged Chariot,* on the subject of time, full of the felicities of his unique talent; Robert Graves, in his *Poems and Satires 1951,* did not add greatly to his reputation. Perhaps the most remarkable publication of the year was *The Collected Poems of Keith Douglas,* a young writer of great promise killed in Normandy in 1944.

The *Selected Poems* of the American poet Richard Eberhart gave English readers a new insight into one of the most original poets writing, and the *Collected Poems* of Marianne Moore emphasized the preciosity of much that had been labelled modern in the previous 25 years. *Poems 1938–49* introduced to English readers another young American poet of promise, Robert Lowell. *The Poems of C. P. Cavafy,* the Greek poet, translated by John Mavrogordato, were compared with those of W. B. Yeats as being some of the most beautiful the 20th century had produced.

Among books by women writers, *One is One,* a new collection by Mrs. P. D. Cummins, was noteworthy for its expression of the pain and grief of existence. In *The Golden Bird,* Anne Ridler forsook her domestic variations for fairy tale, not entirely unsuccessfully. In her heroic poem, *Gods with Stainless Ears,* Lynette Roberts produced a work of eccentric brilliance.

The activities of those bodies concerned with presenting poetry to the public orally were continued. The British Broadcasting corporation produced a new translation by C. Day Lewis of Virgil's *Aeneid.* Many lesser readings were given by the P.E.N., the National Book league and the Apollo society. The British council, in collaboration with the Gramophone company, continued to present its issues of recorded classics. (*See* also AMERICAN LITERATURE; BOOK PUBLISHING; CHILDREN'S BOOKS; LITERARY PRIZES.)

FILMS OF 1951.—*Literature Appreciation—English Lyrics* (Coronet Films); *W. B. Yeats—A Tribute* (Brandon Films, Inc.). (P. DN.)

Entomology: *see* AGRICULTURAL RESEARCH ADMINISTRATION; HORTICULTURE.

Entomology and Plant Quarantine, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Epidemics and Public Health Services.

Five diseases remained subject to international quarantine in 1951: cholera, plague, typhus, smallpox and yellow fever. Information from countries in the Communist orbit was scanty, but reports from the rest of the world indicated little change in the prevalence of these five pestilences during the year. India remained a prime focus of cholera. Plague still prevailed in Asia, Africa and South America. Plague in man was rare in the United States, although the disease was firmly established in wild rodents in the western states. Ordinarily there is little smallpox in western Europe and in English-speaking countries because vaccination is widely practised. In communities where vaccination is not rigidly kept up, however, local outbreaks can occur. This was illustrated in 1951 by outbreaks in Brighton, Eng. and in the Netherlands and Portugal. Epidemic typhus prevailed in parts of Asia, Africa, South America and eastern Europe.

Yellow fever was still confined to Africa and to Central and South America. Strenuous efforts had been made to control the disease in the Americas by vaccinating populations and by suppressing the *Aedes aegypti* mosquito, the vector of yellow fever in urban areas. However, jungle yellow fever could not be eradicated by existing methods because the main reservoir, monkeys, obviously could not be attacked effectively, nor could the jungle mosquito vector, the *Haemogogus,* be eradicated. Jungle yellow fever spread slowly northward. Panamá was invaded in 1948, and by 1951 the disease had reached Costa Rica, where a number of deaths occurred despite the introduction of mass vaccination.

Other diseases which were still of world-wide importance in 1951 were influenza and malaria. In 1918 influenza was a pandemic and highly fatal disease. Epidemics occurred repeatedly thereafter but did not show the same lethality, which in 1918 was strikingly manifest in healthy young adults. Although the virus causing the 1918 disease was never isolated, agents of subsequent epidemics were well studied. It became known that at least two types of influenza virus exist, A and B, and that the A has many subtypes which differ markedly so that vaccines lacking the strain which causes the epidemic may not protect against infection. The World Influenza centre collected information on the dissemination of the disease and the strain of the causative virus.

The 1951 epidemic of influenza was widespread. Apparently it spread from focuses existing in 1950 in Scandinavia, Northern Ireland and Spain. Parts of Ireland, western Europe, Great Britain, northern Africa, the Balkans, the near east, the Americas, some Pacific islands and Japan were affected. By far the most frequent offender isolated was an A prime virus similar to that causing the 1950 epidemics. The similarity of the strains of virus isolated in 1951, in view of the mutability previously shown by this agent, supported the hypothesis that the pandemic spread from the three focuses mentioned and was not a spontaneous upspringing in many countries. The rapid isolation and identification of the virus in many countries showed that, if necessary, a vaccine could be prepared in time to protect large segments of the population. This might be necessary if the 1918 type of influenza recurred. However, the influenza of 1951 was still a mild disease, and mass immunization was not necessary. True, in certain areas many deaths occurred, principally in people aged 55 or more, but the sulfonamides and antibiotics prevented or cured many complications which are the principal causes of death.

Rapid progress in the eradication of malaria was due chiefly to the spraying of habitations with residual DDT—a practice which the World Health organization had stimulated. Greece, Sardinia and Corsica were almost free of the disease by 1951, but intensive spraying failed to suppress it in Sicily because the vector there (*Anopheles superpectus*) showed no special preference for houses. Malaria was no longer a public health problem in Argentina and Italy.

Antimalarial projects were in progress in 1951 on all continents. It was claimed that a secondary result of attempts to eradicate the malarial mosquitoes was a reduction in other diseases borne by insects—urban yellow fever, dengue fever, plague and others.

Malaria in the United States, formerly widespread, decreased rapidly because of the treatment of cases and suppression of the insect vector through efforts of the individual states and the U.S. public health service. Since insects capable of transmitting malaria still existed throughout the United States, the return of Korean veterans suffering relapses of malaria (and thus acting as sources of the disease) raised possibilities that malaria might be re-established. The same situation had occurred in World War II, however, and malaria did not take hold in the country.

The principal focuses of poliomyelitis are North America, the British Isles and Scandinavia. Other countries by 1951 were beginning to experience epidemics for the first time. The pattern, at least in the areas of principal focuses, was formerly one of epidemic years with relative freedom for a few years between each epidemic. Epidemic years were now succeeding each other more rapidly, and there was less of a decline between epidemics. Poliomyelitis likewise had become less exclusively a children's disease.

Other epidemics, made known through the World Health Organization, were numerous but not world-wide. Cerebrospinal meningitis caused many deaths in the Anglo-Egyptian Sudan and in French Equatorial Africa. An outbreak of encephalitis in Murray Valley, Northern Victoria, Austr., was found to be Japanese B encephalitis. Infectious hepatitis attacked one out of every eight of the 4,300 inhabitants of Niué Island in the Cook Islands.

Treponemal diseases chronically afflict great numbers of peoples. Mass attacks on these had been made in Iraq, where the problem was bejel, a form of endemic syphilis, and in Indonesia, Haiti and Thailand, which are debilitated by yaws. The attack consisted of mass treatment with penicillin. Campaigns against typhus were under way in Peru and Afghanistan, against rabies in Israel and against trachoma, a common cause of blindness, in the eastern Mediterranean areas.

The United States had an excellent health record in 1951. Immunization programs could be credited with the decline in diphtheria, whooping cough and smallpox. The incidence of syphilis continued to decrease. Pneumonia, Rocky mountain spotted fever, tularaemia, typhoid and paratyphoid reached low levels. On the other hand, the long decline in scarlet fever and streptococcal sore throat was interrupted by a rise in 1951.

Anthrax ("Woolsorter's disease"), usually an occupational disease as its synonym implies, also increased in 1951. Outbreaks of anthrax in animals occurred in Illinois, Kentucky, Missouri, New Jersey, Nevada, North Dakota and Tennessee.

Measles and meningococcal meningitis also increased. The upward trend in the reporting of acute infectious encephalitis continued in 1951; there were many known causes of this disease, and perhaps others yet to be discovered. Several thousand cases of pleurodynia, thought to be due to Coxsackie virus, were found in Texas.

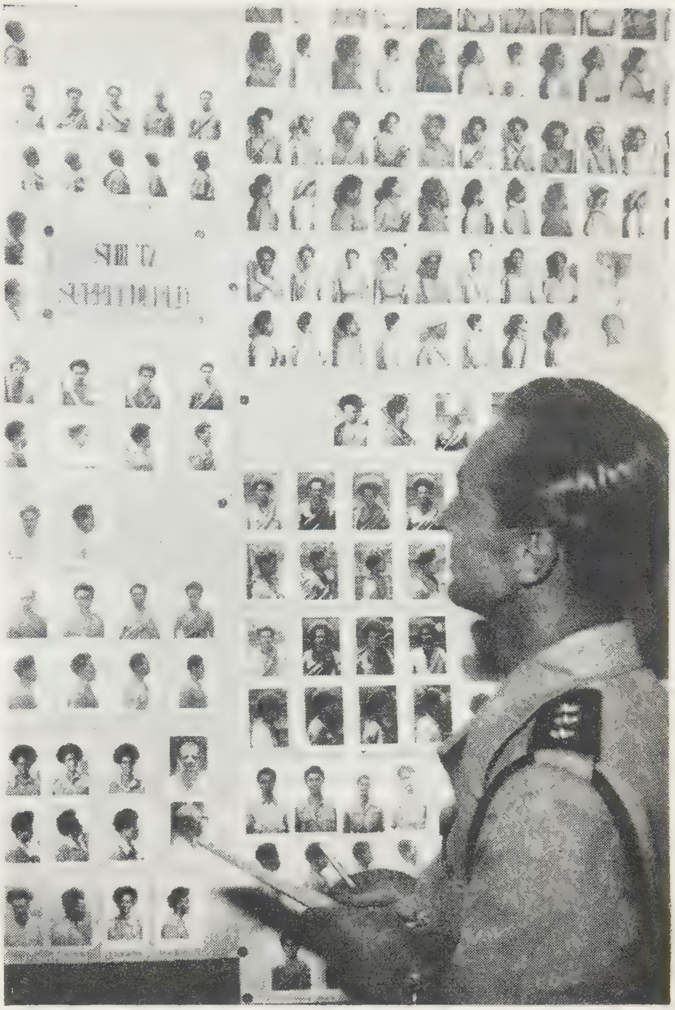
In Korea, the health of the United Nations armed forces during 1951 was good, even though typhus, smallpox and typhoid raged north of the 38th parallel. (*See* also FEDERAL SECURITY AGENCY; INDUSTRIAL HEALTH; MEDICINE; and articles on specific diseases.) (H. E. HI.)

Episcopal Church: *see* PROTESTANT EPISCOPAL CHURCH.

Eritrea.

A former Italian colony on the Red sea, bounded south by Ethiopia and west by Sudan, Eritrea was under temporary British administration from 1941. Area: 47,875 sq.mi. Pop. (1950 est.): 1,100,300 (including 18,000 Italians). Languages: mainly Tigriña and Tigré. Religion: *c.* 50% Christian (Coptic) and 50% Moslem. Capital: Asmara (pop. *c.* 117,000). British chief administrator during 1951: D. C. Cumming.

History.—On Dec. 2, 1950, the U.N. general assembly passed a resolution providing for the federation of Eritrea with Ethiopia before Sept. 15, 1952. Eritrea was to be granted autonomy in domestic matters and the powers to be vested in the federal government were specified. The solution was accepted by all the states concerned. While it did not satisfy the demands of the two major and opposing political factions in Eritrea, one of which, mainly Christian, wanted full union with Ethiopia, and the other of which, mainly Moslem, demanded full independence, it was well received locally. At a public meeting in Asmara all political parties agreed to accept the decision and to co-operate in making it effective. The United Nations commissioner, Eduardo Anze Matienzo (Bolivia), reached Asmara in Feb. 1951, and both he and the British administration were preparing in their separate spheres the measures necessary for federation. These included framing a constitution for consideration by a representative assembly and forming an administration composed of Eritreans. No important visible results had appeared by the end of 1951, but many Eritreans had been brought into the administration to replace foreigners. The commissioner left for the U.N. general assembly in Paris in November.



ROGUES' GALLERY of bandit outlaws who terrorized British-administered Eritrea in 1951. More than 1,000 of them surrendered during a month-long amnesty ending July 18

Although the political parties maintained their acceptance of the federal solution, their activities were directed toward shaping it to meet their respective original aims. The constitution on which this battle would be fought was still being drafted when the year ended.

For the first half of 1951 the state of public security in Eritrea gave cause for alarm. Numerous gangs of *shifta* (bandits) roamed the land and committed outrages and acts of lawlessness. All traffic by road and rail had to be controlled and restricted. It seemed likely that this state of insecurity would hamper the carrying out of federation. A new approach was inevitable and in June a general amnesty was proclaimed for all *shifta,* whatever their crimes; a proclamation giving the chief administrator stronger and more summary powers to combat lawlessness was enacted. These measures were successful. About 1,300 *shifta,* including practically all the known leaders, surrendered and returned to a more settled life. The new security measures were vigorously applied and the inhabitants showed co-operation in enforcing them against subsequent offenders. The Ethiopian government gave full co-operation in frontier control to prevent "border hopping," and brigandage was reduced to negligible proportions.

An agreement was reached between the Ethiopian and Italian governments to resume diplomatic relations.

(F. E. ST.)

Economy and Finance.—Budget (July 1, 1949—March 31, 1950, actual): balanced by contribution from Great Britain as administering power at £2,950,597. Foreign trade (1950, recorded value): imports £4,089,620; exports £2,919,792. Roads (1950, maintained): 780 mi. Railways (1950): 193 mi. Ships entered at Massawa (1950): 773,828 net registered tons.

Estonia. From Feb. 24, 1918, to Aug. 6, 1940, when it was annexed by the U.S.S.R., Estonia, one of the Baltic states of northeastern Europe, was an independent republic. Area: 18,357 sq.mi. Pop.: (1939 est.) 1,134,000; (1950 est.) 1,200,000, but according to reliable estimates the purely Estonian population declined from 998,000 (88%) to 684,000 (57%) between 1940 and 1950. Language: Estonian and Russian. Religion: Lutheran and Greek Orthodox. Chief towns (pop., 1939 est.): Tallinn (cap., 146,400), Tartu (60,100), Kohtla-Järve (1950 est., 30,000). Chairman of the presidium of the supreme soviet of the Estonian S.S.R. in 1951: August M. Jakobson; chairmen of the council of ministers: Arnold T. Veimer and (from March 29, 1951) Aleksey Müürisepp.

History.—On Feb. 25, 1951, the citizens of Estonia "elected" a new supreme soviet. The country was divided into 115 constituencies having each an average of 10,000 inhabitants. Out of a possible poll of 814,682 votes the total cast was 813,777 (99.89%) and only 1,118 (0.14%) votes were said to have been recorded against the official candidates. At the previous election, in 1947, there were 804,172 electors and 28,003 (3.5%) opposition votes. Only 57 of the 115 members of the new supreme soviet were Estonians, 31 were Russians of Estonian extraction, 26 Russians and one Georgian (Joseph Stalin).

It became known during the year that the principal soviet naval base in the Baltic had been transferred from Leningrad to Tallinn.

On March 29 the supreme soviet relieved of his duties the premier, A. T. Veimer, the only remaining native-born Estonian Communist in the government. His dismissal, however, apparently involved no disgrace, for on March 13 he was awarded the Order of Lenin; he was also elected member of the new presidium of the supreme soviet. Previously unknown in Estonia, Veimer's successor, A. Müürisepp, was first heard of in 1949 on his appointment as deputy premier. Annexation of Estonia by the Soviet Union was followed by unprecedented expansion of bureaucracy. From 9, the number of ministers had risen by 1951 to 28, of whom 22 were either Russians or Russified Estonians. Of 49 deputy ministers, 19 were Russians. Of 146 managers of industrial undertakings 71 were Russians.

The Estonian National council, a central organization of the Estonians in the free world, presided over by August Rei, the last foreign minister of independent Estonia, held its third congress in Stockholm, Swed., on April 29. Oliver A. Peterson, attaché to the U.S. embassy, addressed the congress and said that the struggle of the Estonians in exile had the sympathies of the American people. On June 3 the "Voice of America" added to its programs broadcasts in Estonian. (*See* also LATVIA; LITHUANIA.)

Education.—V. K. Oja, an Estonian deputy to the soviet of nationalities, said in Moscow on March 9, 1951, that there were 20% more pupils in primary and secondary schools than before 1940, four and one-half times more in the technical schools and twice as many in institutions of higher education.

Finance.—Budget (1951 est.): revenue 1,104,500,000 roubles, expenditures 1,094,500,000 roubles.

Industry.—In 1951 oil shale production was estimated at more than 3,000,000 tons, as compared with 1,700,000 tons in 1939. The postwar five-year plan, however, had asked for 8,000,000 tons. (K. SM.)

Etching. The year 1951 manifested continued activity in the various original print mediums by artists all over the world, a natural outcome of the fact that the print, being susceptible to multiple production, is capable of wider distribution than any other form of pictorial art, and also, by its size and comparatively low cost, is available to a far wider public and more suitable for display in the average home than the larger and more costly painting or piece of sculpture. Furthermore, as the most democratic form of art expression, it has since earliest times enjoyed a universal popularity as a medium for the expression of the artist's message, of whatever nature the latter might be.

If fewer graphic artists availed themselves of etching in 1951 than of other creative print techniques such as wood engraving and lithography, it was because the extremely exacting nature of the former had less appeal to the spirit of reaction against discipline so current in all forms of art expression.

The three countries which shared leadership in the field of etching during the year were France, England and the United States. In France the so-called "modern" idiom continued to attract the younger artists, the traditional surviving for the most part in the work of those longer established. Most active in the whole field were Michel Ciry, Gérard Cochet, Albert Decaris, Pierre Dubreuil, Edouard Georg, Joseph Hecht, André Jacquemin, Robert Lotiron, Louis-Joseph Soulas, Suzanne Tourte, Roger Vieillard and Jacques Villon. Many of these engaged in book illustration, although line engraving was the more popular medium for this purpose, while the practice of colour printing was more widespread than in any other country despite the fact that the bitten line had never lent itself with complete success to this use. Many print societies, such as the Peintres-Graveurs Français, exist in France and innumerable exhibitions of etchings—solo, group and general—were held during the year.

Etching had been little affected by the "modern" movement in England, home of traditionalism, and the year 1951 saw no exception to this. Malcolm Osborne, president of the Royal Society of Painter-Etchers and Engravers, and Martin Hardie maintained their long and distinguished careers, other outstanding names being those of Winifred Austen, W. D. Brokman-Davis, John Buckland Wright, Eveleen Buckton, John Farleigh, Henry Moore, John Nicolson, William P. Robins, D. I. Smart, Sara Sproule, Leonard R. Squirrell, Graham Sutherland, C. W. Taylor, Murray M. Tod and Leslie M. Ward.

Throughout the years a truly national school of art had been evolving in the United States, and the year 1951 proved that in its etching this character was clearly reflected. The latter's greatest strength lies in its freshness, vitality, variety of approach and range of emotional quality; its greatest weakness in lack of discipline and a want of technical skill resulting from inadequate facilities for sound training. Among the many etchers who produced significant work the following constituted a representative group, their prints running the gamut from wholly objective to purely abstract: Niels Y. Anderson, Will Barnet, Ture Bengtz, Isabel Bishop, Federico Castellon, John E. Costigan, Stephen Csoka, Ralph Fabri, Ernest Freed, Sue Fuller, Harold C. Geyer, Stanley Hayter, Eugene Higgins, Morris Henry Hobbs, Alfred Hutty, Philip Kappel, Gene Kloss, Armin Landeck, Mauricio Lasansky, Luigi Lucioni, Joseph Margulies, Thomas W. Nason, Kiehl and Xtian Newswanger, Roi Partridge, Andre Racz, Charles B. Rogers, Carl M. Schultheiss and Reynold Weidenaar.

In Canada a group of etchers under the able leadership of Nicholas Hornyansky and the Society of Canadian Painter Etchers maintained the high standard of quality shown in the past.

Italy had produced little of importance in etching since the conclusion of World War I. However, 1951 gave evidence of increasing interest in the bitten line, with Celestino Celestini, Benvenuto Disertori, Valerio Fraschetti and Antonio Music the principal figures.

Etching in Germany was still struggling to emerge from the social, economic and political disruption of the nation following two world wars, and though some traces of the old school still survived and a new one was in process of development, no etching of more than local significance emerged during the year.

No etching of note was done in the Netherlands and Belgium, but the Hungarian artists, Julius Komjáti and Nandor Varga, remained outstanding figures in their fields. Meanwhile Norway, Denmark and Sweden, which had long supported a flourishing Scandinavian school of graphic art, contributed a group of etchers whose work was marked by its vigour and strong national flavour. In 1951 a comprehensive exhibition of Norwegian prints was assembled and sent to the United States. In it the etched work of Sigurd Winge was conspicuous.

Although Switzerland had given the world few etchers of international importance, Maurice Barraud, Hans Erni, Hans Fischer and Max Hunziker published interesting work in 1951. Printmaking in Spain, Mexico and the South American republics was confined largely to woodcut and lithography and little of merit was done in the medium of etching.

FILMS OF 1951.—*How to Make An Etching* (Almanac Films, Inc.); *Joan Miro Makes a Colored Print* (Thomas Bouchard). (J. T. AR.)

Ethiopia. An independent empire of northeastern Africa, Ethiopia is bounded north by Italian Eritrea (from 1941 under British military administration), west by the Anglo-Egyptian Sudan, south by Kenya, southeast by Italian Somaliland and east by British and French Somaliland. Area: *c.* 350,000 sq.mi. Pop. (no census ever taken; 1950 est.): 10,000,000. Language: Amharic, the official language; also Tigriña, Tigré, Galla, Somali, etc. Religion: Christian (Alexandrine) 57%; Moslem 17%; pagan, etc., 26%. Chief towns: Addis Ababa (cap., *c.* 250,000); Harar (*c.* 45,000); Dessie (*c.* 35,000); Diredawa (*c.* 30,000). Ruler: Emperor Haile Selassie I; prime minister: Bitwoded Makonnen Endalkatchou.

History.—The preparations for the incorporation of Eritrea by Sept. 15, 1952, into Ethiopia under the terms of the decision reached by the U.N. General Assembly in Dec. 1950 were well advanced. E. Anze Matienzo (Bolivia), the U.N. commissioner, who established his offices at Asmara, Eritrea, early in 1951, was at the end of the year in Geneva, Switz., drafting the terms of the constitution which he would recommend to the constituent assembly of Eritrea.

The settlement of the future of Eritrea cleared the way for the resumption of diplomatic relations with Italy; and an agreement for this purpose was reached following the visit of the Italian undersecretary of state, Giuseppe Brusasca, early in September.

During the year direct relations were instituted with Yugoslavia, Spain accredited its Cairo minister to Addis Ababa, and Ethiopian ministers took up residence in Brazil, Venezuela and Mexico.

The emperor's adherence to the principles underlying the United Nations was evidenced in practical fashion by the sending of an Ethiopian infantry battalion of 1,158 officers and men to fight in Korea. The battalion, under Col. Kebbede Guebre, arrived at Pusan in May and was in action in August.

The administration of the service of the loans granted by the International Bank for Reconstruction and Development in 1950—$7,500,000 for road construction and maintenance, $3,000,000 for the new Development Bank of Ethiopia and $1,500,000 for telecommunications—was organized. An imperial highways authority was constituted, and work began on the trunk road connecting the capital with the port of Assab and on the important road linking the rich province of Sidamo in the south with the railway. An imperial telecommunications authority was charged with the responsibility of reconditioning the existing land lines. The Development Bank was in being under the direction of Leon Jozef Baranski, formerly a director of the Bank of Poland.

On July 26 a special tribunal in Addis Ababa sentenced eight men, including Bitwoded Negash, a former president of the parliament, to death for plotting to assassinate the emperor and set up a republican regime.

Bishop Basilios was elected archbishop and primate of Ethiopia by the all-Ethiopian synod on Jan. 8. He was the first Ethiopian monk to hold this office. Until then, traditionally, the chief bishop (abuna) was an Egyptian monk appointed by the Coptic Patriarch. He was consecrated to his new post in Cairo on Jan. 14.

Education.—Schools (1949–50): elementary 540, pupils 60,043, teachers 2,008 (including 286 foreign); secondary (1948–49) 15, pupils 1,079 (including 804 in Addis Ababa). There were 228 students abroad, mostly supported by the government.

Finance and Banking.—Budget (1949–50): revenue Eth. $63,300,000, expenditure Eth. $63,200,000. Monetary unit: Ethiopian dollar, with a basic selling exchange rate (Dec. 1951) of Eth. $2.53 to U.S. $1.

Foreign Trade.—(1950–51): Imports Eth. $95,300,000, exports Eth. $111,700,000. Main sources of imports: India 25%; U.K. 13%; U.S. 12%; Italy 9%. Main destinations of exports: Aden 25%; Eritrea 19%; U.S. 13%; French Somaliland 11%. Main imports: cotton piece goods, machinery, sugar and salt. Main exports (1950–51): coffee 50%; hides 18%; cereals and pulses 10%; oilseeds 10%.

Transport and Communications.—Roads: 43,300 mi., of which 11,100 mi. were suitable for motor traffic. Licensed motor vehicles (Dec. 1950): cars 2,500, commercial 1,750. Railways: 486 mi. Air transport (Ethiopian Air Lines, 1951, ten months): miles flown 1,348,000; passenger-miles 13,411,416; freight ton-miles 934,371.

Agriculture.—Coffee production (1949) 115,000 metric tons. Livestock (1949): horses 1,100,000; asses 3,000,000; mules 1,000,000; cattle 18,000,000; sheep 17,000,000; pigs 8,000; goats 11,000,000; camels 2,000,000; chickens 26,000,000.

European Coal and Steel Pool: *see* EUROPEAN UNION.

European Economic Cooperation, Organization for: *see* EUROPEAN RECOVERY PROGRAM.

European Payments Union: *see* EUROPEAN RECOVERY PROGRAM; EXCHANGE CONTROLS AND EXCHANGE RATES; INTERNATIONAL TRADE.

European Recovery Program. While the Organization for European Economic Cooperation (O.E.E.C.) was no longer charged with its former function of allocating U.S. economic aid among the European recipient nations, it continued its program for freeing intra-European trade from quotas and other quantitative restrictions and from bilateralism. By early 1951, 75% of intra-O.E.E.C. trade was carried on without such restrictions, and in February the O.E.E.C. council discussed proposals for reducing quota barriers still further. Any such action was complicated by the continuous rise in prices of raw materials, which began with the outbreak of hostilities in Korea and continued well into 1951. In the O.E.E.C. several governments were sceptical of further removals of quotas unless the United States, Great Britain and France, which had agreed in December to concert measures to regulate the flow and prices of raw materials, first established an equitable basis for sharing them.

In view of inflationary pressures and balance-of-payment difficulties, the council in March felt obliged to postpone any decision concerning a further liberalization of trade. However, a consolidated list of commodities already exempted from quotas was approved by O.E.E.C. on April 8. Six countries—Austria, Denmark, west Germany, Greece, Iceland, Norway—were exempted from full compliance because of currency weaknesses, while Ireland and Turkey reserved approval of the list; after Turkey also received exemption, the consolidated list was declared in force on Aug. 15. On July 20 the O.E.E.C. council had also approved a code for progressive liberalizing of service transactions, such as transportation, brokerage and customs charges, and payment of taxes, commissions and dividends.

During the second half of 1951 the growing impact of rearmament programs and of rising prices of raw materials resulted in a partial retreat from the goal of liberalizing intra-O.E.E.C. trade. On Sept. 25 the O.E.E.C. agreed on joint action to restrict the use of copper in unessential products. In November Great Britain and France reimposed many quota controls on imports, and again limited service, tourist and short-term capital transfers. On Nov. 1 Switzerland and Belgium-Luxembourg also restored bilateral controls over payments. On the other hand, Italy, which had accumulated a large surplus in its intra-O.E.E.C. trade, on Nov. 1 abolished temporarily almost all quotas on goods from the O.E.E.C. area and reduced its customs duties by 10% on O.E.E.C. goods.

Buffeted by raw materials problems, inflationary pressures and the growing burden of rearmament, O.E.E.C. continued to urge co-operative efforts to solve Europe's economic difficulties. On Aug. 29 it urged Europe to increase its total output by 25% over the next five years. It called for increased output of coal, steel, nonferrous metals, electricity, food and housing and for co-operative action to promote selective migration, elimination of unemployment and absorption of refugees. It urged more rapid modernization of methods and equipment, curbs on inflation and a stronger drive for exports, especially to dollar-area markets.

During 1951 O.E.E.C. gave special attention to the problem of developing Europe's overseas dependencies as sources of raw materials within the O.E.E.C. currency area and as markets. A report on investments in overseas territories, with particular reference to Africa south of the Sahara, recommended a ten-year development program of about $8,000,000,000; of this, about $5,000,000,000 would be needed for public programs, such as transportation facilities, while about $3.000,000,000 would go directly into private investment, primarily in extractive industries. Small steps to implement this program were taken in June. The Economic Cooperation administration (ECA) announced a grant of $7,700,000 from its special reserve fund to Great Britain for development of its overseas dependencies, and a grant of $28,000,000 in counterpart funds for development projects in French dependencies, while Belgium received a loan of $15,500,000 for developing the Belgian Congo. These funds were assigned primarily for development of railways, roads and harbours, supplementing much larger investments to be made by the metropolitan countries.

The Korean war and rearmament programs meanwhile had reversed the trend toward a better balance in trade between the United States and the O.E.E.C. area. Whereas the last six months of 1950 had shown a substantial reduction in the surplus by value of United States exports to Europe, and that surplus had been approximately covered by shipments under the ECA and Mutual Defense administration (MDA) nonmilitary programs, the first half of 1951 showed an excess of United States exports amounting to $1,348,600,000, of which only $871,000.000 was offset by nonmilitary shipments under the ECA and MDA programs. Thus the dollar deficit of the O.E.E.C. area remained acute, contrary to earlier estimates.

The O.E.E.C.-sponsored European Payments union (E.P.U.), established July 1, 1950. proved effective in promoting greater freedom of trade and payments within the area, despite inflationary pressures. When the special E.P.U. credit of $120,000,000 to west Germany, granted in Dec. 1950, proved inadequate to surmount the German payments crisis, the E.P.U. and the O.E.E.C. council recommended, in March and April 1951, a series of measures designed to limit German imports, to restrict expansion of credit and to limit speculative stockpiling. On March 30 the E.P.U. board advised west Germany to limit its imports to $511,000,000 for the period up to June 1, to increase exports to O.E.E.C. countries and to increase taxation. With relative stabilization in raw materials prices after March and the rapid increase in German exports the German position in E.P.U. improved rapidly after June, and by October the German payments position within E.P.U. was in balance.

In May E.P.U. also extended special credits to Austria and Portugal, to ease their payment difficulties. On July 3 it granted additional credits of $15,000,000 to Austria, $45,000,000 to Greece and $12,500,000 to Turkey. On Aug. 3 the O.E.E.C. council raised the west German credit quota from $320,000,000 to $500,000,000 for 1951–52, as a result of the rapid growth of Germany's share in world trade. It raised the Netherlands quota from $330,000,000 to $335,000,000, and urged the Netherlands and Belgium-Luxembourg to take measures to correct the large excess of Belgian exports to the Netherlands, since Belgium now held a surplus of $225,000,000 in E.P.U. credits of the quota of $320,000,000, which it could not exceed without leaving the E.P.U. On Aug. 10 the O.E.E.C. council increased the Belgian quota by $15,000,000 and directed Belgium to receive gold for payment of excess exports up to the amount of $15,000,000 additional. In December the E.P.U. board warned Austria of the dangerous effects of exceeding its E.P.U. quota of $80,000,000 by as much as $47,000,000 of additional grants and urged Austria to increase taxation, to recover a larger share of the foreign exchange earned by exports and thus to check flight of capital.

Britain and France, which had previously accumulated surpluses with the E.P.U. clearinghouse, began in June to run large deficits with the O.E.E.C. area. In November both governments re-established numerous restrictions on imports and on invisible transactions. Because of a special provision protecting the use of sterling balances in settling intra-European accounts through E.P.U., Great Britain received, at the close of the year, an E.C.A. payment of $39,800,000. This sum offset only a small part of the large deficit of the sterling area with E.P.U., however, which amounted to $204,800,000 in September and another $249,600,000 in October. By Oct. 31 Great Britain had drawn $460,000,000 of its "quota" of $1,060,000,000 while France had drawn $154,700,000 of its "quota" of $520,000,000.

At the close of 1951 it was clear that E.P.U. had made important contributions to freeing intra-O.E.E.C. trade and transfers. On the other hand, it could do little about basic factors which made some currencies stronger than others. Confidence in its usefulness and viability led its member governments to plan for the renewal and modification of E.P.U. before the expiration, on June 30, 1952, of the original agreement. Under U.S. pressure, the O.E.E.C. council agreed that in 1951–52 the United States would no longer give direct aid, in dollar funds, to E.P.U., but would assist four debtor members—Austria, Greece, Iceland and Turkey—to meet their deficits with E.P.U., thus indirectly providing limited dollar funds for E.P.U. O.E.E.C. members were discussing, however, the feasibility of increasing the dollar reserves from $300,000,000 to $450,000,000 or even $650,000,000. It was believed that the new Mutual Security agency (MSA) would be able to contribute new dollar reserves through forward financing of dollar orders for armaments production within Europe, as Great Britain had already been doing through placing sterling orders in Belgium.

With the growing speed of rearmament by the United States and the North Atlantic Treaty organization (NATO), economic assistance became increasingly subordinated to the problem of rearmament, although the Truman administration tended to emphasize the building of both economic and military strength in Europe. Although ECA Administrator William C. Foster reported, on Feb. 12, that Europe could increase its production and thus carry the cost of rearmament while still continuing its economic recovery, he also announced that because of the world crisis the emphasis in U.S. economic aid had shifted to support of rearmament. (*See* also NORTH ATLANTIC TREATY ORGANIZATION.)

On May 24 Pres. Harry S. Truman requested congress to appropriate $8,500,000,000 in 1951–52 for the Mutual Security program, including $6,250,000,000 for military aid and $2,250,000,000 for economic aid, in addition to an increase of $1,000,000,000 in the lending authority of the Export-Import Bank of Washington. Divided by regions, the proposal was for $5,240,000,000 in military and $1,650,000,000 in economic aid for Europe; $415,000,000 in military and $125,000,000 in economic aid for the middle east and Africa; $555,000,000 in military and $375,000,000 in economic aid for Asia; and $40,000,000 in military and $22,000,000 in economic aid for Latin America. The president also proposed that military aid be handled by the department of defense and economic aid by the ECA and the Technical Cooperation administration within the department of state, and that these programs be co-ordinated through a committee headed by the director of international security affairs in the department of state.

Hearings were begun on June 26 by the committee on foreign affairs of the house of representatives, and on July 27 by the senate committees on foreign relations and defense. Secretary of Defense Gen. George C. Marshall estimated that military aid would total $6,300,000,000 yearly for three years, and Secretary of State Dean Acheson estimated the total program of foreign aid, military and economic, at about $25,000,000,000 over the same period. On Aug. 10 the house committee on foreign affairs reported out an MSA bill for $7,800,000,000, cutting $550,000,000 from the aid for Europe and $11,250,000 from the $112,500,000 for aid to Korea, and adding $50,000,000 for the relief of refugees in Israel. It also recommended the creation of a unified agency to handle all foreign aid programs. Beginning debate on Aug. 16, the house cut $350,000,000 from the bill and rejected larger cuts, setting a total of $7,500,000,000, with $6,000,000,000 for military aid and $1,500,000,000 for economic aid.

The bill reported jointly by the senate committees on foreign relations and defense also provided for a program totalling $7,500,000,000, and for administration of three programs by the department of defense, department of state and the ECA, coordinated by a single administrator. Beginning its debates on Aug. 29, the senate on Aug. 31 passed a bill providing $7,300,000,000, including $6,000,000,000 for military aid and $1,300,000,000 for economic aid.

On Sept. 27 the conference committee reported a joint bill for $7,483,000,000; after an appeal by Gen. Dwight D. Eisenhower, the committee had increased the allocation for European economic aid. The joint bill provided $1,022,000,000 in economic and $5,028,000,000 in military aid for Europe. The conference bill provided for the abolition of ECA on Dec. 31, and the establishment of a Mutual Security agency (MSA) under a director appointed by the president to administer the economic programs. The department of defense was to supervise the administration of military aid, and the department of state the technical assistance or Point Four program. The conference bill was approved by the senate (56–21) on Oct. 2, and by the house (234–98) on Oct. 5 with a minor amendment which was approved in turn by the senate. On Oct. 10 President Truman signed the Mutual Security Act of 1951.

By appropriations bills, passed by both houses on Oct. 20 and signed by President Truman on Oct. 31, $7,300,000,000 in new funds and $817,000,000 in unexpended funds were provided for the program, including $5,800,000,000 for military aid, $1,400,000,000 for economic aid and $100,000,000 for aid to Spain. The senate also approved the appointment of W. Averell Harriman as MSA director.

The ever-closer connection between economic recovery and rearmament was illustrated in the appointment of Harriman, on Sept. 26, to a special North Atlantic committee, established by the NATO council to "prepare a coordinated analysis of all NATO defense plans in relation to the political and economic capabilities of the member countries." Other members were Sir Edwin Plowden of Great Britain and Jean Monnet of France. The committee was reliably reported to have informed the NATO council in December that all member countries except Great Britain should increase substantially their defense efforts and expenditures. These, in turn, were felt to depend in large measure on the extent of direct economic aid to be extended by the United States and of dollar purchases of military equipment in NATO countries, and upon other means of providing dollars to fill an expected gap in 1952 of $4,000,000,000, as against $2,000,000,000 in 1950. The committee urged the NATO countries to expand their production on the average by 14% in the three fiscal years ending June 30, 1954, in order to carry through rearmament without lowering living standards.

AEGEAN ISLANDERS waiting to see motion pictures being shown in conjunction with a floating exhibit sponsored by the ECA mission to Greece. The good-will information ship toured the islands in the summer of 1951

At the close of the year MSA was reported as recommending that the president use the authority given him in the act to transfer $580,000,000 from military to economic aid, to supplement the $1,022,000,000 in economic aid authorized for Europe. MSA was also hopeful of placing in Europe $550,000,000 in dollar orders for military equipment. It was reported that France would receive $170,000,000 in direct economic aid and perhaps $400,000,000 in military expenditures, including troop pay. Great Britain, which had received no new ECA funds after Jan. 1, 1951, and which was now losing its reserves at an alarming rate, was reported to be assigned $300,000,000 for 1951–52, but it was not clear whether any of this would be in the form of direct economic grants. Greece received an allotment of $182,000,000. Other allotments had apparently not been completed at the close of the year. By mid-1951 the emphasis had shifted to rebuilding the armed strength of NATO, together with that of Yugoslavia and probably of Spain. Since O.E.E.C. included western Germany, Ireland and Sweden, which were not members of NATO, as well as Greece and Turkey, which were not yet included in NATO, the extent of its future role was not clear. (*See* also EUROPEAN UNION; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; TARIFFS). (P. E. M.)

European Union. As the first visible expression of the tendency toward European unity in the official diplomatic field, the statute of the Council of Europe, a multilateral treaty formally ratified by the signatory governments, was signed on May 5, 1949. By the end of 1951 all European states outside the soviet orbit were members of the new organization with the exception of Austria, Yugoslavia, Spain, Portugal and Switzerland. The German Federal Republic became a full member on May 2, 1951. The organization adopted the green and white "E" flag of the European movement and established its capital in Strasbourg, Fr. The first two years of the organization were marked by the strained relations between its executive, the Committee of Ministers, which wished to proceed most cautiously on the road to further unification, and the legislative or rather proposing body, the Consultative assembly, which pushed toward greater integration and wished to enlarge its function. This organizational strife expressed at the same time a difference of approach on how to achieve greater unity, whether immediately by a federal constitution of Europe or by the slower and more haphazard functional approach. On the whole it may be stated that the French and Italians favoured the creation of a supranational federal government with definite though limited powers, while the British, the Scandinavians and most of the representatives of the Benelux countries (Belgium, the Netherlands and Luxembourg) supported setting up specialized authorities in specific fields through intergovernmental accords, without abandoning the sovereign powers of the various states. By the end of 1951 it seemed decided that this cautious functionalism would be the approach to a growing European unity and that plans for an immediate federation would be abandoned as too ambitious and premature. British governments, whether Labour or Conservative, held aloof from a complete European federation. Responsible for this attitude was not only the traditional British approach of evolutionary gradualism but also the conviction that Britain was as closely tied in with the United States, Canada and the British Commonwealth as with continental Europe. A lasting solution for the security, prosperity and moral vigour of the democratic nations threatened by totalitarianism demanded in the opinion of many people a wider framework than European unity; namely, an Atlantic union, the integration of all lands of western civilization with the North Atlantic as its central basis. Such an integration was slowly and functionally growing in 1951 in the build-up of the North Atlantic Treaty organization and its affiliated economic bodies. The two movements toward European union and toward Atlantic union supplemented each other. They represented two interdependent manifestations of the same fundamental need, the union of the nations sharing a common cultural and political heritage in a geographically shrinking and spiritually threatened world.

The Council of Europe met for its regular spring session in Strasbourg at the beginning of May 1951. The Federal Republic of Germany took its part there for the first time as a full-fledged member. The assembly decided to support the Schuman plan and the European army plan and to build these two supranational organizations into the framework of the Council of Europe. Paul Reynaud of France submitted a resolution to invite members of the congress of the United States and of the parliament of Canada to the coming fall session of the assembly. The invitation to Canada was dropped because the Canadian government and the other members of the British Commonwealth had already agreed tentatively to send observers to the next session. Thus it was decided to approach the congress of the United States through the speaker of the house and the presiding officer of the senate to arrange for a discussion of problems of common interest by delegates from the U.S. congress and from the Consultative assembly.

The meeting between the U.S. congressmen and the Europeans took place in Strasbourg in November. The Americans through their chairman, Sen. Theodore Green of Rhode Island, expressed deep regret at the slowness of Europe's political and economic integration. The Europeans, conscious of the difficulty of uniting nations with different languages and long and conflicting histories, could not see any analogy between their own case and the federation of the 13 former English colonies in North America with their common language, their common background and their relatively short history. Not the federation of the former English colonies but a federation between the United States, Mexico and the Central American republics could provide a true analogy to the federation of Europe. Finn Moe of Norway declared that a purely European union would not be workable without the participation of North America. Asked whether Norway would yield to an Atlantic union the sovereignty that his country refused to yield to a European union, Moe answered, "Yes, because we have already yielded sovereignty to the North Atlantic Treaty Organization." Robert Boothby of Great Britain supported Moe and declared that the ultimate aim should be a merger of the Council of Europe with the North Atlantic Treaty organization. Sen. Robert C. Hendrickson of New Jersey referred to the Atlantic union resolution before the U.S. congress that proposed a meeting of the Atlantic nations to explore together the possibilities of an Atlantic federal union.

In its deliberations the Consultative assembly of the Council of Europe proposed the calling of a European conference in 1952 to co-ordinate all existing European organizations. It asked for the formation of a new organ of the Council of Europe, to be composed of ministers for European affairs appointed by each of the member states. Sir David Maxwell Fyfe, British home secretary, stated British willingness to co-operate with a political federation of Europe without, however, joining it. A country in Great Britain's position, he stressed, was unable to take such a step, because it was at the centre of three concentric circles. The first of these was formed by Great Britain and the Commonwealth of Nations, the second by the United States and Canada and the third by the western European countries. He promised a close association of Great Britain with any authority emerging from the unification of the free countries of the European continent. On behalf of his government he agreed to the holding of a European conference of parliamentarians and experts to review the whole question of a European organization, including a proposal to have Europe join the sterling area by a preferential agreement with Great Britain and the Commonwealth of Nations.

Under French leadership, a resolution proposing an amendment to the statute that would permit the council to develop a European political authority with the active participation of part of the member nations and in close association with Great Britain and other nonparticipating states was submitted. The Consultative assembly endorsed the formation of such a supranational authority to control the projected European army on Dec. 11, 1951, by a vote of 60 to 10 with 12 abstentions. The powers of the authority would be limited to those fields of defense and foreign affairs in which joint exercise of sovereignty was rendered necessary by organization of a European army within the framework of the North Atlantic treaty. In the debate the representatives of France, Italy and the German Federal Republic spoke strongly in favour of a genuine fusion, while the Scandinavian and Benelux countries were reluctant to commit themselves without leading British participation.

Two practical steps were started successfully in 1951, the Schuman plan and the plan for a European army. Both plans were initiated by France and were sponsored by France, Italy, the German Federal Republic and the Benelux nations, six nations which embrace more or less the territory which was included in Charlemagne's empire. The two projects represented two sides, the economic and the military, of the same attempt to solve the problem of how to create a strong community of free Europe (which could not be done without using the superior resources in industry, skill and manpower of Germany) without submitting this Europe to German domination.

In Dec. 1949 the committee on economic questions of the Consultative assembly of the Council of Europe recommended a scheme to create intra-European companies, including one for iron and steel. In May 1950 Robert Schuman, French minister of foreign affairs, announced a plan for the pooling of coal and steel resources throughout Europe. Schuman proposed that the entire French and German production of coal and steel be placed under a joint high authority within an organization open to the participation of other European nations. Thus a concrete measure of solidarity and a common basis for economic development would make future conflicts between France and Germany impossible, and would at the same time create a single market which would lead to increased production and lower prices and thus to a better standard of living. On March 19, 1951, the delegates of six nations, France, Italy, the German Federal Republic, Belgium, the Netherlands and Luxembourg, formally initialled in Paris a draft treaty to give legal effect to the Schuman plan. The treaty would be valid for 50 years, with a transitional period of 5 years allowed for the full application of the plan. A board called the High Authority, with members elected for six years, would supervise the two basic industries. It would be assisted by a Consultative committee of 30 members, representing equally workers, employers and consumers, and by an assembly composed of members of the parliaments of the six countries chosen by the parliaments. This assembly would meet once a year to review the work of the High Authority. By a two-thirds' vote of censure it could compel members of the authority to resign. Appeals from decisions of the High Authority could also be taken to a court of justice of seven judges chosen by the participating governments. Finally a council composed of one member of the cabinets of each of the six participating states would try to harmonize the actions of the High Authority with the general economic policies of the governments. Thus the plan, if carried out, would not only revolutionize the structure of the coal and steel industries of western Europe but also greatly change the traditional concept of national sovereignty. The new coal and steel community would disregard national political frontiers.

A statement published at the time of the signature of the pool pact by the foreign ministers of the six participating countries referred to it as the first supranational institution, which it was hoped would be followed by others applying to wider economic fields and preparing for a political community. The assembly set up in the treaty to represent the six nations in the single market area would be the first international body to acquire actual powers. The treaty provided also that changes in the rules covering the operation by the High Authority must be approved by two-thirds of the assembly and by the court of justice. France, Italy and Germany would each send 18 representatives to the assembly while the Benelux countries would have 24 seats. The High Authority would consist of nine members and would not include more than two members of any one nationality, thus assuring representation for the small countries. It was stipulated that the authority should "neither seek nor accept instructions from any government or organization" and should act in complete independence in the general interest of the community. The U.S. department of state hailed the agreement reached in Paris on the Schuman plan and expressed the hope that the parliaments of the participating countries would ratify the plan as a whole. It was suggested that the seat of the new economic government should be in an area detached from the existing states, like the District of Columbia, this area to be called European territory. The Consultative assembly of the Council of Europe voted on May 11 in favour of ratification of the Schuman plan treaty. The first nation to ratify the treaty was the Netherlands, and on Dec. 13 the French national assembly ratified it by the unexpectedly large majority of 377 to 233 votes. The Communists and most of the followers of Gen. Charles de Gaulle voted against the bill. The vote in the German parliament in Bonn was scheduled for Jan. 1952.

The counterpart to the Schuman plan in the economic field was the European army plan in the military field. It, too, originated in a proposal adopted in Strasbourg in Aug. 1950 by the Consultative assembly of the Council of Europe, acting upon a suggestion by Winston Churchill. René Pleven, prime minister of France, proposed in Oct. 1950 to the French national assembly the creation of a European army as part of the North Atlantic treaty defense system. In Dec. 1950 the French government decided to call together representatives of the governments interested in the creation of a European army in order to lay the basis of its organization. The conference met in Paris on Feb. 15, 1951. In his opening address Robert Schuman, French foreign minister, spoke of the need of creating a Europe which would overcome outdated nationalism. "France is profoundly convinced that we must communicate to the peoples of Europe an awareness of their own solidarity, and that we must at the same time give them institutions and means which will permit them to express this solidarity. Five years after the end of World War II, forgetting their past struggles in their concern for the common future, nations previously divided have come together around the same table in order to try to substitute for that which was the very instrument of these struggles, namely, national armies, a common army which could be used only in defense of their common civilization."

On July 24, 1951, delegates of France, Germany, Italy, Belgium and Luxembourg signed an interim report that called for a 50-year pact, pooling all their military resources under a joint supranational authority, with a joint European defense fund to meet the expenses, a single system of supply and procurement and an integrated general staff, an integrated air force and integrated regulations regarding uniforms and European schools for the training of personnel. In November these nations and the Netherlands, in a joint report to the North Atlantic council meeting in Rome, agreed that a European defense community should be created as quickly as possible and placed, at least initially, under the command of Gen. Dwight D. Eisenhower. The six nations hoped that the various constitutional steps required to bring the European defense community into being could be carried through by April 1, 1952. The United States government originally opposed the French plan and held out for an independent rearmament of Germany within the North Atlantic Treaty organization. But by the middle of 1951 the United States was won over to the French plan and supported it as the only way for persuading the Germans to take the political risk of rearmament and to share in the defense of Europe without a danger of the reawakening of German militarism and aggressiveness. Konrad Adenauer, chancellor of the German Federal Republic, and Alcide de Gasperi, prime minister of Italy, throughout supported the European army plan wholeheartedly. In spite of the great difficulties involved, many of the details of the complex organization were worked out. Great Britain adopted the same policy as the United States. The two powers not only accepted the French plan, after initial hesitations, but also made it the basis of their policy toward Germany.

The European army was envisaged to consist of 43 divisions plus tactical air units by midsummer 1954.

In this force Germany would have 12 divisions, each coupled with 1 or 2 non-German divisions in separate army corps. The administration of this European force was suggested on lines similar to those of the Schuman plan. There would be a council of ministers, consisting of the ministers of defense, or ministers for European affairs, of each participating nation, forming the High Authority—the ministers for European affairs would later be responsible for both the European army and the Schuman plan development—an assembly of parliamentarians of the participating nations, later perhaps to be elected on a European rather than a national basis, and a commissioner or a collegiate body consisting of a chairman with three high-ranking assistants of different nationalities, to act under the supervision of the council of ministers and of the assembly. Winston Churchill, on behalf of the British government, approved in a statement in Dec. 1951 the formation of a European army as the right way for the integrating of democratic Germany into Europe's defensive organization, and promised to associate Great Britain as closely as possible with the European defense community in all stages of its political and military development. (*See* also European Recovery Program; North Atlantic Treaty Organization; Middle East.)

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Events of the Year: *see* Calendar of Events, 1951, pages 1–16.

Exchange Control and Exchange Rates.

After the outbreak of hostilities in Korea in 1950, world prices of primary products had risen spectacularly, both absolutely and relative to the prices of manufactured goods. This, together with the resulting attempts by industrial countries to accumulate raw material stocks, caused most raw material-producing countries (or the monetary areas to which they belonged) to regain, in particular from the United States, a substantial amount of the gold losses they had experienced in the period before the devaluations of Sept. 1949. From about the middle of 1951, however, the situation changed. Quite apart from seasonal influences and the decline in stock-piling purchases in the United States, some fall in raw material prices and the impact of rising expenditures on armaments in some countries of western Europe brought a considerable shift in the ownership of gold and dollar assets. The sterling area, which had shown the greatest increases up to that point, showed the heaviest losses, while French reserves also declined substantially. Unlike 1949, however, when practically all the movement of gold and dollar assets had been in favour of the United States, the disequilibrium in international transactions was not confined to those between that country and the rest of the world. In fact, up to the end of the third quarter of the year, the rise in U.S. gold reserves was equivalent to only half the loss sustained by the sterling area alone. Among other countries whose reserve position improved, Germany, Belgium and the Scandinavian countries in Europe, and Japan and Indonesia were perhaps the most important. The change was not therefore merely a recurrence of the postwar dollar crises which had been particularly intense in 1947 and 1949.

There were few important exchange rate changes in 1951. The stronger position of the raw material-producing countries was probably chiefly responsible for the establishment of official par values for the Finnish, Swedish and Pakistan currencies (in all cases at the effective rates) and for the simplification of Colombia's multiple-rate structure.

In the sphere of exchange restrictions the ending of exchange control in Canada was almost the sole bright spot in a picture that became increasingly somber as the year drew to a close. Import restrictions were relaxed in various Latin-American countries mainly in an effort to obtain supplies of imports that threatened to become scarcer. The freeing of forward sterling in December was also a striking development. On the other hand, the more severe restrictions imposed in France and the U.K. as a result of renewed exchange difficulties, together with the mounting rearmament expenditures throughout western Europe, gave the impression that the predominant tendency was toward more rather than less strict exchange controls.

United States.—Toward the end of 1950 the disequilibrium in transactions between the United States and the rest of the world had almost disappeared. Less than a year later, however, it had again become considerable, and the "dollar gap" had again become a serious problem for some countries. The strengthening of the international economic position of the United States was reflected both in the appreciation of the dollar in most of the world's free foreign exchange markets and in the U.S. balance of payments. U.S. exports rose more sharply than imports in the first half of the year, and thereafter fell less rapidly when the post-Korean buying wave appeared to have run its course.

Influenced both by seasonal and temporary factors, the surplus on current account (goods and services), which had shrunk to an annual rate of only $300,000,000 in the third quarter of 1950, increased steadily to reach an annual rate of almost $4,500,000,000 in the corresponding period of 1951.

In the first half of the year the surplus totalled about $1,800,000,000. In this period U.S. government economic and military aid amounted to almost $2,300,000,000, with the latter taking an increasingly larger share of the total. Since such aid, together with private outward capital movements, substantially exceeded the over-all surplus on current account, the outflow of gold from the United States noted in 1950 continued.

From in excess of $22,800,000,000 at the end of 1950 the United States gold stock fell by more than $900,000,000 at the end of June. In subsequent months, however, with the current account surplus exceeding U.S. government aid, the direction of the gold flow was reversed, and by the end of November more than $700,000,000 of the losses had been recovered.

Canada.—Already in 1950 the Canadian government had allowed the exchange rate for U.S. dollars to fluctuate in accordance with free market forces. Because of the continued strength of the Canadian international economic position, influenced by a steady inflow of capital from the United States, the Canadian dollar continued to appreciate, reaching 1.036 per U.S. dollar at the end of November, compared with the par value of 1.100 established in 1949. In these circumstances the Canadian authorities took a step without precedent since the end of World War II and amended the Foreign Exchange Control regulations on Dec. 14, 1951, to remove all existing restrictions on payments or on receipts of foreign currencies. In the last days of the year the exchange rate for the Canadian dollar was steady at about 1.025 per U.S. dollar.

Latin America.—In general the economic position of Latin America was strong in 1951, mainly as a result of continued favourable terms of trade, and there were relatively few changes in exchange rates or regulations in that area. Of those that did occur, the steps taken to unify the rate structures in Colombia and Paraguay were the most significant.

The Argentine peso continued to show signs of weakness in 1951. The curb rate was 29 pesos per U.S. dollar at the end of September compared with 19.50 at the end of 1950, and in October the Argentine Central bank suspended the issue of prior exchange permits for the import of goods to be paid for with foreign exchange obtained in the free market. Thereafter the curb rate strengthened appreciably.

Minor changes were made in the Brazilian exchange regulations. Compensation or barter transactions in certain commodities, which had been permitted prior to Feb. 8, 1951, were suspended after that date. In order to legalize dealings in notes and coins and to encourage the inflow of new foreign capital, preparations were also made to create a special free exchange market. According to a bill submitted to congress in August, all import and export transactions, including payments for related services, all government receipts and payments and all transactions specifically provided for in agreements would continue to be carried on at the official rates, but all other transactions would take place at the free rate, which would be governed by supply and demand. New foreign capital was to be permitted to enter through either market, but if it came in at the official rate the resulting dividends would also have to be remitted at the official rate and subject to limitations previously established. In anticipation that the curb market would be legalized, the curb rate, which had fallen as low as 32.50 cruzeiros per U.S. dollar in the summer, hardened somewhat and stood at 29.20 cruzeiros per U.S. dollar at the end of November.

In the course of 1951 some modifications, particularly the application of mixed rates to certain agricultural exports, were made in the Chilean multiple-rate structure in effect since Dec. 1950. In addition, the scope of the free market was substantially restricted. The rate for the U.S. dollar in this market had appreciated steadily in 1950 to about 70 pesos per U.S. dollar. Because of increasing inflationary tendencies within the country, however, it had weakened to more than 90 by July 1951. To meet this situation the National Foreign Trade council adopted several measures to restrict dollar imports. After July 18 the purchase of various goods previously imported from the dollar area with exchange obtainable in the free market was permitted only in countries with which Chile had payments agreements. Exchange transactions for all imports still permitted from the dollar area with exchange obtainable in the free market were not permitted until after the arrival of the shipping documents in Chile and had to be completed at the exchange rate then prevailing. Free market exchange transactions connected with trade had to be carried on only through authorized banks, which were forbidden to purchase free market exchange for their own account and were required to post exchange rates and report both these and the volume of transactions daily to the National Foreign Trade council.

On March 20 the Colombian government took an important step to simplify the complicated multiple-rate structure hitherto in effect and to reduce restrictions on imports. A new rate of 2.50 pesos per U.S. dollar was made applicable to all foreign exchange transactions except coffee exports. A total of 25% of the exchange proceeds from the latter received the new rate, while the old buying rate of 1.95 pesos to the dollar was applied to the remaining 75%, thus giving an effective rate of 2.0875 for coffee exports. Apart from the prohibition of specified luxury imports, all licensing restrictions were progressively removed, as were the exchange certificate system and all mixed-rate arrangements. Most of the differential exchange taxes were also abolished, and a uniform stamp tax of 3% on practically all foreign exchange sales took their place.

The new system did not involve any change in the existing par value of 1.94998 pesos per U.S. dollar, but the International Monetary fund approved it as a step toward the eventual declaration of a new par value. This was not done at once mainly because of the inflationary impact of applying the 2.50 rate to all coffee exports. However, on Oct. 29 the effective coffee export rate was changed to 2.17 pesos per U.S. dollar by applying the 2.50 rate to 40% of the export proceeds. At the same time the Colombian government announced its intention of increasing by 1.5% per month the amount of coffee exports receiving the 2.50 rate. At the end of 40 months all coffee exports would be sold at 2.50 pesos per U.S. dollar and the contemplated unification of the exchange rate structure thus achieved.

At the beginning of March, after prolonged consultation with the International Monetary fund, the government of Paraguay declared a new par value for its currency of 6 guaranies per U.S. dollar. At the same time sweeping changes were made in the exchange rate structure, reducing the number of rates for both imports and exports, narrowing the spread between the higher and lower rates and thus simplifying a very complicated multiple-currency system. The new system provided for an official market with two fixed rates covering most exchange transactions. Major exports (lumber, quebracho extract, cotton, meat and hides), some essential imports and most government transactions, including official imports and public debt service, were carried on at the rate of 6 guaranies per U.S. dollar. A rate of 9 guaranies to the dollar was applied to all minor exports, to registered capital transactions and to essential imports not permitted at the 6-guaraní rate. From March 5 to April 2 freight and insurance payments were also made at the 9-guaraní rate, but thereafter took place at the legal free market rate established on March 5 and applicable to other transactions. Free market rate quotations began at 20 guaranies per U.S. dollar but weakened substantially in subsequent months, standing at 33 to the dollar in October.

The Sterling Area.—In 1951 the weakening in the position of the sterling area, and particularly the United Kingdom, was almost as spectacular as the improvement had been in the previous year. Because of an increased trade deficit arising mainly from an adverse movement in terms of trade, the United Kingdom had an over-all current account deficit equivalent to $342,000,000 in the first half of the year, compared with surpluses equivalent to $118,000,000 in the first half and more than $500,000,000 in the second half of the previous year.

At $305,000,000 the United Kingdom dollar deficit was as large as it had been in the whole of 1950, and a current account deficit equivalent to $73,000,000 was recorded with the O.E.E.C. (Organization for European Economic Cooperation) countries, compared with a surplus equivalent to $342,000,000 in the previous year. Current transactions with the rest of the sterling area resulted in a surplus equivalent to only $129,000,000, or less than half the 1950 rate, and was accompanied by an export of capital from the United Kingdom at an accelerated pace. Despite some deterioration in the terms of trade resulting from declining raw material prices, the position of the rest of the sterling area remained strong, and its surplus with the dollar area, at $415,000,000, was almost as large as for all of 1950.

Substantial amounts of hard currency were also earned from transactions with the European Payments union, from gold sales by sterling area countries to the U.K. and from capital transactions, so that for the first half year the sterling area had a gold and dollar surplus of $414,000,000, equal to the rate for the previous year. Receipts from E.C.A. (the Economic Cooperation administration) for goods in the "pipe line" brought the increase in the central reserves of gold and dollars up to $568,000,000 so that at the end of June they stood at their postwar peak of $3,867,000,000.

In the second half of the year, however, under the impact of lower raw material prices, the growing rearmament burden on the United Kingdom, the dollar drain caused by the cessation in the flow of oil from Iran, not to mention seasonal and temporary factors, the gold and dollar reserves of the sterling area fell by no less than $1,532,000,000, bringing them down to the lowest level since the middle of 1950. In the last quarter changes in the timing of payments resulting from a certain loss of confidence in sterling were obviously important. Importers from the sterling area may have delayed purchasing sterling as long as possible, while sterling area exporters to the dollar area may have delayed the repatriation of their export proceeds as long as they could.

In this period the sterling area's position in the European Payments union deteriorated markedly so that by the end of October the United Kingdom had not only repaid all the gold it had received from the E.P.U., but had also received from it credits amounting to the equivalent of $356,000,000 and had made net gold payments to it of $36,000,000.

To halt the drain on the reserves, new restrictions were imposed in November on payments to nonsterling countries. Imports were to be cut sharply, a step which involved the reimposition of quota restrictions on imports from other countries of western Europe, a reduction in the rate of stock-piling and in tourist allowances. These cuts were estimated to yield total savings equivalent to about $1,000,000,000 in 1952. The inflationary pressure expected to result from the improved balance of payments position would be offset by the reduction in investment and government expenditures which would flow from the rise in bank rate and other domestic financial measures introduced at the same time.

As a further step aimed at restoring confidence in sterling, the Bank of England on Dec. 15 ceased to quote official exchange rates for forward exchange and restored freedom to the commercial banks to deal in forward sterling at market rates. Banks were permitted to deal in U.S. dollars only with banks in the American account area. At the same time, although spot sterling remained fixed at $2.80 per pound, the spread between the buying and selling rates was widened to allow sterling to fluctuate between $2.77 and $2.83, depending on supply and demand. These relaxations in the British exchange control system were of limited scope. Sterling remained inconvertible, and import restrictions were tighter than before. The measures were significant in that they were the first important moves made since 1939 toward a free market in foreign exchange. In the following days there was a significant recovery in forward sterling in New York, while the Federal Reserve bank of New York, as agent for the Bank of England, did not have to buy spot sterling for support purposes.

There were no changes in exchange rates in the sterling area in 1950. The controversy surrounding the Pakistan rupee, the only sterling area currency not devalued in Sept. 1949, ceased after the International Monetary fund announcement in March of the establishment of the initial par value for the Pakistan rupee at 3.30852 rupees per U.S. dollar, the rate proposed by the government of Pakistan and corresponding to the existing effective rates.

Europe.—In Europe the most striking developments in 1951 were the shifts in payments relations among western European countries and the tightening or relaxation of import and exchange controls which resulted from them. These changes were reflected clearly in the transactions of the European Payments union. At the beginning of the year the United Kingdom and France had built up large surpluses and were receiving substantial gold payments from the E.P.U., the Belgium-Luxembourg economic union was more or less in balance with the E.P.U., while Denmark, the Netherlands and in particular Germany had run up very large deficits. At the end of November the British and French cumulative surpluses had disappeared, and they were running substantial deficits with the E.P.U. The Netherlands and Denmark were improving their positions, while Portugal, Sweden, Switzerland and particularly Italy and Belgium had run up extremely large surpluses.

Unlike 1950, when its currency had weakened slightly, the international economic position of Belgium became progressively stronger in the course of 1951. Mainly as a result of increased steel exports, the country's monetary reserves exceeded $1,000,000,000 equivalent at the end of November, having risen by more than $250,000,000 equivalent since the end of 1950. As indicated above, most of the improvement was in transactions with other European countries, a surplus which was covered only in part by hard currency receipts and in part by the extension of Belgian franc credits. In these circumstances various measures were taken by the Belgian monetary authorities to reduce the payments surplus with other European countries and thereby the need to extend them additional credit. On the one hand, for instance, complete freedom was given to Belgian capital for investment in all E.P.U. countries except Switzerland. On the other hand, however, in order to restrain Belgian exports, and also the inflow of hot money, the import of Belgian bank notes into the E.P.U. was further restricted, and Belgian banks' purchases of E.P.U. currencies were subjected to a tighter control by the monetary authorities.

Since Belgium's deficit with the dollar area remained substantial, some additional restrictions were also applied to imports from the dollar area in order to safeguard the country's reserves of hard currency. Thus, although the stronger position of the Belgian franc was reflected in its appreciation in terms of some European currencies in the free market in Brussels, it did not lead on balance to a significant relaxation of Belgian exchange restrictions.

In Finland a tax of 30% on all foreign exchange sold for travel purposes was applied after June 11, 1951. More important, on June 28, after consultations with the International Monetary fund, an initial par value of 230 Finnish markkaa per U.S. dollar was established. This step was made possible by the greater degree of internal financial stability in Finland and by the sharp improvement in the country's balance of payments resulting from the rise in timber and pulp prices.

The second half of the year saw a significant deterioration in the French foreign exchange position. This resulted in part from an increased trade deficit and the temporary stoppage of U.S. financial assistance, but was in the main caused by an outflow of capital from France. At the end of November the curb rate in Paris stood at 445 fr. per U.S. dollar compared with around 380 at the end of 1950. To prevent further capital flight and to reduce the pressure on reserves the government took various measures in October and November. The issue of dollar import licences was cut sharply, while importers of goods entirely or partially freed from quantitative import restrictions, coming mainly from other E.P.U. countries, were permitted to pay for the imports only after they had been delivered in France. Furthermore, French commercial banks were obliged to transfer to accounts of the Stabilization fund with foreign central banks any balances in excess of those held on June 6, 1951.

The position of western Germany changed radically in 1951, particularly in relation to other European countries. In the spring its deficit with other E.P.U. countries had become so large that not only had western Germany to be granted a special gold loan from the European Payments union, but that country was also unable to adhere to the O.E.E.C. program of liberalizing intra-European trade and payments and had to impose special restrictions on imports from these countries. By the end of the year, however, western Germany was recording substantial surpluses with the European Payments union, had recovered all the gold and dollars paid to the E.P.U. in the latter part of 1950 and had more than doubled its foreign exchange assets. As a result the O.E.E.C. council decided that, as from Jan. 1, 1952, the special restrictions imposed on imports from other E.P.U. countries would be revoked at least in part, and the special treatment which Germany had enjoyed since the spring progressively brought to an end.

An important technical change was made in the Greek foreign exchange system on June 1. Hitherto persons offering foreign exchange to the central bank for sale received certificates of exchange, while those wishing to purchase exchange had to present such certificates. The prices of these certificates, which had been maintained by the Bank of Greece at dr. 10,000 per U.S. dollar and dr. 22,000 per pound sterling, were henceforth incorporated in the official exchange rates and the certificate system abolished. This step, however, did not entail any change in the effective official exchange rates. The drachma showed some signs of strengthening when the price of gold sovereigns remained at or below dr. 226,000 in the spring and summer without the Bank of Greece having to intervene as a seller. After the middle of September, however, substantial official sales of sovereigns had to be made to the public to maintain the rate.

Although Italy's deficit with the dollar area was larger than in the previous year, the Italian position improved substantially in relation to most European countries. In the latter half of the year Italy built up a very substantial credit position in the European Payments union from which Italy also received large gold payments. In an effort to reduce the E.P.U. surplus an attempt was made in the fall to encourage imports by relaxing various import and exchange controls.

Spain simplified its multiple-exchange rate structure further in 1951. The various export rates previously in effect, which had ranged from 10.95 pesetas per U.S. dollar to the free rate, were replaced from Nov. 1 by a single rate of 21.90 pesetas per U.S. dollar. This rate was applicable to 100% of most export proceeds, including those from fruit exports, but certain exports were encouraged by the fact that exporters of them were entitled to sell from 10% to 90% of their proceeds on the free market. Import rates remained unchanged. At the same time the government authorized commercial banks to undertake foreign exchange transactions with their customers directly instead of through the foreign exchange office.

On Aug. 31 Sweden became the 50th member of the International Monetary fund, and on Nov. 5 the initial par value for the krona was established at 5.17321 kronor per U.S. dollar. Effective exchange rates thus remained unchanged.

Late in December the Yugoslav government announced a change in the exchange rate of its currency from 50 to 300 dinars per U.S. dollar to take effect from Jan. 1, 1952. This step, which had the approval of the International Monetary fund, was much more than a devaluation. Hitherto the exchange rate, like others in eastern Europe, had had little influence on the volume or direction of the country's foreign trade which was conducted by state-owned agencies in accordance with the plan of the central government and was not determined by relative prices in Yugoslavia and foreign countries. (It did, of course, have a significance for various financial transactions, such as foreign government expenditures in Yugoslavia.) The change in the exchange rate was an essential feature and indeed an inevitable result of the Yugoslav government's new policy of placing less reliance on detailed direction of production by a central planning agency and greater emphasis on the market as a regulator of what should be produced, consumed, imported and exported. Under the new system independent industrial units would remain state-owned but would be permitted to trade with foreign countries. The exchange rate would exercise its normal function of determining what would be exported and imported. It was expected that at the new rate all major exports would be competitive in foreign markets, while imports would be curbed significantly, both of which aims were sought by the government.

Middle East.—Only minor modifications were made in exchange control systems in the middle east. In Egypt, changes in the exchange regulations were made which had the effect of increasing the freedom of exporters to use their foreign exchange proceeds. For instance, exporters selling cotton to the U.S. in excess of the quota were allowed to retain 30% of the dollar proceeds to pay for their own imports of specified goods. In part as a result of these steps, the value of the Egyptian pound in the free exchange market slipped somewhat lower throughout the year.

On June 25 Iraq took certain steps to eliminate exchange losses and to move toward the unification of its multiple-rate structure. By buying exchange from exporters at 48.50 rials per U.S. dollar and selling part of it to importers of essential goods at the rate of 40 rials, the government had incurred substantial losses. Under the new system the rate at which export proceeds were sold to the monetary authorities was reduced to 47 rials while the rate for essential imports was raised to 41.50 rials and that for nonessentials lowered from 48.50 to 47 rials to the dollar. At the same time certain imports were shifted from the essential to the nonessential group. By this means the government aimed at equalizing purchases of exchange from exporters and sales to importers of nonessentials at the same rate of 47 rials per U.S. dollar.

In the latter half of the year Iran's foreign exchange position worsened as a result of the government's dispute with the Anglo-Iranian Oil company and the consequent stoppage of oil production and exports.

New exchange and currency regulations were introduced in Jordan in April. Apart from certain limited exemptions, these forbade the import and export, without authorization, of Jordan currency or of any foreign exchange, gold and bills. Only dealers authorized by the controller of currency were permitted to lend, sell, borrow or buy foreign exchange.

In Syria and Lebanon most foreign exchange transactions continued to be conducted through the free markets at rates determined by supply and demand. Indeed, in the former country the scope of the free market was widened in September when the government revoked the regulation requiring foreign tourists and receivers of remittances from emigrants to surrender 10% of their exchange holdings to the exchange office at the official rate. In the Beirut free market the most noteworthy feature in 1951 was the tendency for sterling and particularly French francs to be traded at an increasing discount in the latter half of the year. The reasons for this movement have already been noted.

Far East.—In the far east significant changes in exchange rates and regulations resulted from the consolidation of Communist control on the Chinese mainland. On Jan. 20 the Peking government announced a new exchange rate for the People's yuan of 3.880 to one Hong Kong dollar. Thereafter, the special currencies previously issued by the Communist regime in Manchuria and Inner Mongolia were abolished, and the People's yuan was made the sole legal tender in those areas also.

There were signs of an outflow of capital from China. The demand for gold and dollars was steady in Hong Kong where the People's yuan was quoted at a substantial discount in the open market. The volume of transactions was small, however, particularly after controls on trade with China were tightened in the summer.

In an effort to control imports more effectively, the Philippine government imposed on March 28 a 17% tax on sales of foreign exchange except those to be used to import specified essential commodities, mainly foodstuffs and drugs, and for designated nontrade payments, primarily insurance. This raised the selling rate from 2.015 to 2.358 pesos to the dollar, and after its imposition the spread between the free rate and the official rate (with tax) shrank further, the former falling from around 3.80 to less than 3 pesos per U.S. dollar. (*See* also EUROPEAN RECOVERY PROGRAM; GOLD; INTERNATIONAL TRADE; TARIFFS.)
(A. STE.)

Exchange Rates of Selected Countries

Note: Includes only currencies regularly quoted in New York during 1951. Averages of certified noon buying rates in New York for cable transfers. In cents per unit of foreign currency, corrected to two decimal places.

Country	Unit quoted and type of exchange	Annual average rate			Monthly average rate, 1951			
		1938	1949	1950	March	June	Sept.	Nov.
Argentina	Peso*							
	Basic	32.60	29.77	26.57	20.00	20.00	20.00	20.00
	Pref.	—	—	13.33†	13.33	13.33	13.33	13.33
	Free	—	—	8.29‡	7.12	7.07	6.95	6.97
Australia	Pound	389.55	293.80	223.15	223.16	223.16	223.01	223.15
Belgium	Franc							
	Official	3.38	2.20	1.99	1.98	1.98	1.99	1.98
	Bank notes	—	2.14	1.97§	1.93	1.96	1.99‖	—
Brazil	Cruzeiro¶	5.84	5.44	5.44	5.44	5.44	5.44	5.44
British Malaya	Dollar♀	—	42.97	32.79	32.85	32.85	32.85	32.85
Canada	Dollar							
	Official	—	97.49	90.91♂	—	—	—	—
	Free	99.42	92.88	91.47	95.42	93.48	94.71	95.82
Ceylon	Rupee	—	27.84	20.85	20.85	20.85	20.85	20.85
Czechoslovakia	Koruna	3.47	2.01	2.01	2.01	2.01	2.01	—
Denmark	Krone	21.83	19.12	14.49	14.49	14.48	14.49	14.49
Finland	Markka	—	—	—	—	—	—	0.44
France	Franc							
	Official	2.88	0.47	—	—	—	—	—
	Free		0.30	0.29	0.29	0.29	0.29	0.29
Germany (Federal Republic)	Deutschemark	—	—	23.84□	23.84	23.84	23.84	23.84
India◇	Rupee	36.59	27.71	20.87	20.87	20.87	20.87	20.87
Ireland	Pound	—	—	—	—	—	—	280.38
Mexico	Peso	22.12	12.62	11.57	11.56	11.56	11.57	11.57
Netherlands	Guilder	55.01	34.53	26.25	26.26	26.28	26.28	26.27
New Zealand	Pound	392.35	365.07	277.28	277.29	277.29	277.10	277.27
Norway	Krone	24.57	18.48	14.01	14.01	14.01	14.01	14.01
Philippine Republic	Peso	—	49.72	49.62	49.63	49.64	49.64	49.64
Portugal	Escudo	4.43	3.88	3.47	3.48	3.49	3.46	3.46
South Africa	Pound	484.16	366.62	278.38	278.38	278.38	278.38	278.38
Sweden	Krona	25.20	25.48	19.33	19.33	19.33	19.33	19.33
Switzerland	Franc	22.87	23.31	23.14	23.18	23.02	22.96	22.88
United Kingdom	Pound	488.94	368.72	280.07	280.07	280.02	279.88	280.05
Uruguay	Peso							
	Basic	64.37	65.83	65.83	65.83	65.83	65.83	65.83
	Pref.	—	56.18	56.18	56.18	56.18	56.18	56.18
	Pref.	—	42.55	42.55	42.55	42.55	42.55	42.55

*In addition to the rates shown, three other rates were certified from Jan. 1 through Aug. 28, 1950. The 1950 averages for these rates are as follows (in cents per peso): preferential A—20.69, preferential B—17.46 and special—13.90.
†Based on quotations beginning Sept. 1, 1950.
‡Based on quotations beginning July 13, 1950.
§Based on quotations beginning Oct. 11, 1950.
‖Based on quotations through Sept. 19, 1951.
¶Prior to Nov. 1, 1942, the official designation of the Brazilian currency was the milreis.
♀Beginning Aug. 27, quotations on Straits Settlements dollar were discontinued and quotations on Malayan dollar substituted. The rate on both has been the same for a considerable period.
♂Based on quotations through Sept. 30, 1950; official rate abolished after that date.
□Based on quotations beginning June 22, 1950.
◇Excludes Pakistan, beginning April 1948.

Exhibitions, Livestock: *see* SHOWS.
Existentialism: *see* PHILOSOPHY.
Experiment Stations, Office of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Exploration and Discovery.

The Norwegian-British-Swedish antarctic expedition continued during 1951 to make good progress. The purpose of the expedition was to conduct extensive explorations in Queen Maud Land, on the antarctic continent. The expedition had been there for several years, and intended to remain for the balance of the summer season.

From the main base at Maudheim, the explorers conducted expeditions to the south, east and west. They had available aircraft and a "weasel," whose caterpillar track proved well suited for the terrain. With this motorized transport, a base was established 185 mi. to the southeast, at about lat. 72° 16′ S. and long. 3° 49′ W. Extensive studies of the physics of the shelf ice were in progress, as well as the usual work in geology, glaciology, meteorology and on the rather scant flora and fauna of the region. On the geographic side, a new mountain range was discovered. The aerial mapping was successful and work on glaciology and seismic exploration were being continued.

A Mt. Everest reconnaissance expedition was in the field. Since the traditional approach to Everest via the valleys of Tibet was closed, the approach from the south via Nepal was being studied. The Nepalese government had granted permission for an expedition to enter Nepal and to make a reconnaissance of this route.

An expedition from Birmingham university to Spitsbergen did geological work and topographic mapping, as also did one from Cambridge university. R. A. Young, of the Durham University Exploration society, did mapping ecological and ornithological work in Iceland. A survey expedition was led by Duncan Carse to South Georgia, and a geological expedition was led by W. G. Kennedy to Mt. Ruwenzori, Belgian Congo.

The ship "Wanderer" of the Sperry Gyroscope company made studies of the Gulf stream, and especially studied the velocity profiles of the stream. The Woods Hole Oceanographic institution had also been studying this current. They found current velocities of four to five knots in narrow bands of 10 or 15 mi. width which shift as much as 10 mi. in a day.

The report by George Salt on the Kilimanjaro expedition was made available. The expedition conducted extensive studies of the Shira plateau on Mt. Kilimanjaro, Tanganyika, especially collecting and studying the flora and fauna of this region. The Shira plateau lies at altitudes between 11,500 and 13,500 ft. to the west of the main Kibo cone of the triple-vent volcano, and between these contours is an area of about 24 sq.mi. that is rarely visited. The expedition installed and operated nine rain gauges, and made temperature and glaciological studies as well as studying the biology of this area.

The program of regular weather flights over the north pole was continued. The B-29 type planes flying from Alaskan fields completed their 500th flight over the pole since the inauguration of the work in 1947. The round trip normally took about 16 hours. Much new information about polar meteorology, as well as photographic studies of ice movement in polar areas, was obtained. Considerable experience was accumulated in the operation of new types of night celestial navigation equipment, the magnetic compass being largely useless.

The National Geographic society expedition to Panamá, led by Matthew W. Stirling, obtained much new archaeological data. Stirling specialized in a study of the region around La Pintada, with attention to present-day customs as well as to the traces of former cultures. Alexander Wetmore, secretary of the Smithsonian institution, also visited the Darien region, and brought back many new ornithological specimens. Other expeditions to the interior of the isthmus were conducted by Lorus J. Milne and Mrs. Milne, who specialized in the photography of animal life in its natural habitat, and in the comparative biology of the animal types found there, and F. Masland, who obtained an interesting photographic record of the primitive tribes.

The third Danish expedition to central Asia, under the leadership of Prince Peter of Greece and Denmark, having been unable to gain access to Tibet because of the political situation, was operating around Kalimpong in northern India. They were continuing their program of anthropologic and ethnographic studies.

Another reconnaissance expedition of the Nepalese approach to Mt. Everest was conducted by H. W. Tilman, who ascended the river valleys both east and west from Kathmandu. On his eastern trip he made a traverse of the Khumba glacier and attained an altitude of about 18,000 ft. on the southern portion of the Everest massif, while on his western trip he explored the Annapurna Himal, just south of the main crest separating Nepal from Tibet.

Dillon Ripley of the Peabody museum of Yale university went to Assam on an ornithological expedition and many new specimens in this area were found.

Quentin Keynes took a four-wheel drive vehicle through South-West Africa, finally reaching the Skeleton coast on the Atlantic. He obtained many animal photographs, including some of the rare white rhinoceros.

The Roncador-Xingú expedition, sponsored by the Brazilian government for the purpose of opening up the interior of Brazil to settlement, continued its work. It pushed farther into the jungle, built air strips and made contact with Indian tribes seldom previously visited.

Wendell Phillips, in charge of an expedition for the American Foundation for the Study of Man, did exploratory and excavation work in southern Arabia. In particular he was seeking further knowledge about the travels of the queen of Sheba.

The University of Puerto Rico expedition to Venezuela, led by Ventura Barnes and Paul Nesbitt, obtained much new data in the fields of botany, biology and ornithology.

Further studies of the ocean bottom were conducted by Maurice Ewing of Columbia university, who devoted special attention to the large flat areas recently found in the west central Atlantic and to the approaches to the central Atlantic ridge. New devices for photographing the ocean bottom at great depths and for obtaining core samples as long as 50 or 60 ft. were successfully used.

Forming a part of the scientific research program of the Arctic Institute of North America, Project "Snow Cornice" was inaugurated in 1948 to conduct a program of general scientific studies of the region encompassed within the drainage system of the Seward-Malaspina glacier system, Alaska-Canada. The program was continued in 1949, 1950 and 1951. Fields of investigation included biology, meteorology, geology and stereophotogrammetric survey, but primary emphasis was directed to glacier studies in an effort to assess characteristics of glacier behaviour, structure and regimen and to evaluate glaciological phenomena in their relation to environmental factors.

Operations were logistically supported by a ski-wheel-equipped Norseman aircraft. In 1951 studies were extended to include the broad Malaspina glacier, which covers an area of more than 1,000 sq.mi. between the St. Elias mountains and the Pacific ocean. Near the centre of the piedmont a shaft was sunk into the ice to a depth of more than 1,000 ft. by electrically heated "hot point." The drill pipe was left in place and surveys of its attitude were made by inclinometer inserted in the pipe. These would be compared with similar surveys in later years to determine the deformation of the pipe and test the mode of flow within such ice bodies. Seismic studies were conducted to determine the three-dimensional aspects of the Malaspina and to interpret the conformation of the glacier rock floor. The ice was found to exceed 2,000 ft. in thickness.

SKELETAL REMAINS believed at the time of their discovery to be those of the British explorer P. H. Fawcett, who vanished in 1925. The skull was found in the Matto Grosso, Braz., jungles in April 1951 by Orlando Vilasboas (left), Brazilian explorer

During the year the first ascents of Mt. Hubbard (14,950 ft.) and Mt. Alverstone (14,500 ft.) were accomplished, the party being transported and supplied entirely by air. The program was directed by Walter A. Wood of the Arctic Institute of North America. Field personnel comprised 21 scientists representing the Arctic institute, California Institute of Technology, U.S. geological survey, American Alpine club, Toronto university and Haverford college.

The Juneau Ice Field Research project of the American Geographical society, headed by W. O. Field and Maynard Miller, continued the work started in former years. They established a camp in the centre of the large Juneau ice field, supported largely by air, and continued their studies in meteorology, glaciology, botany and ice physics. They made long core samples, density determinations and geophysical thickness studies. They studied temperatures at various depths in the ice, and measured ice movement, ablation and accumulation and allied phenomena.

The Expéditions Polaires Françaises, under the leadership of Paul-Émile Victor, continued its work along similar lines.

They occupied a station in the middle of the Greenland ice cap. There they studied meteorology, glaciology and ice phenomena over a period of many months. The other phase of the expedition consisted of a group working in Adélie Land, thus enabling data in the southern and northern polar regions to be co-ordinated and intercompared.

Exploration for possible sites for high-altitude research stations received a considerable impetus during 1951. Terris Moore, president of the University of Alaska, conducted an air and ground reconnaissance of Mt. Sanford, a 16,200-ft. peak in southeastern Alaska, with a view to ascertaining the feasibility of constructing a cosmic ray station on this mountain. At the same time, Bradford Washburn, director of the Boston Museum of Science, ascended Mt. McKinley in Alaska, and his party conducted extensive explorations and investigations in the vicinity.

The University of Chile announced plans for an observing station on the summit of Cerro Colorado, an 11,000-ft. peak just east of Santiago, at lat. 33° 20′ S. and long. 70° W. A station was also started at the 13,700-ft. level on White mountain, Calif., at lat. 38° N. and long. 118° W. Exploratory expeditions, with a view to finding suitable locations in the Himalaya, explored several possible sites in northern India, and another expedition located a proposed station in Pakistan. (*See* also ANTARCTICA; ANTHROPOLOGY; ARCHAEOLOGY; COAST AND GEODETIC SURVEY, U.S.; GEOGRAPHY; MARINE BIOLOGY; NATIONAL GEOGRAPHIC SOCIETY; OCEANOGRAPHY; SMITHSONIAN INSTITUTION.) (S. A. K.)

Explosions: *see* DISASTERS.

Export-Import Bank of Washington.

In Oct. 1951 Congress increased the lending authority of the Export-Import bank from $3,500,000,000 to $4,500,000,000 to carry out its purpose of facilitating the export and import trade of the United States.

During the calendar year 1951, in close co-operation with the defense agencies, the bank established credits to finance the expansion of capacity and the production and treatment abroad of essential materials for the United States stockpile for use by industry in the United States and the free world.

The total amount of loans authorized by the bank from the time of its establishment in 1934 to the end of 1951 approximated $5,300,000,000. Disbursements during 1951 were approximately $204,100,000 and repayments during 1951 were approximately $134,600,000. Outstanding loans of the bank totalled $2,300,000,000 at the end of 1951. (S. SD.)

Exports: *see* AGRICULTURE; INTERNATIONAL TRADE. *See* also under various countries.

Eye, Diseases of.

Further experience during 1951 with the use of cortisone and ACTH in a variety of diseases of the eye made possible evaluation of the effectiveness of the hormones and revealed certain contraindications to their use.

The most beneficial results were observed in acute inflammatory disturbances of the anterior segment of the eye. Administration of cortisone and ACTH in tuberculous animals and in animals with induced tuberculous eye lesions resulted in reactions that indicated the drugs should be used in such cases with caution, if at all. ACTH and cortisone, given by injection into the muscles, were shown to inhibit the mechanism by which a focal tuberculous lesion is walled off by fibrous tissues. The tubercle bacilli were found to be more numerous and were more rapidly and widely disseminated in the cortisone-treated animals. For this reason a warning was given against the use of cortisone in the eye in ocular tuberculosis. The use of these hormones seemed to do more harm than good, by permitting the primary lesion to progress without interference by the body's natural defenses.

Application by a new technique of an old and accepted method for the treatment of certain stages and types of chronic glaucoma promised better results, with less risk, according to statistical findings on a small series of clinical cases. The procedure was called cycloelectrolysis because electrolysis was used instead of diathermy to cause destruction of the ciliary body within the eye. In cycloelectrolysis a chemical reaction occurs between sodium hydroxide, formed at the cathode, and the tissues, causing liquefaction of the adjacent cells. In cyclodiathermy the strong current produces enough heat to cause tissue destruction. The new technique of treating all types and stages of glaucoma by cycloelectrolysis was advocated for persons of deeply pigmented skin because of the keloid reaction following conventional surgical operations for glaucoma. With cycloelectrolysis there is a minimal proliferative reaction, and hence less probability of a tissue reaction that reverses the anticipated result.

The mechanism of glaucoma was elucidated somewhat by a carefully controlled series of measurements of the rate of flow of aqueous humour in the human eye by a method of tonography. W. Morton Grant demonstrated, by means of statistical analysis of data obtained by measuring the intraocular pressure with a tonometer, that the rate of aqueous formation and its outflow averages 2.4 cu.mm. per minute. He measured the rate of flow of aqueous in many eyes with different types of glaucoma, and in none of them could he demonstrate an overproduction of aqueous. He concluded, therefore, that in glaucoma there is an impediment to the outflow of aqueous, which accounts for the rise in intraocular pressure. In those cases of glaucoma which had been successfully operated on, a return to normal, or even subnormal, rate of flow of aqueous was found. The results of investigations by others confirmed Grant's conclusions.

The formation of cataract after exposure of the human eye to X-rays had been known for years. Cataracts also are formed as a result of exposure of the eye to neutrons from cyclotrons and from atomic bombs. The comparison of the cataracts shows a difference in the manner in which they are formed. The X-rays cause cataract by damaging the actively proliferating cells of the anterior lens epithelium. Abnormal fibres then develop from the cells, and after nine months to 12 years opacities are seen in the subcapsular areas. The total dosage necessary to produce cataract varies from 1,000 to 2,000 roentgens, and the longer rays produce the greatest damage. Neutrons are capable of producing cataract by causing oxidation of glutathione. Without glutathione in a form to carry out normal enzymatic respiration, abnormal cells are produced, resulting in vacuolization and swelling of the lens fibres. Neutrons were found to be more damaging than X-rays, and the latent period much shorter.

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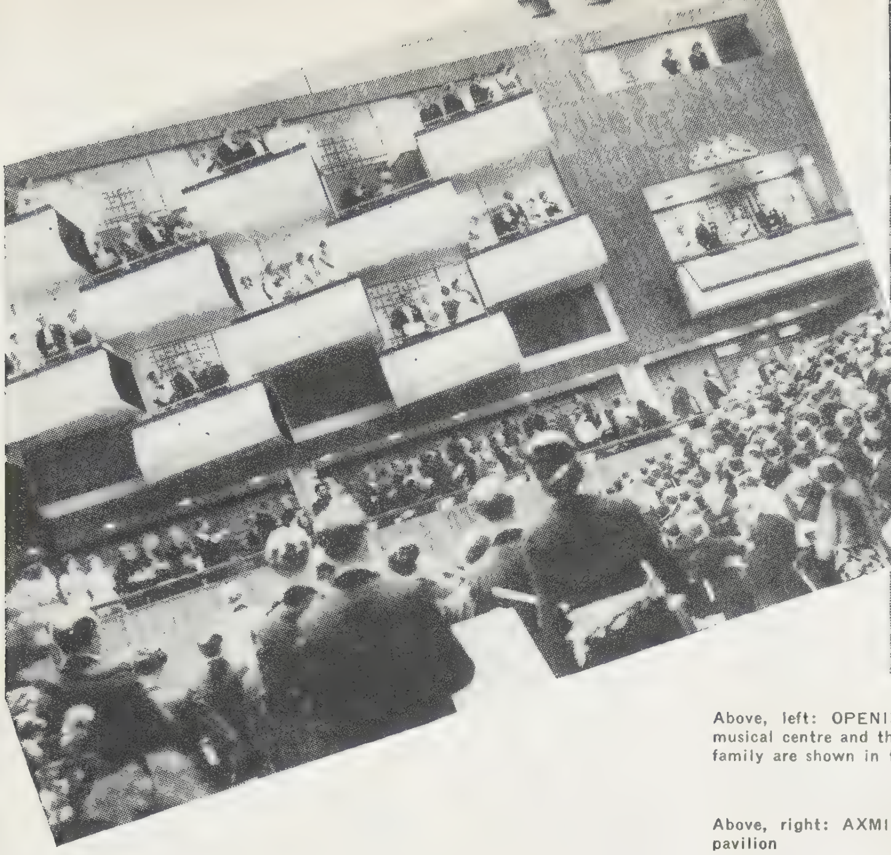
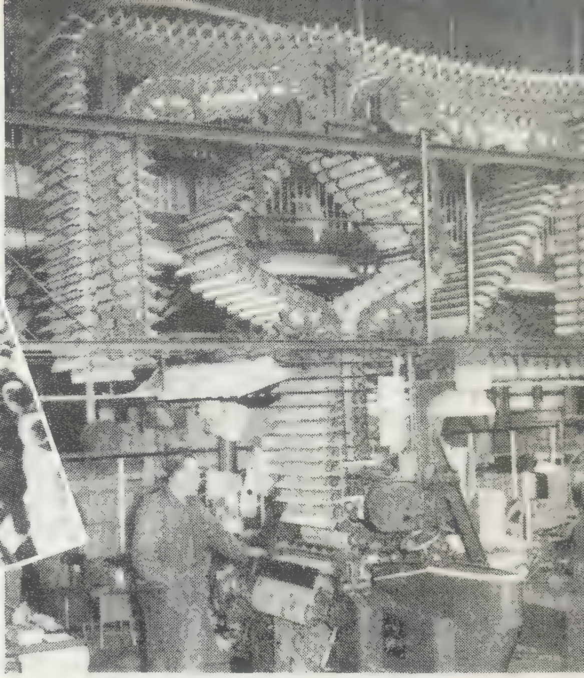
Facsimile: *see* RADIO; TELEGRAPHY.

Fairs and Exhibitions.

The 2,200 fairs and exhibitions of the U.S. and Canada had another record year in 1951. While the entertainment and holiday features were more strongly emphasized than ever before, the





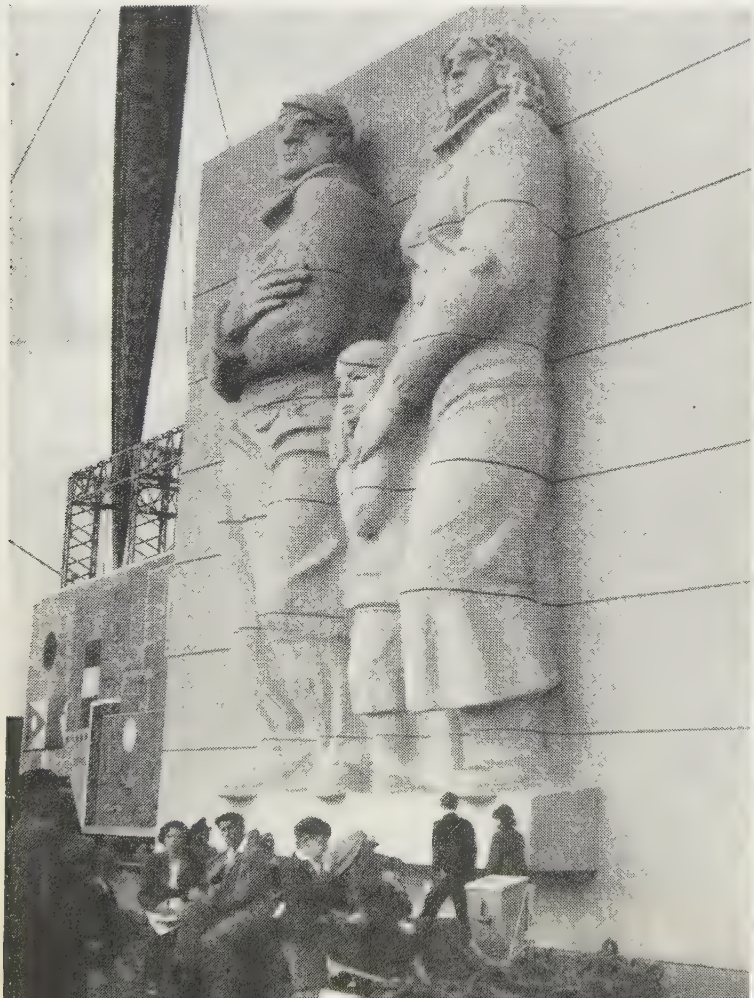
Scenes at the Festival of Britain, opened on the south bank of the Thames in London on May 3, 1951

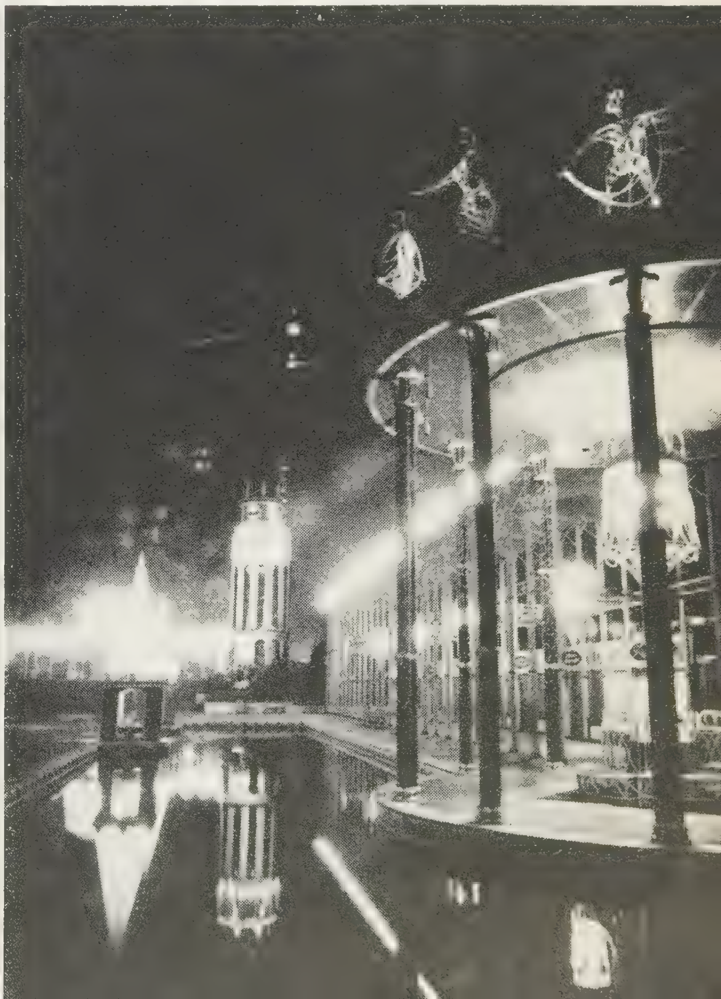
Above, left: OPENING NIGHT at the Royal Festival hall, London's new musical centre and the only permanent building at the festival site. The royal family are shown in the box at lower right

Above, right: AXMINSTER CARPET LOOM in the Power and Production pavilion

Below, right: GRAND VISTA ARCADE lined with shops, in the Festival Pleasure gardens

Below, left: "THE ISLANDERS," a huge statuary by the Austrian sculptor Siegfried Charoux fronting the Sea and Ships pavilion





educational features maintained the high standards that had done so much to improve agriculture, livestock husbandry and rural standards of living. Exhibits of livestock and agricultural products were fully up to the standard of the previous year, and commercial exhibitors had exceptionally large showings of improved farm machinery and equipment as well as refrigerators, ranges, radios and other home furnishings. Special interest was shown in the exhibits of television sets in territories which had been out of range of TV in previous years. Particularly noticeable was the increase in the use of radio and stage stars in promoting attendance. Jimmy Durante, Eddie Cantor, Ken Murray, Eddie Arnold and Gene Autry were some of the stars booked for leading fairs. The Texas state fair, Dallas, had probably the greatest array of entertainment of any fair. It included the stage hit "Guys and Dolls," a major football game, a music festival, a big ice skating spectacle, "Icecycles," and a "thrillcade" of automobile daredeviltry. Railroads and air lines joined in a huge exploitation campaign for the fair.

Harness racing, one of the most popular though not financially profitable fair features, suffered in 1951 because professional harness racing tracks where parimutuel betting is allowed took the best of the harness horses.

The Texas state fair's 1951 attendance of 2,320,129 took a slight lead over that of the Canadian National exhibition, Toronto, which totalled 2,300,000, or slightly less than in 1950. Los Angeles county fair, Pomona, Calif., was third with an attendance of 1,076,654. It was one of the few large fairs having parimutuel betting on the races and reported a total handle of $6,894,665 on the mutuels. Minnesota state fair, St. Paul, registered an attendance of 900,399; Wisconsin state fair, Milwaukee, 814,110; California state fair, Sacramento, 762,029. Southeastern fair, Atlanta, Ga., and Indiana state fair, Indianapolis, each reported more than 600,000, and a score of other fairs had attendances which ranged from 300,000 to 450,000. For years the middle west had held the lead over all other sections of the country in size and importance of its fairs and with few exceptions this lead was maintained in 1951. The state fairs of Indiana, Illinois, Ohio, Iowa, Minnesota, Wisconsin and Texas represented huge investments in grounds, buildings and equipment, with values ranging from $3,000,000 to $20,000,000 each.

Building programs of many of the larger fairs had soared during the past decade. A number of fairs had costly auditoriums in which huge stage productions, ice skating shows and spectacles of various kinds were presented throughout the year, and many had buildings devoted to the 4-H club, Future Farmers of America and other youth organizations, as well as large and elaborate livestock and agricultural buildings. (NA. G.)

Great Britain.—The outstanding exhibitions of 1951 were those of the Festival of Britain on the South Bank, London; a land-travelling exhibition which visited Manchester, Leeds, Birmingham and Nottingham; and a sea-borne exhibition in the converted aircraft carrier "Campania" which visited Southampton, Dundee, Newcastle-upon-Tyne, Hull, Plymouth, Bristol, Cardiff, Belfast, Birkenhead and Glasgow. In Scotland there was an exhibition of industrial power at Kelvin hall, Glasgow, and in Northern Ireland a farm and factory exhibition. From May 4 to Sept. 30, 8,455,863 persons visited South Bank, 462,289 the land-travelling exhibition and 889,792 the "Campania."

Associated with the Festival of Britain were many exhibitions throughout the country. Among these were the bicentenary exhibition of old Worcester porcelain in London and at Worcester (May–September), an Anglo-Jewish exhibition at University college, London (July 9–Aug. 3), the Royal Society of Arts "Exhibition of Exhibitions" (May–October), a photographic display by the *Times* (London) covering the period 1921–51 (May 7–29) and a Regency exhibition at Royal pavilion, Brighton (July 16–Aug. 26) which attracted more than 120,000 visitors.

The National Book league sponsored more than 50 exhibitions of books outside London. These included displays at Plymouth, Lichfield, York, Belfast, Glasgow, Edinburgh and in the library of Glanllyn, Llanywchyllyn, Merionethshire.

The 30th British Industries fair was again held at Olympia and Earls Court, London, and at Castle Bromwich, Birmingham (April 30–May 11). There were nearly 3,000 exhibitors—of which 1,246 were at the heavy section at Castle Bromwich—19,266 overseas buyers and 99,455 home buyers. A Welsh industries fair was held at Cardiff (June 4–14).

The total attendance of 373,129 at the 36th Motor show at Earls Court (Oct. 17–27) was 102,197 fewer than in 1950. The Motor Cycle and Cycle show—not held in 1950—took place at Earls Court.

The Radio show (Aug. 28–Sept. 9), held for the first time at Earls Court, attracted 232,752 visitors. The first national packaging exhibition to be held in London opened at Olympia on Jan. 30. It was sponsored by the Institute of Packaging.

Agricultural Shows.—The show of the Royal Agricultural Society of England was held at Trumpington, Cambridge (July 3–6); the show covered 150 ac. and the total attendance was 131,333. The livestock entry was 4,697 head.

Gloucester was the site of the Three Counties show (June 12–14) and Dorchester, for the first time since 1928, that of the Bath, West and Southern Counties show (May 30–June 2). The total attendance at the "Bath and West" was 89,329, about 17,000 more than at Birmingham in 1950. The Great Yorkshire show at Harrogate (July 10–12) received more entries, 3,308, than in any of the 104 years of the show's existence. For the first time only animals from attested herds were accepted. The Royal Counties show was held at Stoneham, near Southampton (June 20–23); attendance was nearly 51,000. The Royal Highland show was held at Hazelhead, Aberdeen (June 19–22), and the Royal Welsh show at Llandrindod Wells (July 25–27). The Royal Lancashire show was held at Witton Park, Blackburn (Aug. 1–4).

The 65th annual Dairy show was held at Olympia (Oct. 23–26); the attendance was 66,679, compared with 96,867 in 1950 and 103,341 in 1949. The Smithfield show and Agricultural Machinery exhibition at Earls Court (Dec. 3–7) was marred by restrictions on the movement of animals following outbreaks of foot-and-mouth disease and swine fever. Despite these restrictions more than 650 animals were on display. All animals had to be slaughtered in the London area after the show. The attendance of 66,003 was the largest for 48 years.

A record entry of 1,500 was received for the International Horse show at the White City, London (July 23–28); Spain, Italy and Ireland entered official teams in the show-jumping events. The Royal Dublin society's horse show was again held at Ballsbridge, Dublin, in August. The Horse of the Year show was held indoors at Harringay arena, London (Oct. 3–6).

Canada.—At the fourth international trade fair at Toronto (May 28–June 8), 20 countries were represented, Canada and Great Britain again having the biggest displays. A British motor show, the third in three years, was held in Montreal in March.

Czechoslovakia.—At the 52nd Prague International fair (May 20–June 3) the largest display was that of the U.S.S.R. There were state exhibits from other Communist-controlled nations, and from Egypt, Pakistan and Turkey; and commercial exhibits from eight other countries, including Great Britain.

Germany.—The annual shows were again held at Leipzig in eastern Germany (March 4–11; Sept. 2–7) and at Frankfurt in western Germany (March 11–16; Sept. 2–6). The German Industries fair was held at Hanover in two sections, light industry

(Feb. 27–March 4) and heavy industry (April 29–May 8). Started by the British authorities in 1947 as the Hanover fair, it had by 1951 become the German Industries fair. There were 8,352 exhibitors from Germany and 16 other countries at the Leipzig spring fair. The largest overseas exhibit was the pavilion of the U.S.S.R. which attracted 100,000 visitors in the first two days. China was represented for the first time. Great Britain was the largest overseas exhibitor at the Frankfurt spring fair.

Greece.—For the first time since before World War II, the Salonika international fair was again held (Sept. 16–Oct. 3). There were 5,800 exhibitors, including 350 foreign firms.

Falk Foundation, Maurice and Laura: *see* Societies and Associations, U.S.

Falkland Islands. A British colony and two groups of dependencies in the South Atlantic. The colony consists of East and West Falkland and adjacent islands. Dependencies: (1) South Georgia (four whaling stations) with South Orkney and South Sandwich, and (2) South Shetland and Graham Land. Area of colony: 4,618 sq.mi.; pop. (1949) 2,267, almost all of British descent, mainly Protestant. Capital and only town, Stanley (pop. *c.* 1,200). Governor in 1951, Sir Miles Clifford.

History.—A further measure of constitutional reform was in preparation at the end of 1951. The 1949 constitution provided for a legislative council of six unofficial members, four elected and two nominated, and six official members, the governor as president having a casting vote. The casting vote had to be used too often, and it was proposed to provide for an unofficial majority by reducing the number of official members to five. The Colonial Development corporation's seal oil project came into production during the year and the construction of the corporation's freezing plant at Port Stanley to handle 1,000 beef and 30,000 mutton carcasses a year was due to start production early in 1952.

Argentina maintained its claim to the Falklands and their dependencies at the Conference of American Foreign Ministers in Washington, D.C., and sought to reinforce it by establishing another (and this time a naval) base in the dependencies. Chile also established a third base, and the British government continued to propose, without success, that the dispute be submitted to the International Court of Justice. The work of the Falkland Islands survey proceeded without interruption.

Education.—One school in Stanley, ten settlement schools on sheep ranches, and travelling teachers; in 1948 total pupils 338.

Finance and Trade.—Currency: pound sterling, with local notes. Budget (1950–51 est. for 15 months): colony, revenue £194,000 and expenditure £191,000; dependencies, revenue £129,806 and expenditure £102,864. Foreign trade (1950): imports £6,600,000; exports £6,200,000. Principal exports: wool, whale oil. (K. G. B.)

See E. E. Hunter Christie, *The Antarctic Problem* (London, 1951).

Family Income: *see* Census Data, U.S.
Famines: *see* Agriculture.
Farm Co-operatives: *see* Co-operatives; Farm Credit Administration.

Farm Credit Administration. Farmers and farmers' co-operatives in the continental United States and Puerto Rico obtained $2,300,000,000 in loans in the year 1951 from the banks and associations operating under the supervision of the Farm Credit administration of the U.S. department of agriculture. This may be compared with $1,900,000,000 in 1950.

This co-operative Farm Credit system operates through 12 district offices and local credit co-operatives. Farmers obtain short-term operating credit from 500 local production credit associations, and long-term farm mortgage credit through 1,000 local national farm loan associations. Each farmer-borrower is a member and owns capital stock in his association equal to at least 5% of his loan. Farmers' business co-operatives deal directly with the bank for co-operatives of the district in which the co-operative is located or, in the case of large regional co-operatives, with the Central Bank for Cooperatives. Each borrowing co-operative owns stock in the bank for co-operatives from which it obtains its loan.

Farmers and farmers' co-operatives at the end of 1951 owned more capital stock in their co-operative Farm Credit system than at any previous time. They owned a total of $166,000,000 compared with $148,000,000 at the end of 1950.

Farmer-borrowers owned all the capital stock of the national farm loan associations and, through their associations all the capital stock of the 12 federal land banks. The capital stock of the 12 federal land banks totaled $62,900,000 on Dec. 31, 1951, compared with $60,000,000 the year previous.

Farmer-members of production credit associations owned $82,900,000 in capital stock of their associations, compared with $71,000,000 on Dec. 31, 1950. Government capital in these associations declined from $15,700,000 at the end of 1950 to $11,400,000 on Dec. 31, 1951. In 1951, the production credit associations increased their membership from 462,400 to 472,500. On Jan. 5, 1952, 238 production credit associations were completely member-owned compared with 176 on Jan. 2, 1951, and 116 on Jan. 2, 1950.

Farmers' co-operatives increased their capital ownership in the 13 banks for co-operatives from $16,600,000 on Dec. 31, 1950, to $20,300,000 on Dec. 31, 1951.

Farmers in 1951 obtained 39,700 farm mortgage loans amounting to $214,200,000 through their national farm loan associations and federal land banks. This may be compared with 43,100 loans for $206,000,000 in 1950. On Dec. 31, 1951, farmers were using 307,900 land bank loans totalling $997,600,000, the largest amount since July 1946. Funds used to make these loans were largely obtained by the sale of consolidated farm loan bonds to investors. The bonds are not guaranteed in any way by the United States government.

In the year, farmers obtained 284,300 loans totalling $1,300,000,000 in credit from the 500 production credit associations, compared with just under $1,100,000,000 and 288,100 loans in 1950.

Farmers' marketing, purchasing, and business service co-operatives obtained 1,569 loans for $569,000,000 in operating capital, facility, and commodity loans from the 13 banks for co-operatives in 1951 compared with $402,000,000 in 1950. The number of loans made by the 13 banks increased 11.0% and the amount of loans 41.5% over the preceding year. The funds obtained were used directly in purchase of farm production supplies and marketing, processing or distributing foods and fibre produced by farmers.

The 12 federal intermediate credit banks, the principal source of loan funds of the production credit associations and of part of the loan funds of the 13 banks for co-operatives, as well as of certain types of privately financed credit institutions, made loans and discounts in 1951 totalling $2,100,000,000 compared with $1,600,000,000 in 1950. The consolidated debentures of these banks sold to investors were the source of their loanable funds. These debentures are not guaranteed by the United States government. The banks' total loans and discounts for the year included 82.5% for production credit associations, 6.0% for banks for co-operatives, 10.8% for privately capitalized institutions, and 0.7% for farmer co-operatives.

Another important work of the Farm Credit administration is carried on through its co-operative research and service division.

As directed by congress in the Cooperative Marketing Act of 1926, it conducts research and service activities to help farmers through their co-operatives develop sound merchandising, management, accounting, membership and other programs important to the success of the purchasing and marketing branches of their business. This division had underway about 90 research and service projects under this program at the close of 1951. (I. W. D.)

Farmers Home Administration.

This agency of the United States department of agriculture helped family-type farmers on underproducing farms to work out balanced farming systems and increase their output of essential food, feed and fibre; helped low-income families improve their economic position and have better living through better farming; assisted qualified war veterans to make a good start in agriculture; and contributed indirectly, through these activities, to the development of prosperous rural communities.

In the first 11 months of 1951, credit services were furnished to about 100,000 families who had no other sources of loans to finance improvements in their operations, landholdings or homes and buildings, to buy farms or to put land back into production after flood, drought or similar disaster. Veterans received about half of the appropriated funds advanced.

In addition, about 142,500 families who borrowed previously continued to receive guidance from the agency's local supervisors in making and carrying out farm-and-home plans for best use of all their resources.

Continued emphasis was given the policy of helping families become established on a basis that allowed them to make most effective use of their time and their land. Thus nearly all the 77,215 operating loans were five-year adjustment loans planned to create sound, balanced farming setups, and about half of the 4,139 farm-ownership loans were for development or enlargement of underproductive farms into efficient family-type farms. Operating credit advances totalled $96,761,664. Farm-ownership loans amounted to $31,528,379, of which $11,469,661 was advanced by private lenders with the guarantee of the Farmers Home administration that they would receive full repayment.

Housing loans aggregating $21,531,219 were made to 4,608 farm owners for construction or repair of homes and farm buildings. Water facilities loans totalling $3,663,809 were made to 1,127 individuals and 23 farmers' associations in the west. Also, in areas designated by the secretary of agriculture, emergency loans in the amount of $18,887,000 were advanced from a revolving fund to 12,861 farmers who had production losses because of flood, drought or other disaster, to enable them to continue production. About 190 special loans were made to fur farmers and orchardists.

Records of families who completed payments on past loans showed that supervised credit helped them achieve production increases of 40% to 60% per acre. At the same time they improved their incomes and net worth and made substantial gains in living standards. Current borrowers' progress was reflected in reports of many new farm-and-home practices adopted; families using adjustment credit were following 50% more approved farming practices in the summer of 1951 than a year earlier.

To serve farmers more adequately, the congress passed legislation raising the maximum amount of an operating loan from $3,500 to $7,000 and lengthening the repayment term from five to seven years. (D. B. L.)

Farm Income: *see* AGRICULTURE.
Farm Machinery: *see* AGRICULTURE.
Farm Population: *see* AGRICULTURE; CENSUS DATA, U.S.

Fascism.

Fascism in 1951 was in power not only in Spain and Argentina, but it showed renewed strength in the former strongholds of fascism, Italy and Germany. In both countries, especially in Italy, former members of the fascist parties again took an active part in the political and cultural life. In Germany the fascist or nazi tendency found its organization mainly in the Socialist Reichs party under the leadership of formerly prominent nazis like Fritz Dorls, Gerhard Kruger and Maj. Gen. Otto Ernst Remer, who foiled the July 20, 1944, uprising against Hitler. This party scored successes in the elections in Lower Saxony in May 1951 where it received 367,000 votes, 11% of the total, and in Bremen in October where it became the fifth strongest party, receiving only one seat less than Chancellor Konrad Adenauer's Christian Democratic Union. In its propaganda the party stressed what it called the good parts of the former nazi program, explained the rise of Hitler as the result of the Allied "crime" of Versailles, saw only in a strong man devoted to Germany, as Hitler was, the possible salvation for the nation and was extremely contemptuous of U.S. "plutocracy" and western liberalism. More disturbing was the fact that the same tendencies and slogans were at work in the officially more moderate Deutsche Partei which formed part of Chancellor Adenauer's coalition.

In Italy the Italian Social Movement was the standard-bearer of neofascism. In the municipal and provincial elections in the spring of 1951 it polled 850,000 votes or about 5% of the total, a considerable increase from the 2% of the total in 1948. The party made the best showing in Sicily.

In northern Europe the New Swedish Movement of the Swedish opposition, which resumed the Swedish nazi organization started at Uppsala university in the early days of Hitlerism, called an international congress of neofascism, which met in Malmö, Swed., on May 13. Delegates from Germany, Italy, France, Belgium, Switzerland and the three Scandinavian countries attended. The program agreed on stressed the need of a "European revolution to regenerate man, society and state spiritually," and proposed the creation of a European empire which would be equally independent of the Soviet Union and of the United States.

In Argentina the fascist regime of Pres. Juan D. Perón built itself a doctrine which was declared to be equally anticapitalistic and anti-Communist.

The "glorious Oct. 17," the day of the seizure of power in 1945, was made into a national holiday, and *Perón cumple* ("Perón accomplishes things") greeted the onlooker from buildings and posters. The famous independent newspaper *La Prensa* was closed on Jan. 26 and later turned over to the General Confederation of Labour, Perón's most faithful backer in the country. In typical totalitarian manner, the representatives of Argentine publications withdrew from the Inter-American Press association at its meeting in Montevideo, Urug., on Oct. 9 and formed a rival organization which would be "truly representative of the democratic Latin American press, without domination by Yankee organs of capitalist imperialism."

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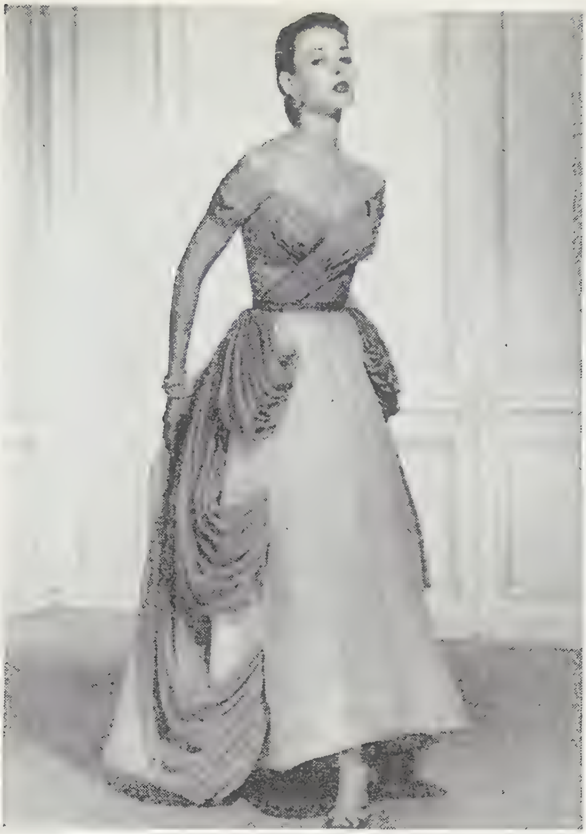
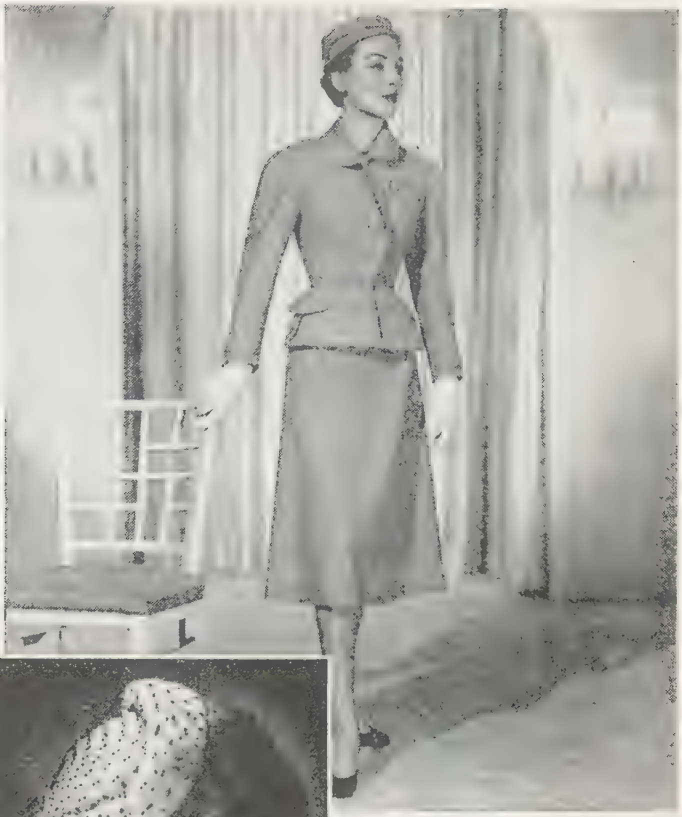
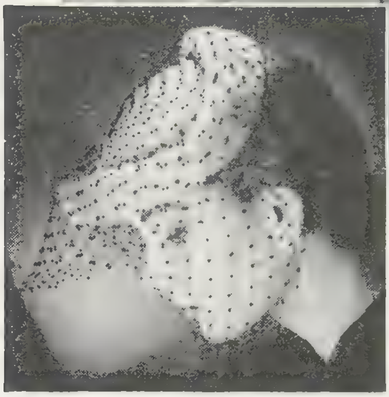
(H. Ko.)

Fashion and Dress.

The year 1951 was one in which looking smart meant also looking youthful and pretty. There were few if any bizarre fads. All the arts and skills of fashion designers were directed toward giving a woman a very "pretty body," with small waist and high, usually draped bosom, natural, graceful shoulders, a small decorative head and always a very full skirt. To emphasize the small dainty torso, skirts were deliberately magnified in bulk, stiffened by interlinings and worn over crinolines and petti-







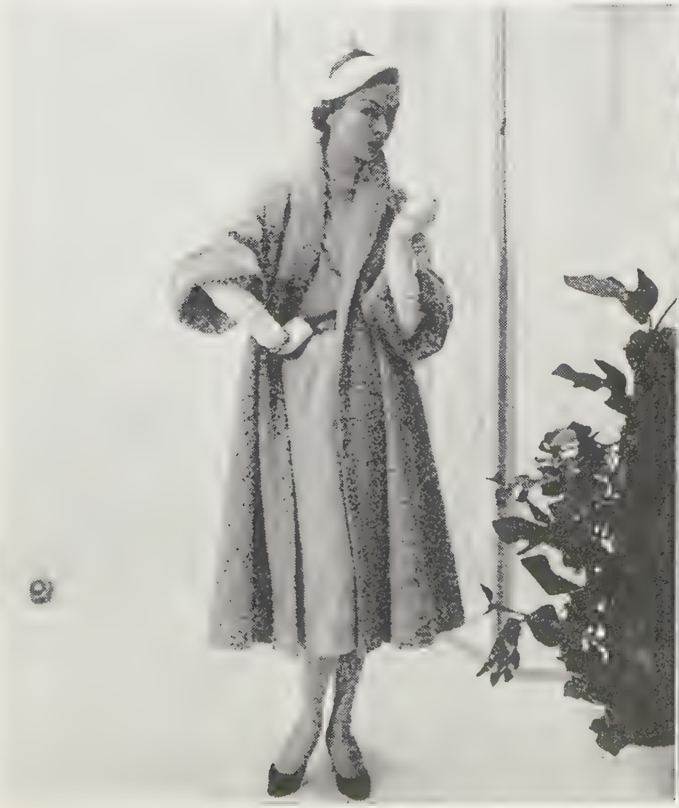
Above: ORGANDY BALL GOWN of 1951

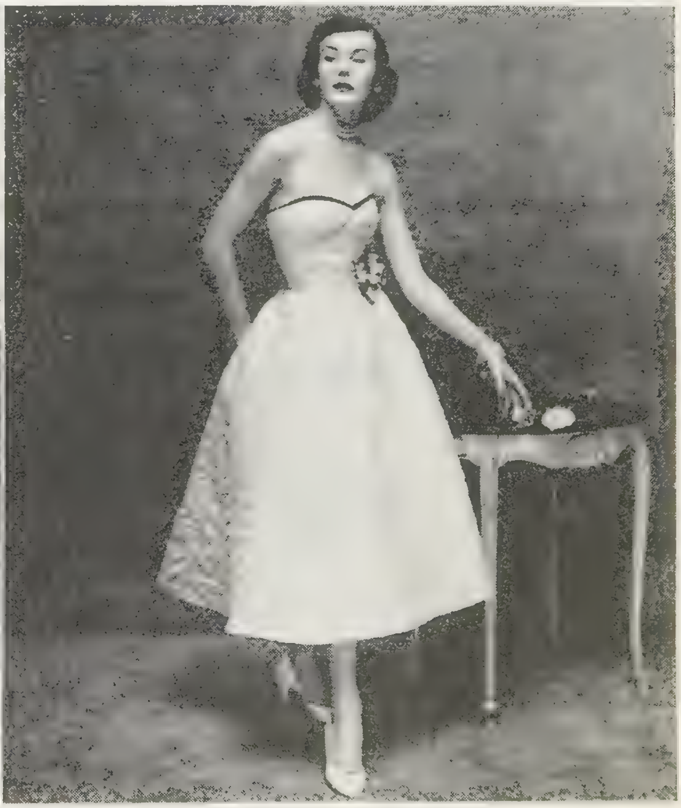
Right: FORWARD-SLANTING HAT characteristic of 1951

Below: FULL COAT in textured wool with the short sleeve popular in 1951

Above: A 1951 SUIT of light coloured wool with curved hipline

Below: SHORT EVENING DRESS with empire bodice and the built-out skirt of 1951





coats. Even tailor-mades had their petticoats.

The suit, always a guidepost on the general path of fashion, blended impeccable tailoring with "young" and feminine touches; it was a "little" suit with elegance in its outline and material. The typical suit jacket was moulded close to the figure through the shoulders; the waist and bosom were noticeably rounded out at the hips and front. High-placed lapels or a small round collar replaced the mannish suit necklines of other years.

Featherboning and interlinings were revived to give dresses a delicate yet firm "body." This technique was coupled with an echo of the high-bosomed, beltless empire line to achieve a distinctively 1951 silhouette.

The fitted coat shared prominence with the loose full coat. Both were notable for their large, picturesque collars and pockets. Toward the end of 1951 a new duster coat made its appearance; it hung straight at the back but had a slightly fitted front.

Very large balloon sleeves in light sheer fabrics were shown on dresses of dark taffeta. Tailored sleeves were set on below the edge of the shoulder and were interestingly cut to give the effect of forward or backward movement. Long sleeves stopped well above the wrist and most short sleeves covered the elbow.

A major style factor in 1951 lay in the texture of fabrics. Pure silks of great beauty and variety, particularly stiff brocades, taffetas and failles and sheer gauzy evening silks were seen. Wools were featherweight but bulky, with magnified weaves or shaggy surfaces. Tweed appeared for town as well as for country clothes. Velvet, taffeta, chiffon and silk organdy became established as year-round fabrics.

During 1951, colour was considered more fashionable than black. The gray suit replaced the black or navy-blue suit. The cloth coat was apt to be red, gray, beige or sapphire blue. Evening clothes were festive in colour as well as rich in fabric. The staid black dinner dress was in eclipse.

Added to the traditional American love of suits was the widespread interest in separate skirts and blouses both for day and evening, chosen à la carte and mixed by individual taste. Sweaters played a key part in this fashion, and there were unusual combinations, such as lace and wool jersey, or lace and cotton pique.

Perhaps because of television and a renaissance of entertaining at home, a new kind of informal yet decorative fashion was developed in the at-home costume. These were usually two-piece: dinner skirts of rich fabrics worn with sweater tops and a great deal of jewellery.

In 1951 it seemed that even the woman who thought she could never wear a short evening dress decided she had been wrong. Only debutante dresses and ball gowns remained long. Short dresses appeared in the richest fabrics, and with elaborate skirt drapery and embroidery. Many short dresses were also strapless.

Hats were piquant, colourful and charming. They were invariably small and slanted somewhat to the side, front or back of the head. The contour veil, glittering with jewels, was an evening essential.

Stockings returned to flesh tones. Shoes were designed to give the foot a long aristocratic shape, with narrow heels and rather pointed closed toes. For evening, however, very open strip sandals, often covered with jewels, were seen.

Cloth coats outshone fur in 1951 fashion, but the small fur was extremely popular. These were cut and shaped to stay snug around the shoulders. Blonde furs such as otter, clipped fox and dyed moleskin were seen in sport coats and linings.

The well-groomed woman of 1951 wore light, unobtrusive make-up to enhance her particular features and colouring. The eyes were accented, sometimes subtly elongated, the complexion was freshly pink and white, lips and eyebrows natural. Hair was worn short, brushed up and back. Toward the end of the year the short "poodle" haircut became popular. (*See* also FURS.)

(HA. CA.)

FBI: *see* FEDERAL BUREAU OF INVESTIGATION.

Fechteler, William Morrow

(1896–), U.S. chief of naval operations, was born on March 6 in San Rafael, Calif., and was graduated from the U.S. Naval academy at Annapolis, Md., in 1916. He served aboard the flagship "Pennsylvania" of the U.S. Atlantic fleet during World War I. He was operations officer of the fleet destroyer command at the outbreak of World War II, and early in 1942 was named assistant director of the bureau of naval personnel. During the campaigns in the Pacific, he commanded the battleship "Indiana," and later commanded an amphibious group, a carrier and a task force. He was named assistant chief of naval personnel in 1945, deputy chief of naval operations for personnel in 1947, and on Feb. 1, 1950, as a four-star admiral, he became commander in chief of the Atlantic command and fleet. He served as chairman on the North Atlantic Ocean Regional Planning group, largest in the North Atlantic Treaty organization. In 1951 he was prominently mentioned for the post of NATO supreme Allied commander in the Atlantic, but when Adm. Forrest P. Sherman died, Adm. Fechteler was named to succeed him as U.S. chief of naval operations. He assumed the office on Aug. 7, 1951.

Federal Bureau of Investigation.

The Federal Bureau of Investigation, as the investigative arm of the United States department of justice, is charged with the duty of investigating violations of the laws of the United States, collecting evidence in cases in which the United States is or may be a party in interest, and performing other duties imposed by law. Established in 1908 by Attorney General Charles J. Bonaparte, the FBI had in 1951 investigative jurisdiction over more than 120 violations of federal law.

The responsibilities of the FBI are in two general fields: domestic intelligence operations and general investigations. In addition, the FBI engages in several co-operative functions designed to assist local, county and state law-enforcement agencies as well as other branches of the federal government.

In the field of domestic intelligence, the FBI's work during 1951 was concentrated primarily in combating the machinations of the Communist party in the U.S. During the year the party continued to drop deeper underground and to make its security measures ever more stringent. On June 4, 1951, the supreme court affirmed the judgment of the second circuit court of appeals and thereby established the constitutionality of the Smith act under which 11 top functionaries of the Communist party were convicted on Oct. 14, 1949.

During the 1951 fiscal year, ending June 30, 1951, six individuals were convicted on charges of espionage and conspiracy to commit espionage in connection with the securing of information, principally concerning the atomic bomb, for soviet espionage apparatuses. In addition, there were a number of other convictions resulting from FBI investigations. However, the effectiveness of the FBI's domestic intelligence operations cannot be measured by the number of convictions or sentences imposed. In many instances, in order to gain intelligence data, it is advisable not to arrest an espionage agent, but to allow him to remain at large in an endeavour to determine his contacts, associates and plans.

In addition, the FBI during 1951 continued to fulfill its responsibilities in special security operations, such as investigations under the Atomic Energy act of 1946 and the federal employees loyalty program. The FBI's role in these programs, as in all its investigations, is strictly to obtain, accurately and impartially, the facts. At no time does the FBI make recommendations or evaluations. Under the loyalty program the FBI is required to check the applicant's or employee's name against its files for any information which reflects on the loyalty of the individual. Fingerprints are also checked against the files of the FBI identification division and preliminary or full field investigations are conducted in those instances where data indicating disloyalty are discovered.

FBI activities in the general investigative field during the 1951 fiscal year resulted in the highest percentage of convictions in FBI cases brought to trial ever recorded for any fiscal year. The percentage of convictions was 97.5%. There were 8,408 convictions recorded which resulted in the imposition of sentences totalling 21,712 years, 1 month and 26 days. In addition, there were two death sentences imposed as well as five life terms.

A total of 6,370 fugitives were located during the 1951 fiscal year, an increase of 273 over the preceding year. This included 677 Selective Service fugitives, 2,325 deserters from the armed services and 3,368 criminal fugitives. A total of 10,781 stolen motor vehicles were recovered in cases investigated by the FBI. This criminal category alone realized a recovery value of $13,288,279. Total savings and recoveries resulting from FBI cases amounted to $38,517,740. Fines imposed aggregated $1,088,120.

In the field of co-operative services, the FBI laboratory conducted 104,937 examinations during the 1951 fiscal year, representing a 4.4% increase over the previous fiscal year. There were 21,849 individual requests for examinations which involved 88,874 specimens, 2,866 more than were received for examination during the 1950 fiscal year.

As of Nov. 1, 1951, the FBI identification division had in its possession a total of 122,067,850 active fingerprint records, consisting of 22,039,999 criminal prints and 100,027,851 civil prints. A total of 5,448,245 fingerprints were received during the 1951 fiscal year from 12,225 contributors.

During 1951 three sessions of the FBI National academy were held and 173 police officers graduated, bringing to 2,426 the total number of graduates since establishment of the academy in 1935. The purpose of the academy is to train selected local law-enforcement officers as executives and as instructors. (*See* also CRIME; JUVENILE DELINQUENCY; POLICE; SECRET SERVICE, U.S.) (J. E. H.)

Federal Communications Commission.

Important procedural steps for the development of an enlarged and improved national television system were taken by the Federal Communications commission in 1951.

Pending the completion of its blueprint for the future of television, the commission maintained the ban on the construction of new stations which it ordered in 1948 to give it time to study various problems relating to the future of television.

The commission's promulgation of standards in 1950 for colour television based on the field-sequential system was affirmed by the United States supreme court in May. The Columbia Broadcasting system broadcast the first colour program in September. However, in October, because of the critical material shortages, Defense Mobilization Director Charles E. Wilson requested Columbia Broadcasting system to suspend mass production of colour television receivers, and the colour broadcasts were discontinued.

In March, after extensive public hearings, the commission issued revised proposals for other aspects of the development of television. These included: (1) engineering standards to eliminate interference; (2) an assignment plan utilizing 70 ultra-high-frequency channels in addition to the 12 very-high-frequency channels which were in use; (3) reservation of 209 channels for noncommercial educational stations.

This assignment plan would permit the authorization of more than 2,000 commercial and noncommercial new stations. A final decision was expected in 1952.

A coast-to-coast microwave relay system was inaugurated for television with the broadcast of the signing of the Japanese peace treaty in San Francisco in September. There were 108 stations on the air.

Standard (AM) broadcasting continued to grow, with 2,300 stations in operation and 100 more authorized. There were 640 frequency modulation stations in operation.

This 75th anniversary year of telephony saw significant developments in telephone service. The coast-to-coast microwave radio relay system was capable of carrying several television programs and hundreds of telephone conversations simultaneously. The year saw a tremendous upsurge in the use of radio to supplement wire lines for long distance telephone service generally over the nation. Another development was the beginning of service at Englewood, N.J., which enabled telephone users to dial long distance calls to certain areas as far away as the west coast.

The United States in 1951 had 45,000,000 telephones (more than half the world's total) and 28,000 telegraph offices. Overseas and foreign telegraph service was furnished by cable and radio directly to 82 foreign countries and United States territories and through them to most of the other cities of the world. Radiotelephone service was furnished directly and indirectly to 88 foreign countries and United States possessions.

Safety and industrial uses of radio, including police, fire, forestry, marine, aeronautical, railroad, truck, bus, taxicab, public utility, petroleum, relay press and amateur stations, were greatly accelerated during the year, the number of stations climbing to 200,000.

In February the commission established the Disaster Communications service for essential communications when normal facilities were inadequate, impaired or unavailable during disasters or other occurrences threatening public safety. It provided for communication and co-operation between the various safety and industrial stations mentioned above.

Other significant developments in the safety and special communications field included continued expansion of microwave systems for industrial use, aggregating 16,000 circuit miles, and establishment of the new radiolocation service which provided radio facilities of importance to the location and development of mining and petroleum resources. (*See* also RADIO; TELEGRAPHY; TELEPHONE; TELEVISION.) (W. CY.)

Federal Deposit Insurance Corporation.

In the calendar year 1951 two insured banks, with total deposits of nearly $3,500,000, required the assistance of the Federal Deposit Insurance corporation. A little less than $1,900,000 was disbursed by the corporation to facilitate the merger of each bank with a solvent insured bank. Depositors in the distressed banks were fully protected against loss.

The number of banks participating in deposit insurance continued to increase, totalling 13,653 on Sept. 30, 1951, or more than 93% of all banks of deposit. It is estimated that on that date about 54% of total deposits in these banks were insured.

The second of two equal installments of repayment of interest on the capital stock was made during 1951 in an amount of more than $40,000,000. On June 30, 1951, after this payment, the surplus of the Federal Deposit Insurance corporation amounted to $1,244,000,000.

The board of directors of the Federal Deposit Insurance corporation was composed of Maple T. Harl, chairman, Preston Delano, comptroller of the currency, and H. E. Cook. Upon the expiration of their terms of office, both Harl and Cook were reappointed by the president to new six-year terms. These appointments were confirmed by the senate. (*See* also BANKING).
(M. T. H.)

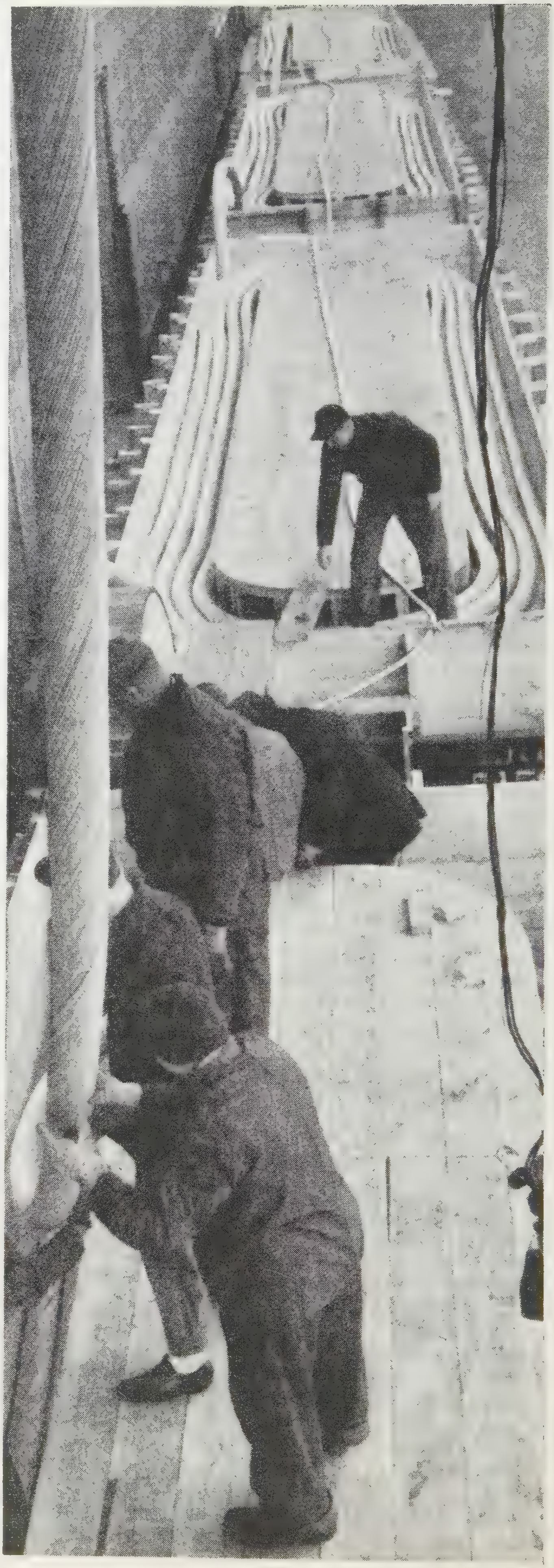
Federal Housing Administration: *see* HOUSING.
Federal Income Tax: *see* TAXATION.
Federal Land Banks: *see* FARM CREDIT ADMINISTRATION.

Federal Power Commission.

More than $90.000,000 annual increases in natural gas rates were proposed in applications to the Federal Power commission filed by interstate gas companies in 1951; they declared that higher costs of purchased gas, taxes and operating expenses did not enable them to earn sufficient returns on their investment. Practically all these were suspended, but if not determined in five months could become effective if companies posted bonds to refund to customers such increases as the commission finally found were not justified. In the first of these major cases adjusted, in which the Tennessee Gas Transmission company asked an increase of $18,000,000, representatives of the company, its utility customers and the commission, meeting jointly, agreed upon an increase of $11,400,000. This led to the hope that most of these cases could be settled without resort to the courts.

Rate regulation was also involved in the court appeal of the state of Wisconsin, the Wisconsin Public Service commission, the cities of Detroit, Milwaukee and Kansas City from the Federal Power commission's decision that the commission had no authority over the Phillips Petroleum company, with its vast gas reserves, because of the provision of the Natural Gas act prohibiting its interference with the production and gathering of natural gas. Opponents contended that this decision yielded practically all that producers demanded in the Kerr bill which was passed by congress and vetoed by the president. Pres. Harry S. Truman, however, expressed his opinion that the commission had decided this case in accordance with the evidence.

Natural gas pipe lines continued their enormous expansion. The Texas-Illinois 1,140-mi. pipe line was completed, augmenting Chicago's gas supply. The Northeastern Gas Transmission company completed its lines across Massachusetts, carrying natural gas to a large part of New England. The Tennessee Gas Transmission company increased its capacity to 1,300,000,000 cu.ft. per day. Texas Eastern Transmission corporation, United Gas Pipe Line company, Panhandle Eastern Pipe Line company, Northern Natural Gas company, Texas Gas Transmission corporation, Transcontinental Gas Pipe Line corporation, the Columbia Gas System, Inc., Consolidated Natural Gas company and other systems greatly increased their mileage and capacity, while the El Paso Natural Gas company pushed new lines to California to supply regions as far as the San Francisco bay area. The Federal Power commission authorized approximately 12,000 mi. of new pipe lines and extensions. More than $1,000,000,000 was expended in transmission and distribution lines and equipment, and before the year's end 17,000,000 customers were served in 39 states. Natural gas companies' revenues in the 12 months ending Oct. 31, 1951, rose to $1,512,454,441, an increase of 21.5%, and their net utility plant was valued at $3,645,925,241.



CABLE FOR EXTENDING the grid of the Bonneville Power administration under Puget sound to the San Juan Islands, Wash., in 1951. The 7½-mi. length of cable was transported overland from a factory in New Jersey by coiling it into a special train of nine gondola cars (above)

Electric power production rose to an all-time high. Weeks in which the output was 7,000,000,000 kw.hr. became frequent, to be eclipsed finally by the week before Christmas when output reached 7,823,731,000 kw.hr. The Federal Power commission reported that in the 12 months ending Nov. 30, 1951, electric utility plants produced 367,751,698,000 kw.hr., a gain of 13.9% over the previous year. Generating capacity rose to 75,184,147 kw., compared with the 67,975,389 kw. in service 12 months before, a gain for the year of 7,208,758 kw. Industries and railways generating energy for their own use had 14,229,184 kw. installed in their plants. Added to the public utilities, this gave a total national generating capacity of 89,413,331 kw. Continuing its multibillion-dollar expansion program, the electric industry spent vast sums to increase generating capacity, principally in steam plants.

Large hydroelectric projects authorized by the Federal Power commission included the Roanoke Rapids dam, licensed to the Virginia Electric and Power company, which was appealed to the courts by the secretary of the interior and Rural Electrification administration co-operatives; the Kings River projects of the Pacific Gas and Electric company in California; the Pelton project of the Portland General Electric company on the Deschutes river in Oregon; and the city of Tacoma's $143,000,000 project on the Cowlitz river. Installed capacity involved in hydroelectric projects under commission licence rose to more than 7,000,000 h.p. Ultimate proposed installation of all licensed projects advanced during the fiscal year from 8,678,000 to 9,932,000 h.p., and the total claimed cost of all major projects under licence rose from $958,000,000 to $1,134,000,000. In its studies of river basin development and hydroelectric possibilities of flood-control projects the commission staff participated in 101 co-operative investigations with the corps of engineers and 50 basin surveys or project investigations with the bureau of reclamation. Six power market surveys were completed, and work was in progress on several others.

Chairman Mon C. Wallgren resigned on Oct. 1, and, as no successor was appointed, Vice-Chairman Thomas C. Buchanan was acting chairman until the end of the year. Commissioner Claude L. Draper, the only remaining member appointed by Pres. Herbert Hoover when the commission was reorganized in 1930, was reappointed for another five-year term. (*See* also ELECTRICAL INDUSTRIES; GAS, NATURAL AND MANUFACTURED.)

(J. W. JE.)

Federal Reserve System.

During the year 1951 the federal reserve system took several steps of great consequence in restraining credit expansion for nondefensive purposes. In March the treasury and the federal reserve system announced an "accord," the federal open market committee gradually withdrew its support from the government bond market, and the par pegs established during World War II were abandoned. The federal reserve system and the financing institutions of the nation worked out a voluntary credit restraint program to curtail loans for nonessential purposes. Late in the year the federal open market committee greatly curtailed its support of the treasury bill market in the face of strong money market pressures and forced banks to borrow if they wanted more funds. Early in December member bank borrowing set an 18-year record in reaching a level of almost $1,000,000,000. The proper role of federal reserve open market policy was the subject of repeated discussions in congress, and late in the year, the Patman subcommittee began its monetary inquiry.

The Defense Production act amendments of 1951 reduced the administrative discretion of the board of governors in control of consumer credit. In accordance with this legislation, the board amended regulation W, effective July 31 so that (1) the maximum maturity applicable to instalment credit for automobiles, household appliances, radio and television sets, and furniture was lengthened from 15 to 18 mo., and for home repair and improvements from 30 to 36 mo.; (2) the down payment requirements for household appliances and for radio and television sets were reduced from 25% to 15%; and (3) the down payments required by the regulation may be made in cash, trade-in or a combination of trade-in and cash.

Several changes were made during the year in the coverage and terms of regulation X relating to real estate construction credit. Effective Jan. 12, the scope of the regulation was broadened by making it applicable to credit in connection with three- and four-unit residences and multi-unit residential property. Effective Feb. 15, the regulation was further broadened to include, in general, most new nonresidential construction, with maximum loans on such structures limited to 50% of the value of the property, maturities limited to 25 years, and amortization required. Effective March 5, terms different from those prescribed by the regulation were permitted to apply to specific new construction necessary to the national defense. Effective Sept. 1, the regulation was amended so as to bring it into conformity with the provisions of the new Defense Housing and Community Facilities and Services act of 1951. This legislation provided, among other things, for (1) the suspension and relaxation of restrictions in critical defense housing areas; (2) minimum down payments for veterans' loans on houses having a sale price of less than $12,000; (3) maximum down payments which were lower than the previous terms of regulation X in connection with conventional or FHA financing of homes where the transaction price is $12,000 or less; and (4) maximum maturity on any such loans of not less than 25 years, as compared with a maximum maturity under the previous regulation of 20 years for housing priced at more than $7,000.

Amendments to regulations T and U by the board of governors, effective Jan. 17, increased margin requirements from 50% to 75% for extensions of credit by brokers and dealers on listed securities, for short sales and for loans by banks on stocks. A general increase in reserve requirements during January raised the required reserves of member banks by a total of about $2,000,000,000 and left reserve requirements at their existing statutory maximum levels except for an additional two percentage points against net demand deposits in central reserve city member banks.

Thomas B. McCabe resigned as a member and chairman of the board of governors of the federal reserve system, effective March 31, and William McChesney Martin, Jr., was appointed by the president to succeed him as a member of the board and was designated as chairman of the board. Marriner S. Eccles resigned as a member of the board, effective July 15, after service as a member since 1934 and as chairman from 1935 to 1948. (*See* also BANKING; CONSUMER CREDIT.) (J. K. L.)

Federal Security Agency.

For the Federal Security agency, the year 1951 was notable as the first full year of operation of the 1950 Social Security act amendments. Under the new law, 10,000,000 more workers, including many in agriculture, domestic work and self-employment, gained old-age and survivors insurance protection. Average monthly payments increased substantially. As a direct result of the changes in the insurance system, the number of insurance beneficiaries became greater for the first time than the number receiving old-age assistance.

The amendments provided more money for child health and welfare and improved the method of payment for medical expenses of public-assistance recipients. They added a fourth public-assistance category—aid to the permanently and totally disabled. By June about half the states were already taking part in this new program.

In education, the long-debated principle of federal aid was put into effect—but only as a defense measure. Companion bills, passed in the fall of 1950, authorized federal help for building and running schools in communities where federal activity had resulted in overcrowded schools. Under the law, 708 communities were eligible for emergency aid in school construction. But with $96,500,000 appropriated for this purpose during the fiscal year, there were only enough funds for grants to the 243 communities with top priority. This federal aid would help provide schools for 123,000 children but would leave 430,000 children without adequate school facilities in communities technically eligible for aid.

In June Pres. Harry S. Truman laid the cornerstone of the Clinical centre of the National Institutes of Health. Begun in 1948 and preparing to receive patients in Jan. 1953, this public health service institution, combining hospital and laboratory facilities, would become a world centre for clinical research.

The public health service during the fiscal year 1951 administered federal grants to states totalling more than $152,000,000 for general health activities; for the control of heart disease, tuberculosis, venereal disease and cancer; for mental health programs; for industrial waste studies; and for hospital construction, survey and planning. The public health service joined in the all-out research program on ACTH and cortisone, covering such important aspects as the investigation of the medical usefulness of these substances in a wide variety of diseases including rheumatic fever, arthritis, congestive heart failure, leukemia and many others.

The Food and Drug administration participated in this advance by evaluating the safety of these potent drugs, as a statutory prerequisite to their release for sale, and by policing distribution to prevent the marketing of the drugs by those who had not met safety requirements.

Defense mobilization made more and more demands upon the agency throughout the year. What stood out most strikingly was the fact that an agency explicitly dedicated to civilian pursuits —to matters affecting health, education and family security— should be so broadly involved in defense mobilization. Every step in defense mobilization creates its own specialized demands upon health, education and welfare services, the scope of which was clearly defined by the director of defense mobilization in delegating certain defense responsibilities to the agency.

An armed attack could create desperate health and welfare problems. The public health service organized epidemic teams and an improved disease-reporting system to cope with the dangers of biological or chemical warfare, and the Food and Drug administration developed contamination detection teams and took other action for protection against atomic, biological and chemical warfare.

The Office of Vocational Rehabilitation reported that more than 66,000 handicapped men and women were prepared for and placed in jobs during the fiscal year. They were working in many occupations in which there were shortages. More than 10% of the rehabilitants added to the labour force were removed from the public-assistance rolls.

The Defense Production administration gave the agency responsibility for determining the extent of need for critical materials required in the construction of schools, colleges, libraries, hospitals and health facilities and assigned similar responsibility with respect to critical materials needed for equipment and supplies in the entire fields of education, health, welfare and recreation.

The Food and Drug administration stepped up its activities as it foresaw the difficulties which defense mobilization might cause in the food and drug industries and, on a number of occasions, put a halt to the attempts of unscrupulous operators to capitalize on emergency before they could undermine the integrity of the country's food and drug supplies.

The public health service had similar responsibilities for assuring the safety and potency of commercial vaccines, serums and other biologics and was the sole source of some medical supplies, including certain serums and yellow-fever vaccine, all of which would become critically essential in time of emergency.

Thus, the federal government's essential peacetime services for health, education and security—which had been adapted to wartime needs in the 1940s—once again were being utilized in this period of emergency. (*See* also DRUG ADMINISTRATION, U.S.; EDUCATION; PUBLIC HEALTH SERVICES; SOCIAL SECURITY; VOCATIONAL REHABILITATION, OFFICE OF.) (O. R. E.)

Federal Trade Commission.

During the fiscal year 1950–51, the Federal Trade commission issued 109 formal complaints and 130 orders to cease and desist from violations of law. It approved 146 stipulations to discontinue unlawful practices and promulgated trade practice rules for nine industries. Its staff made inspections of the labelling practices of more than 12,000 establishments of wool products manufacturers and dealers throughout the U.S. They examined more than 323,000 advertisements in newspapers, magazines and trade journals; in excess of 14,000 mail order catalogues; and more than 31,000 television continuities and 344,000 commercial radio broadcasts, aggregating well over 1,000,000 pages; and as a result, set aside about 28,500 ads as possibly false. Three new export associations, concerned with the sale abroad of machine tools and dried fruit, were organized, bringing to 45 the number registered with the commission.

At the request of price control agencies, the quarterly reports of operating statements of manufacturing corporations, published in co-operation with the Securities and Exchange commission, were expanded to include wholesale and retail trade corporations. In addition, the commission furnished the Office of Price Stabilization with tabulations and special studies on specific industries, such as machine tools, footwear, steel works and rolling mills, paper and paperboard mills and petroleum refining.

The commission's financial reports and other services were extensively used by the president's council of economic advisers, the federal reserve board, the departments of commerce, treasury and agriculture, the national military establishment and other government agencies, as well as by business groups, labour unions and research organizations.

The commission helped to give the orders of the National Production authority effect by making, at that agency's request, industry-wide surveys of compliance with its orders. The surveys included the aluminum and copper industries, cross sections of various segments of such heavy industries as iron and steel, lumber, machinery, chemicals, power equipment, leather and packers and distributors of products packed in metal cans. Under the Defense Production act and pursuant to presidential directives, it carried on certain activities intended to minimize factors which might tend to eliminate competition or otherwise promote undue concentration of economic power incident to defense mobilization.

The commission administers, in whole or in part, five different statutes, including the Federal Trade Commission act, designed to prevent unfair commercial practices such as restraint of trade, concerted price fixing and false advertising; the Clayton Antitrust act making unlawful monopolistic price discrimination and other specific practices tending to monopoly; the Export Trade act excepting foreign trade associations from operation of the Antitrust acts; the Wool Products Labeling act requiring disclosure of the fibre content and source of wool products; and the Lanham Trade-Mark act of 1946 permitting the commission to petition for cancellation of registered trademarks violative of law. Its members in 1951 were James M. Mead, chairman, of New York; William A. Ayres of Kansas; Lowell B. Mason of Illinois; John Carson of Michigan; and Stephen J. Spingarn of New York. (J. M. Md.)

Federated Malay States: *see* MALAYA (FEDERATION OF) AND SINGAPORE.

Fencing. The United States championships were held in Detroit, Mich., June 16–23, 1951. This was the second time in the history of the American Fencers League of America and the first time since 1939 that the championships were held outside of New York. The Fencers club of New York won the foil team title; the New York Athletic club won the sabre team title; and the Faulkner School of Fencing (Los Angeles, Calif.), won the women's team for the fourth straight time. The Fencers club also wrested the épée team championship from the defenders, the Salle Santelli, of New York. The Salle Santelli lost its remaining team title to the New York Athletic club in the three-weapon event.

In the individual championships, Janice Lee Yorke of the southern California division, fencing unattached, retained the women's individual title. Maxine Mitchell of the Cavaliers (southern California) was second and Polly Craus of the Faulkner School of Fencing was third. Silvio Giolito of the New York Athletic club retained the foil championship, and Tibor Nyilas of the Salle Santelli (New York) retained the sabre crown. Norman Lewis in épée did not defend the title he had held for three successive years.

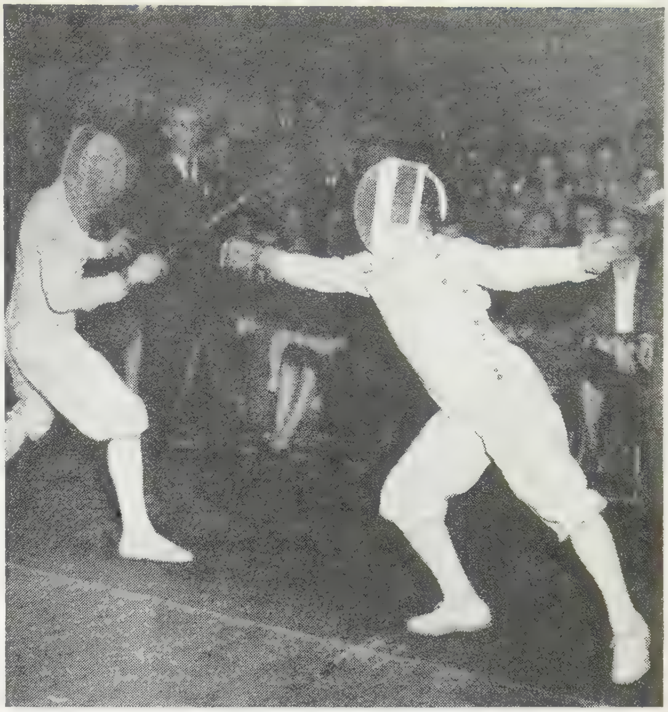
The Pacific coast championships were held in San Francisco, Calif., May 19 and 20. The Faulkner School of Fencing (Los Angeles) won the women's team, the Olympic Club of San Francisco the foil team and the Los Angeles Athletic club won the épée and sabre teams. Janice Lee Yorke (unattached) of southern California won the women's individual title, with Mrs. Muriel Bower of the Los Angeles Athletic club second and Polly Craus of the Faulkner School of Fencing third. Sewell Shurtz of the Faulkner School of Fencing won both the foil and épée championships and Salvatore Giambra of the Olympic club of San Francisco won the sabre title.

The midwest championships were held in Lexington, Ky. Paula Sweeney of Michigan won the women's foil, Byron Krieger, also of Michigan, won the sabre and also the foil, and Albert Wolff of the Kentucky division won the épée.

The southwest championships were held in Houston, Tex. Mrs. Naomi Abbott of the Galveston club won the women's foil, William Spinks of Texas Technological college, Lubbock, won the sabre, John Baird of the Buccaneers of Galveston retained the foil title and the épée championship was won by Curtis Wilson of Texas A. & M.

The all-eastern championships are held in New York when the national championships are held out of New York. Grace Acel of the Salle Santelli won the women's foil, Daniel Bukantz won the men's foil, the épée title was won by Alfred Skrobisch of the Fencers club, and the sabre event was a sweep by the Salle Santelli when George Worth finished first, John Gorlin second and Tibor Nyilas third.

In college fencing, the National Collegiate Athletic association championships were held at the University of Illinois, Urbana, March 30 and 31. Robert Nielsen of Columbia university retained the foil crown, Daniel Chafetz of Columbia university won the épée championship and the sabre crown went to Chambless Johnston of Princeton university.


FOILS FINALS at the first German championship matches since World War II; they were held at Mainz early in 1951

The Intercollegiate Fencing association held its 54th annual championship at the U.S. Military academy at West Point. Columbia university won the foil team, the three-weapon team and tied with Yale and the University of Pennsylvania, Philadelphia, for the sabre team championship. Navy won the épée team. The individual titles went to Paul Uttenback, Navy, in épée, Robert Nielsen of Columbia university in the individual foil and Carl Knoblock of Yale in the sabre.

The world championships were held in Stockholm, Swed., May 20 to June 2. The men's foil team, the women's foil team and the épée team were all won by France. Hungary won the sabre team. In the individual events M. Di Rosa of Italy was first, while Mrs. I. Flek of Hungary won the women's event. The individual épée was won by E. Mangiarotti of Italy and the sabre championship was won by E. Gerevich of Hungary. (W. A. Dw.)

Ferguson, Homer (1889–), U.S. senator, was born at Harrison City, Pa., on Feb. 25. He studied at the University of Pittsburgh, took his law degree from the University of Michigan, Ann Arbor, in 1913 and practised law until 1929, when he became circuit judge for Wayne county, Mich. In the same year he was also appointed professor of law at the Detroit College of Law. As circuit judge and as a one-man grand jury, he received national attention for his investigation of crime and graft in Wayne county. He was elected Republican senator from Michigan in 1942 for the term 1943–49 and was re-elected in 1948 for the term expiring in 1955. In the senate he soon became known as one of the most vigorous opponents of the New Deal and the Fair Deal.

On Jan. 18, 1951, he was appointed to the senate internal security (McCarran) subcommittee and in this position frequently attacked the state department and Secretary of State Dean Acheson. He voted against sending additional U.S. troops to Europe (April 4) and approved the cease-fire parleys in Korea with the proviso that there should be no appeasement of the

Chinese Communists. A consistent foe of bureaucratic spending, Ferguson on Sept. 18 was one of the small group of nine senators who voted to uphold Pres. Harry S. Truman's veto of a bill granting pensions to veterans for disabilities not connected with military service.

Fertilizers.

The world production of all three primary plant foods, nitrogen (N), available phosphoric acid (P_2O_5) and potash (K_2O), increased during the year July 1, 1950, to June 30, 1951, as compared with the same period in 1949–50, according to surveys made by the Food and Agriculture organization of the United Nations. (None of the data given in this article include the U.S.S.R.) In Table I, prepared from data furnished by F.A.O., these increases are shown, as well as the large increases in the production of these commodities from the prewar year of July 1, 1938, to June 30, 1939. The estimated outlook for the 1951–52 year showed additional expected increases in nitrogen and potash production, but a decrease in the production of available phosphoric acid. The reason for the anticipated decrease in available phosphoric acid production was the shortage of sulphuric acid. (*See* also SULPHUR.) The preparedness and defense programs of the United States and other principal nations called for enormous additional production of steel, rubber, aviation fuels and many other commodities, all of which required sulphuric acid in their manufacturing processes.

Table I.—*World Production of Fertilizers*

(In thousands of metric tons)

	1938–39	1948–49	1949–50	1950–51	Estimated 1951–52
N	2,596	3,310	3,590	3,956	4,090
P_2O_5	3,554	5,130	5,417	5,643	5,350
K_2O	2,789	3,280	3,793	4,302	4,557
Total	8,939	11,720	12,800	13,901	13,997

The changing pattern of production in 1950–51 as compared with 1949–50 is shown in Table II, which reports by continents the net increases or decreases in the production of all three plant foods for these two years. The reactivation of plants in Europe and in Japan is reflected in the large increases in the figures for Europe and Asia. The declines in nitrogen and phosphoric acid production in North and Central America, amounting to only $1\frac{1}{2}\%$ and $2\frac{1}{2}\%$, respectively, were probably the result of decreases in exports to occupied countries.

Consumption of plant foods in the several continents as shown in Table III also increased from 1949–50 to 1950–51. A number of plants in central Europe and in Japan, which had been closed for several years because of damage sustained during World War II, went back into production in 1950 and 1951. In North and Central America a number of new operations were opened in nitrogen fixation, superphosphate production and potash mining and refining, and some existing plants were enlarged.

During 1951 the greatest problem in fertilizer production was the shortage of sulphur. Sulphuric acid, which is made largely from sulphur, is essential in the production of superphosphate, the source of about 90% of the available phosphoric acid used in agriculture. It is also the base for the manufacture of sulphate of ammonia, whether the ammonia is derived as a by-product of the coking of coal or is produced synthetically from the air. The United States produced in 1951 about 85% of the world's sulphur output of 6,150,000 tons and under international allocation of sulphur by the International Materials conference, of which the United States is a member, was required to export nearly 20% of its output, or approximately 1,000,000 tons. The result was that the makers of sulphuric acid in the United States, by executive decree, were forced to accept reductions of from 10% to 15% in the amount of sulphur they could obtain or use. Like limitations were placed on the use of sulphuric acid for the production of phosphatic fertilizers. The total fertilizer production in the United States for the crop planting year 1951–52 was estimated to reach more than 19,000,000 tons. Nitrogen was expected to increase about 5% above the previous year, potash about 5% and phosphoric acid to decrease 8% to 10%. Total fertilizer consumption in the United States in the year 1949–50 reached 18,350,000 short tons, containing about 4,060,000 short tons of the three major plant foods, nitrogen, available phosphoric acid and potash. No world estimate was available as to total tonnages of all fertilizers used, but the corresponding world figure for the content of the three primary plant foods ($N+P_2O_5+K_2O$) as shown in Table I was 12,800,000 metric tons, equivalent to 14,100,000 short tons. (*See* also AGRICULTURE; TENNESSEE VALLEY AUTHORITY.)

(F. S. L.)

Table II.—*Net Changes in the Production of Fertilizers*

(In thousands of metric tons)

Continent	(N)	(P_2O_5)	(K_2O)	Net change, 1950–51 over 1949–50, for all these nutrients
Europe	+312	+176	+364	+852
North and Central America	— 18	— 42	+147	+ 87
South America	+ 12	+ 15	+ 1	+ 28
Asia	+ 59	+ 60		+119
Africa		+ 17*		+ 17
Oceania	+ 1	same		

*Includes 90,000 tons of a blend of three parts superphosphate and two parts rock phosphate. If only the P_2O_5 in the superphosphate were calculated, this change would be a reduction from the previous year.

Table III.—*Increases in the Consumption of Fertilizers, 1950–51, over 1949–50*

(In metric tons)

Continent	(N)	(P_2O_5)	(K_2O)	Total increase
Europe	217,213	177,978	206,251	601,442
North and Central America	236,254	6,363	270,768	513,385
South America	5,269	10,627	5,833	21,729
Asia	63,824	32,683	1,447	97,954
Africa	12,055	16,613	2,468	31,136
Oceania	1,670	8,340	1,262	11,272
Total	536,285	252,604	488,029	1,276,918

Festival of Britain: *see* FAIRS AND EXHIBITIONS.

FHA (Federal Housing Administration): *see* HOUSING.

Fiction: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LATIN AMERICAN LITERATURE; LITERARY PRIZES; RUSSIAN LITERATURE; SPANISH LITERATURE.

Figs: *see* FRUIT.

Fiji: *see* PACIFIC ISLANDS, BRITISH.

Filberts: *see* NUTS.

Financial Review: *see* BUSINESS REVIEW.

Fine Arts: *see* MUSIC; PAINTING; SCULPTURE; etc.

Finland.

An independent republic of northern Europe, Finland has an area of 130,159 sq.mi., including the Åland Islands. Pop. (census 1940) 3,695,617; preliminary 1950 census 4,029,000. Capital: Helsinki (pop. Jan. 1, 1947, tax list figures) 358,195. Other principal cities: Turku (Åbo) 93,735; Tampere 93,665. Language and nationality: 90% Finnish, about 10% Swedish. Religion: Lutheran Christian. President in 1951: Juho K. Paasikivi; prime minister: Urho K. Kekkonen.

The Åland Islands, a Swedish-populated archipelago belonging to Finland, lie to the southwest at the mouth of the Gulf of Bothnia. Area: 581 sq.mi. Pop. (tax list, Jan. 1, 1947) 22,787. Chief town: Mariehamn, pop. 3,239.

History.—Finland continued to navigate precariously during 1951 between a political Scylla and an economic Charybdis. In April the trade union elections were bitterly contested. Soviet-owned business concerns in Finland contributed large sums to the Communist party, which had about four times as much money to spend as the Social Democrats. Control of the unions in Finland was almost as important as control of the government; it was the unions that called strikes, forced upward the inflationary spiral and threatened the economic life of the country. The Communists repeatedly used the unions for political purposes.

But this time, when the chips were counted, the Social Democrats had won control of 25 unions and the Communists 8; for the trade union congress in June the Social Democrats had won 152 seats, the Communists 65 and the independent Seamen's union 5. Three Communist-controlled unions had been expelled from the federation and thus did not vote, but the Social Democratic victory was clear-cut. The membership vote was 107,353 to 88,585.

When the trade union congress met in June it voted (143–63) to withdraw from the soviet-directed World Federation of Trade Unions.

The coalition government headed by the Agrarian Urho Kekkonen faced repeated crises. In March the Social Democrats walked out in protest against a bill to raise apartment rents by 43%; they thought increases should be postponed until after the union vote and the regular election in July. Actually, after the anti-Communist showing in the unions, the July election was a disappointment to the government. In 1948 the Communists (or Folk Democrats) had dropped from 49 to 38 representatives in the parliament; in 1951, with a slight shift in the popular vote, they regained 7 seats for a total of 45 out of the 200. Otherwise there was no significant shift in parties, and the coalition held on.

Relations with the U.S.S.R. were tense but unpredictable. The soviet diplomatic group in Helsinki suddenly became affable in the spring. However, occasional propaganda outbursts from the U.S.S.R., especially at the times of the elections, accused Finnish leaders of being pro-U.S.. too wealthy and tools of Wall street imperialism.

The Finns obviously could not join in the Marshall plan or ally with the west, and the U.S.S.R. and Poland kept them out of the United Nations. But neither would they knuckle under to their powerful neighbour. Reparations payments were more than 90% fulfilled, and by the middle of 1952 the Finns expected to be economically free. The Finns regarded soviet power with respect but never with subservience.

The political firmness of the Finns was not paralleled in the economic realm. The price spiral, encouraged by the automatic wage raises linked to the cost of living index, soared to 1,131 (1939=100). Finland's price inflation was the steepest of all 23 countries surveyed by the International Labour conference. The situation became so desperate that all the large labour and business groups agreed on an economic truce from May 1 to Sept. 30. An economic planning council was established to make specific proposals to save the economy.

By the end of September some results had been achieved. Negotiations between the major parties and labour market organizations produced agreement on: a five-month continuation of the price-wage stop, reduction of income taxes, increase of the state contribution for children, increased tax on exports to be used to subsidize imports, a quarterly rather than a monthly adjustment of wages in relation to the index and the establishment of a new index based on the situation at the end of October. The removal of the turnover tax on Oct. 1 was expected to lower prices on shoes, textiles and other items by 5% to 30%, but effects would be slow and at first irregular.

Almost simultaneously with these economic reforms came a rebuilding of the cabinet, but still under the leadership of Kekkonen. Social Democratic and Swedish People's parties each demanded more representation, and the new ministry contained seven places for the former, two for the latter and seven for the Agrarians. The foreign office post went to a nonparty man, Sakari Tuomioja, chief of Finland's bank.

The new autonomy statute for the Åland Islands was debated strenuously in the Finnish parliament, but was passed in October. The new law somewhat strengthened Åland's favoured position, and made the island state almost a dominion. The Ålanders continued to be free from military service and to retain tax privileges. The statute said nothing about the international guarantee which was written into the treaty after World War I; Sweden formally served notice, however, that it regarded those guarantees as still binding.

Finland had great expectations for the Olympic games, scheduled to meet in Helsinki in 1952.

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(F. D. S.)

Education.—Schools (1950): elementary 6,108, pupils 481,468; secondary 336, pupils 91,677, teachers 5,417; technical, commercial and special (1949) 458, pupils 24,578; for adults (1949) 76, pupils 3,993, teachers 707. Teachers' training colleges (1950) 9, pupils 1,597, teachers 118. Universities (1950) 3, students 9,440, professors and lecturers 632. Institutions of higher education 5, students 3,528, professors and lecturers 403.

Finance and Banking.—Budget: (1950 est.) revenue 134,800,000 markkaa, expenditure 127,800,000 markkaa. National debt (May 1951) 115,400,000 markkaa. Currency circulation (Sept. 1951) 42,800,000 markkaa. Gold and foreign exchange (Sept. 1951): U.S. $165,500,000. Bank deposits (Sept. 1951) 34,200,000 markkaa. Monetary unit: markka with an exchange rate of 231 markkaa to the U.S. dollar.

Foreign Trade.—(1950) Imports 89,112,000,000 markkaa, exports 81,420,000,000 markkaa, excluding reparations 7,850,000,000 markkaa. Main sources of imports (1950): U.K. 16%; Poland 7%; the Netherlands 7%; Denmark 7%. Main destinations of exports: U.K. 20%; U.S.S.R. 16%; U.S. 9%; the Netherlands 7%. Main imports (1949): metals and manufactures 18%; textiles 18%; fuel and oils 9%; machinery and apparatus 8%. Main exports: wood and wooden goods 47%; wood pulp 22%; cardboard and paper 19%.

Transport and Communications.—Roads (1950): 36,518 mi. Motor vehicles licensed (Dec. 1950): cars 26,780, commercial 34,469. Railways (1950): 3,533 mi.; passengers 43,000,000; freight carried 16,000,000 tons; freight net ton-miles, 2,120,000,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 335; gross tonnage 514,751. Air transport (1950): passenger-miles 16,600,000; cargo net ton-miles 335,000. Telephones (1950): 313,975. Radio receiving set licences (1950): 721,500.

Agriculture.—Main crops (metric tons, 1950): wheat 291,000; rye 254,000; barley 187,000; oats 722,000; sugar, raw value 26,000; potatoes 1,210,000. Livestock (June 1950): cattle 1,844,000; sheep 1,330,000; pigs 470,000; horses 382,000. Fisheries: total catch (1949) 65,700 metric tons.

Industry.—Industrial establishments (1947): 5,999; persons employed 249,936. Electricity production (1950) 4,164,000,000 kw.hr. Raw materials (metric tons, 1950): pig iron 64,300; crude steel 112,400. Forest products (1950): sawed softwood, 875,000 standards; sawed hardwood 46,700 cu.m.; pit props 869,000 cu.m.; plywood 215,000 cu.m.; cellulose 1,194,000 metric tons; mechanical pulp 719,000 metric tons; newsprint 421,000 metric tons; other paper and paper board 350,000 metric tons.

Finletter, Thomas Knight (1893–   ), U.S. secretary of the air force, was born on Nov. 11 in Philadelphia, Pa. He studied at the University of Pennsylvania, Philadelphia, where he received his bachelor's degree in 1915 and law degree in 1920, and practised law in New York city from 1920 to 1941.

From 1941 to 1944 Finletter served as an adviser to the state department on international economic affairs. He again came into public service in July 1947, when Pres. Harry S. Truman appointed him chairman of a five-man air policy commission to study aerial defense needs. The commission's report, "Survival in the Air Age," had much to do with U.S. decisions to step up research and production of both civilian and military aircraft. Finletter later served on the delegation appointed by Economic Cooperation Administrator Paul G. Hoffman to study U.S. and British productivity and distribution problems. President Truman appointed him secretary of the air force in March 1950.

In June 1951 he warned, after a tour of Korea, that the Chinese reds were massing soviet-built planes and could be expected to step up their air operations against the U.N. forces. In July he declared that the ability of the U.S. strategic air command to deliver atomic bombs was the greatest deterrent to war. He revealed in August that the air force had been given the new mission of developing use of atom bombs against ground troops, and said this new tactic would also help deter any attack on western Europe. On Oct. 7 he said that the U.S. expected to have 309,131 troops overseas by June 30, 1952.

Fires and Fire Losses.

Fire losses in the United States for 1951 hit an all-time peak. The National Board of Fire Underwriters estimated losses in 1951 at $731,405,000. The previous high mark was 1948 when losses totalled $711,114,000.

The National Fire Protection association estimated that fires caused 12,518 fatalities in the United States and Canada in 1951.

No single catastrophe occurred during the year comparable with the disastrous windstorm of Nov. 25, 1950, or the devastating explosion and fire at Texas City, Tex., in 1947, or the South Amboy, N.J., loss of 1950. The most substantial destruction of property occurred in the Kansas City flood of July 1951. Most of the insurable losses sustained fell into the inland marine category. But there was about $5,000,000 of fire loss when a gasoline storage tank ruptured and its contents ignited.

The trend of losses since 1942 had been upward. Until 1949 each year outdistanced its predecessor. There was a drop in 1949 and then the upward swing commenced again in 1950, culminating in the all-time record of 1951. (*See* also DISASTERS.)

(L. J. A.)

FILMS OF 1951.—*Citizen Firemen* (The March of Time Forum Films); *Fire* (Gateway Productions, Inc.); *Fire Prevention in the Home, Insurance Against Fire Losses* (Encyclopædia Britannica Films Inc.).

Fish and Wildlife Service: *see* FISHERIES; WILDLIFE CONSERVATION.

Fisheries.

The world catch of fish totals about 55,000,000,000 lb. annually on a round fresh-weight basis, according to data assembled by the fisheries division of the Food and Agriculture Organization of the United Nations. Herring, pilchard, anchovies, menhaden and similar species account for about 21% of the total, while fresh- and brackish-water fish are a close second with 19%. Cod, haddock, hake, pollock and similar species comprise 14% of the total, and crustaceans such as crabs, shrimp and lobsters, and molluscs such as clams, oysters and mussels, 8%. Salmon, tuna and flat fishes are represented by lesser percentages. Asia, excluding the U.S.S.R., is the leading continent in the production of fish, with an annual catch of about 26,400,000,000 lb.; Europe, excluding the U.S.S.R., holds second place with 13,200,000,000 lb. The U.S.S.R. catch is estimated at 4,400,000,000 lb. North and Central America account for 8,300,000,000 lb., Africa 1,300,000,000 lb., South America 1,100,000,000 lb. and Oceania 300,000,000 lb.

About half the world catch of fish is made by six countries. These are, in order of the volume of their catch: Japan, United States, China, the U.S.S.R., Norway and the United Kingdom.

Fishery experts estimated that the world's oceans, lakes, ponds and streams could support an annual catch of 110,000,000,000 lb. without danger to the resource.

In recent years herring had been abundant on Norwegian fishing grounds and record catches were made. Both the capacity and efficiency of the herring fleet and shore processing facilities had been increased because of the abundance of herring. Norway's 1951 herring oil production was estimated at a record high of 66,200 short tons.

Iceland's 1951 summer herring fishery opened with catches considerably greater than in the previous year. However, after the first two weeks of the season, fish were sighted only infrequently and in small numbers. By Aug. 11 the catch of 54,000 metric tons was below the average of the previous six years, all of which were considered failures.

Because of the failure of herring to appear in normal quantities off Maine and Alaska, the United States' 1951 herring catch was only one-third as great as the 1950 production of about 360,000,000 lb.

Cod fishing off Norway during 1951 was characterized by a much greater use of purse seines than ever before. Used in connection with depth recorders, which locate schools of cod below the surface, the seines were more effective than the old methods of taking cod, and the number of purse seines increased from 80 in the previous year to more than 500 at the height of the 1951 season. The total Norwegian cod catch amounted to nearly 373,000,000 lb., or 89,000,000 lb. more than in 1950.

Since June 1950 Japan had made great strides in the use of mother ships to exploit the rich tuna resources of the central Pacific. By Oct. 1951 nine mother ship operations had been authorized and had been completed or were at sea taking tuna.

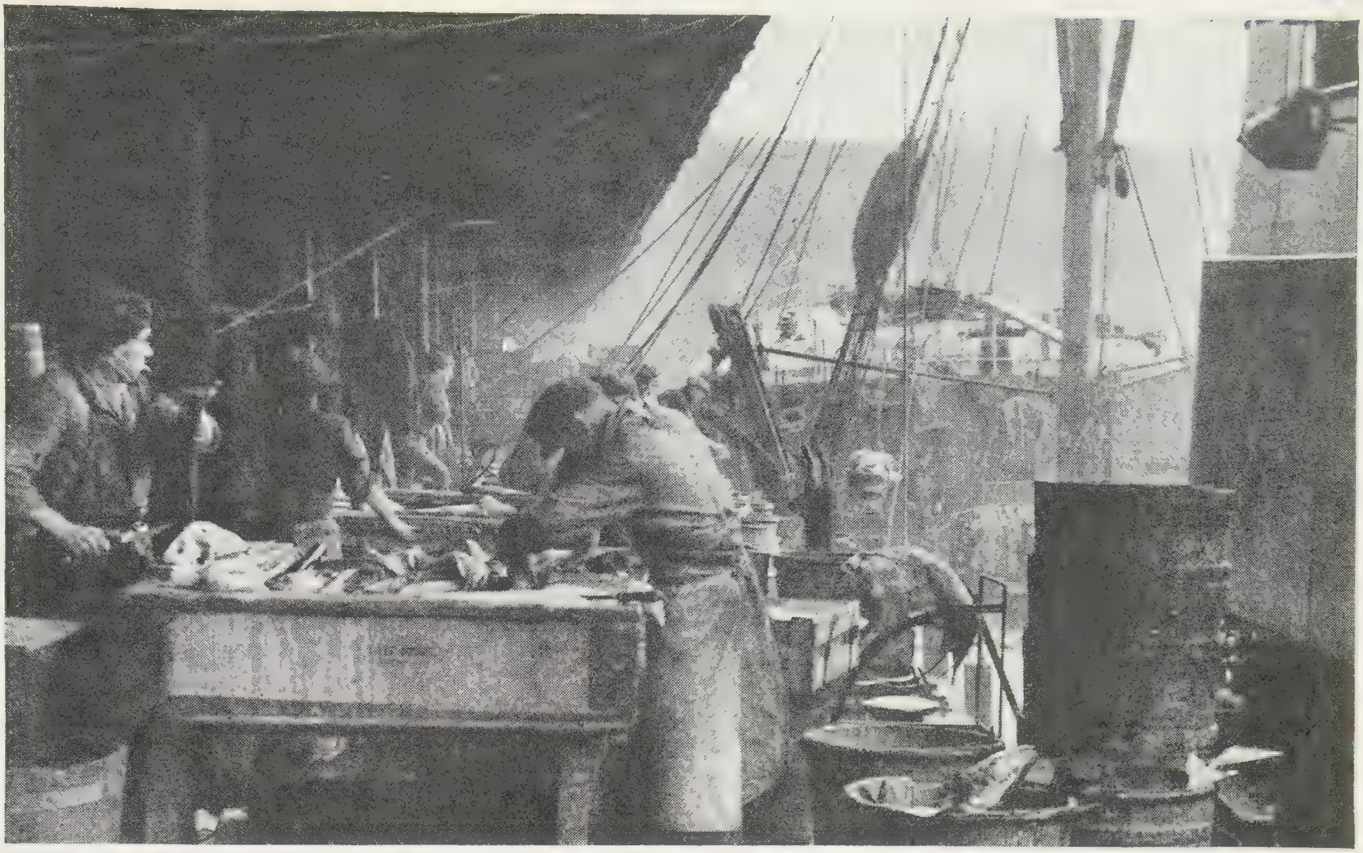
During the 1950–51 antarctic whaling season, 19 floating factories, 3 land stations and 262 whale catchers operated. The season, which opened on Dec. 22, 1950, and terminated March 9, 1951, was the shortest on record. Approximately 34,000 whales were taken. The production of whale and sperm oil amounted to 2,305,187 bbl., compared with 2,166,505 bbl. the previous season. Because the yield of oil at the beginning of the 1950–51 season was low, the International Commission on Whaling decided to postpone the opening of the 1951–52 antarctic season until Jan. 2, 1952.

The United States' annual catch of ocean perch, also known as rosefish and redfish, had increased from 264.000 lb. in 1933 to more than 250,000,000 lb. in 1951. During 1951 a survey by the Fisheries Research board of Canada from the northern part of the Grand Bank northward along the Labrador coast increased by 600 nautical mi. the known range in which ocean perch could be caught in sufficient numbers to make commercial fishing profitable. Huge schools of ocean perch were reported off northern Norway during 1951. Trawlers operating off Finnmark were reported to have filled their holds (of 200- to 250-metric-ton capacity) in only ten hours.

Despite continued expansion of the United States fishing fleet, and a good demand for most species of fish and shellfish, the 1951 catch totalled only about 4,500,000,000 lb., or nearly 10% less than in the previous year. Failure of the Maine and Alaska herring and California pilchards to appear in normal quantities, and reduced fishing effort for tuna because of excessive inventories of canned tuna, accounted for the major portion of the decline. Record, or near-record, catches of menhaden, ocean perch (rosefish) and shrimp were made during the year.

Exploratory Fishing.—Investigations to determine the distribution and extent of fishery resources were carried on in many areas throughout the world in 1951. Although the United States had lagged behind most of the important fishery nations in fishery exploration, funds were being made available for this work and a number of surveys were conducted in 1951. Exploratory fishing for tuna was conducted off the New England, South Atlantic and North Pacific states and in the mid-Pacific. Surveys to locate new shrimp resources were carried on in the Gulf of Mexico and in Alaska. Exploratory fishing was also carried on to determine the extent of bottom fish resources on the Pacific coast of the United States and of abalone in Alaska.

During 1951 projects for fishery development were an important part of the expanded technical assistance program of the Food and Agriculture Organization of the United Nations (F.A.O.). Assistance was given a number of governments in increasing fish production, management of fisheries resources and processing and marketing fishery products. Projects were carried



EARLY MORNING at the fish dock in Hull, Eng., where about half the nation's fish supply, mostly cod, is landed, processed and sold. Because of the meat shortage in 1951, the price of fish in England rose noticeably

on in such countries as Ecuador, Pakistan, Ceylon, Haiti, Peru and Chile. (*See* also MARINE BIOLOGY; OCEANOGRAPHY.)

International Fishery Conferences.—The first meeting of the International Commission for the Northwest Atlantic Fisheries was held in Washington, D.C., April 2–10, 1951. The meeting was largely of an organizational nature. It was decided that the site of the commission's headquarters would be in Canada and that the second meeting of the commission would take place in St. Andrews, N.B., in June 1952.

The Indo-Pacific Fisheries council held its third regular annual meeting at Madras, India. The principal function of the council is to assist in the development and proper utilization of the aquatic resources of the Indo-Pacific region.

An International Meeting on Fisheries Statistics was held by the F.A.O. in Rome, It., Oct. 29 to Nov. 3, 1951. The F.A.O. conference considered fishery statistics a prerequisite for policy making in the field of fisheries production and trade, and devoted much of its activities to improving the collection, compilation and dissemination of fisheries data.

A Latin-American fisheries meeting of the Food and Agriculture organization convened at Lima, Peru, Sept. 17–22, 1951. It considered and favourably recommended establishment of a fisheries council for the Latin-American area. The recommendation was later approved by the sixth session of the F.A.O. conference meeting in Rome in November. The agreement would become effective when approved by five of the member governments.

The third annual meeting of the International Whaling commission convened at Capetown, U. of S.A., on July 23, 1951. The commission, consisting of representatives of 17 nations, is charged with responsibility for safeguarding the whale stocks of the world.

Negotiations for a fisheries treaty between Japan, Canada and the United States were begun at Tokyo, Jap., in Nov. 1951. (*See* also CANNING INDUSTRY.)

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Canada.—During 1951 Canada negotiated with the U.S. and Japan for a treaty for the protection of Pacific coast fisheries; parliament voted $253,850 for 1951–52 to enable Canada to co-operate with the U.S. for the conservation of halibut, salmon and whales; the federal government maintained price supports on Newfoundland shore-caught and Labrador semidry salted codfish, totalling $275,211 for the Nov. 1, 1950–Oct. 31, 1951, period; the federal government was successful in extending through 1951 its 1950 arrangement with the United Kingdom government to sell Newfoundland codfish in European markets for convertible sterling, subject to an over-all ceiling of $4,000,000; under the Torquay tariff agreements, Canada granted concessions on 4 fish products imported from contracting countries in return for lower tariff rates on 13 fish products exported to nine countries.

In British Columbia the tuna, which appeared mysteriously off that coast in 1948, failed to return in 1951; active hydroelectric power developments kept British Columbia authorities alert against blocks to the vital salmon runs. Manitoba reported that the goldeye slump (1946–47 production fell to 78,800 lb.) was over (1949–50 production, 228,500 lb.). After a large-scale fertilization experiment, Ontario reported that many problems remained to be solved before the true value of adding chemicals to lakes to increase game fish could be established.

With statistics revealing that Canadian annual fish consumption per capita was hardly more than 10 lb. (compared with 46.7 lb. in Norway, 35.9 lb. in Denmark and 29.9 lb. in the United Kingdom), the federal department of fisheries and the fisheries council of Canada joined forces in a nation-wide drive to induce Canadian restaurants and hotels to serve more fish.

FILMS OF 1951.—*Field Trip to a Fish Hatchery* (Coronet Films); *Fish Is Food* (Sterling Films); *The Oyster-Man* (Canadian National Film Board); *Salmon, Life Cycle of the Sockeye* (Paul Hoefler Productions); *Sea Treasure* (Telefilm Inc.). (C. Cy.)

Fishing: *see* ANGLING.
Flax: *see* LINEN AND FLAX.

Floods and Flood Control.

The U.S. flood control act, approved Oct. 24, 1951, provided $388,544,100 for flood control work during the fiscal year ending June 30, 1952. The funds were classified as follows: flood control general $316,544,100; emergency fund $10,000,000; lower Mississippi river $60,500,000; Sacramento river $1,000,000; Mississippi river emergency fund $500,000. Of the flood control general fund, $306,184,100 was specified for new construction; $1,000,000 for advance planning; and $5,260,000 for operation and maintenance. Exclusive of the lower Mississippi river and the Sacramento river, flood control construction was continued or begun on 78 projects in 32 states. The $60,500,000 funds allotted the lower Mississippi river project were designated for work in seven states: Kentucky, Illinois, Tennessee, Louisiana, Missouri, Arkansas and Mississippi.

Congress also passed a supplemental appropriation act, providing a total of $12,900,000. Another $12,000,000 was allotted for additional emergency work during the Kansas river flood. This fund was in addition to special funds appropriated by congress for flood relief in Kansas handled by the particular relief agency set up by the president.

At the end of June 1951, approximately 334 flood control projects were in operation. The three largest multipurpose projects placed in operation during the fiscal year were Fort Gibson reservoir, Okla., Bull Shoals reservoir, Ark., and Hulah reservoir, Okla.

RED CROSS CAMP for families waiting to return to their inundated homes in St. Louis county, Mo., in July 1951

Channel improvement of the Mississippi river proper was continued during 1951 at a number of places below Cairo, Ill. Additional levee construction authorized by congress brought the total system to about 3,000 mi. of levees. Completed levee construction totalled approximately 1,650 mi. of main-stem levees, extending from near Head of Passes, La., to Rock Island, Ill. Co-ordinated with main-stem levees were 1,400 mi. of tributary levees, about 50% complete in 1951. Below Cairo work continued on river bank protection.

Revetment in place totalled approximately 225 mi. of river bank.

The rapid melting of excessive snow cover in the Minnesota river basin caused the river to flood in April causing damage exceeding $10,000,000. Other major floods occurred in Washington and Oregon from the Columbia river and tributaries; on the Arkansas river in Arkansas and Oklahoma; the upper Cumberland in Kentucky; the Missouri river in Nebraska and Iowa; and the Warrior system in Alabama.

Between May and July a record rainfall over approximately 1,000 sq.mi. centred by Kansas caused rivers of the region to rise to unprecedented heights. The Missouri, the Kaw (Kansas), and the upstream tributaries, the Republican, Saline, Smoky Hill, Solomon, Blue and the Little Blue, flooded causing the greatest flood damage on record: more than $870,000,000 in property loss and an equal amount in farm crops and wages lost. The Kaw river broke its banks above Kansas City, Mo., and, descending on the city from the unprotected rear, flooded the industrial section.

In Kansas, the tributaries flooded Lawrence, Topeka, Salina and approximately 100,000 ac. of cropland.

(G. Hb.)

Other Countries.—In Great Britain the year 1951 opened in most parts of the country with extremely heavy snowfall, and the thaw was immediately followed by prolonged and severe rainstorms. As a result, considerable flooding occurred over a period of several weeks and in many places roads became blocked and bridges were impassable. Rivers rose very rapidly and much damage was done in the north of England and in Scotland. Thick snow fell again in February, and the rainfall in the south, particularly in the Thames valley, was the highest ever recorded.

At Kew observatory 4.21 in. of rain fell in the course of three weeks; the previous highest total for the whole month of February was 4.13 in. in 1879. In the Thames basin the rainfall for the month of February was 5.23 in., which exceeded the previous highest total of 4.96 in. recorded in Feb. 1900. Flood warnings were issued on 10 consecutive days. In November heavy rainfall was again experienced in most parts, and more extensive flooding occurred over large areas.

In Surrey, a conference of local authorities was convened to consider a £600,000 flood prevention scheme, and the Bala Lake scheme of the Dee and Clwyd River board, which had the dual purpose of flood prevention and the provision of compensation water to the River Dee, estimated to cost £273,000, was approved.

Extensive new land drainage powers for river boards were proposed in a comprehensive report of a subcommittee of the Central Advisory Water committee, published in April 1951. The report recommended the control of watercourses for which no drainage authority was responsible, methods of raising additional revenue, and further financial assistance to river boards and other drainage authorities with limited local resources.

In March the rivers Guadalquivir and Guadaira in Spain overflowed as the result of heavy rains, and 4,000 people were rendered temporarily homeless in Seville when the rivers flooded the low-lying districts on the city's outskirts. Great damage was

FIGHTING a blaze that destroyed a flooded fuel depot and lumberyard at Kansas City, Mo., in July 1951, during the worst flood on record in the area

caused in Granada in September by a cloudburst, unparalleled for 60 years, and the river Darro, which traverses the city in a covered channel, burst through the masonry.

In July melting snows, heavy rainstorms and strong winds combined to swell the River Rhône throughout its course in Switzerland, and raised the level of Lake Geneva to an unusual height. The mountain torrents brought down masses of rock, stones and earth, causing damage to fruit gardens and farms. At the western end, the Geneva lakeside promenades were awash, and the valley road to the Simplon pass at the eastern end was impassable. Three weeks later, further tremendous rains over eastern and southern Switzerland caused widespread floods, swept away railway bridges and blocked roads with landslides. The Maggia river, near Locarno, rose seven feet in half an hour, and the Cassarate river overflowed and flooded parts of Lugano at the height of the holiday season. The Sanadon river overflowed its banks and large areas of land were inundated near St. Moritz.

Similar storms occurred in cantons Ticino and Grisons; many towns were completely isolated, and the railway line linking Switzerland and Italy was blocked. Landslips occurred and much damage was done.

In the Lake Como area in Italy, it was necessary to use explosives to clear river beds of obstacles brought down by flood waters, and many persons were buried under the mud. On Aug. 8, in the vicinity of Paris and Amsterdam, more than a month's rainfall fell in a few hours, causing flooding and dislocation of gas and water supplies.

In southern Italy, violent storms caused severe flooding in October, and many places in Sardinia and Calabria were isolated; road and railway bridges collapsed, and the supply of drinking water was interrupted by the destruction of 14 aqueducts. More than 70 deaths were reported. An abnormal rainfall of 16 in. in 19 days occurred in Malta in October, resulting in the flooding of large areas and the loss of lives and property.

Extensive flooding of the Po and Adige rivers in northern Italy in November, the worst in more than half a century, caused about 150,000 people to flee from their homes in villages near Ferrara, and the dikes surrounding Rovigo were destroyed. A death roll of about 100 was reported. British amphibious troops from Trieste rescued marooned villagers, and United States transport planes assisted in the rescue work. More than 150,000 ac. of agricultural land were under as much as 12 ft. of water, and there was widespread dislocation of road and rail traffic out of Turin and Milan. The main lines through the Simplon and St. Gotthard passes were under water. Lake Como overflowed and Lake Maggiore rose seven feet in 36 hours. In Venice, most of the squares and streets were under five feet of water, and many of the city's population of 300,000 were stranded in their homes. On the Riviera more than 6 in. of rain fell in a week and the Charles Albert bridge across the Var at St. Martin, six miles from Nice, collapsed. At Avignon the river rose 20 ft. above normal level.

In January four-fifths of the state of Queensland, Austr., suffered from the effects of torrential rain and flooding, and rivers in the central, western and northern parts of the state broke their banks. Hundreds of square miles were submerged, causing many roads to be completely out of use and resulting in dozens of breaks in the railway lines. At about the same time, Johannesburg, U. of S. Af., experienced the heaviest rainfall ever recorded, when 8.7 in. were registered in 40 minutes. During the storm, whirlwinds and gales lifted roofs and tore down trees.

Flooding of the Brahmaputra, in upper Assam, India, was reported in September to have caused the complete washing away of the Assam sawmills and factory, which produced 500,000 tea chests a year, about one-fifth of the country's total production. In October it was reported that the worst seasonal rains in 50 years had washed away bridges and buildings in Yemen, and in one area 40 deaths occurred.

Across the Red sea, Eritrea also suffered, and great damage was caused in the Keren valley.

In China, extensive work was carried out in the provinces of Shantung and Kiangsu on the river Shu-ho in order to avert the danger of flooding. A system of dams and several big weirs was built along the river over a distance of 140 km., and the flow was to be diverted through a new course, made considerably deeper and wider, through a mountain ravine 14 km. long, direct to the sea. It was claimed that this would prevent flooding resulting from the merging of the rivers Shu-ho and I-ho. In Korea the heaviest floods in 60 years occurred in August, destroying crops and causing great material loss to the population.

(*See* also DAMS; DISASTERS; IRRIGATION; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION; TENNESSEE VALLEY AUTHORITY.) (J. KD.)

Florida. The extreme southeastern state of the United States, Florida was admitted to the union in 1845. It is called the "Sunshine state" and sometimes the "Peninsula state." Its coast line, not taking into account the numerous bays and indentations, is greater than that of any other state, extending 472 mi. along the Atlantic and 674 mi. along the Gulf of Mexico. Area: 58,560 sq.mi., of which 4,298 sq.mi. are water surface; population (1950 U.S. census) 2,771,305, an increase of 873,891 or 46.1% over the 1940 census. Of these, 2,166,047 were white, 605,258 were nonwhite; 1,813,890 were urban dwellers and 957,415 were rural. The 14 largest cities with their 1950 populations are: Miami, 249,276; Jacksonville, 204,517; Tampa, 124,681; St. Petersburg, 96,738; Orlando, 52,367; Miami Beach, 46,282; Pensacola, 43,479; West Palm Beach, 43,162; Fort Lauderdale, 36,328; Lakeland, 30,851; Daytona Beach, 30,187; Tallahassee (the capital), 27,237; Gainesville, 26,861; Panama City, 25,814.

History.—The state elective administrative officers in 1951, whose terms were to expire in Jan. 1953, were: Fuller Warren, governor; R. A. Gray, secretary of state; Richard W. Ervin, attorney general; C. M. Gay, comptroller; J. Edwin Larson, state treasurer; Thomas D. Bailey, superintendent of public instruction; Nathan Mayo, commissioner of agriculture.

The Florida legislature was in regular session during the months of April and May 1951. Several measures of state-wide interest were passed. Of special importance were acts authorizing the establishment of juvenile courts and small claims courts in the various counties of the state. The increase of the population of the state as revealed by the 1950 U.S. census gave Florida an additional two representatives in the congress of the United States; consequently the legislature redistricted the state, increasing the number of congressional districts from six to eight. The legislature amended the homestead realty tax-exemption law to the effect that a person must be a legal resident of the state for one year prior to making application for homestead exemption.

In the session of 1951 the legislature proposed 11 amendments to the state constitution which would be voted on at the general election Nov. 4, 1952. One of these provided that part of the revenue from motorcar licences should be used for capital outlay and debt service for school purposes. Another would increase the number of state supreme court justices from seven to ten. Another provided for the granting of county charters by the legislature. Two proposed amendments provided for an increase of two state senatorial districts, thereby increasing the size of the state senate from 38 to 40.

Education.—Enrolment in the public schools for the year 1950–51 through grades 1–12 was as follows: white, 397,020; Negro, 125,834; total, 522,854. Kindergartens: white, 2,882; Negro, 123; total, 2,945. Junior colleges (grades 13 and 14): white, 1,241; Negro, 134; total, 1,375. There were 1,320 elementary and 740 secondary public schools, 50 kindergartens and 5 junior colleges in the state, of which there were 779 white and 541 Negro elementary schools; 498 white and 242 Negro secondary schools; 48 white and 2 Negro kindergartens; and 4 white and 1 Negro junior colleges. These schools had instructional staffs (exclusive of 184 supervisors) of 17,853 teachers and 845 principals, of whom 13,584 teachers and 670 principals taught in schools for whites, and 4,269 teachers and 175 principals in schools for Negroes.

Social Insurance and Assistance, Public Welfare and Related Programs.—Florida disbursed for state welfare through the state welfare board $49,807,066.53 in 1950–51. From grants by the federal government the state received in 1950–51 for old-age assistance $19,918,069.11; for dependent children $11,436,677.64; and for aid to the blind $1,026,426.64; total, $32,381,173.39. Disbursements for old-age assistance were $31,547,134.07; for dependent children $16,604,141.26; and for the blind $1,655,791.20; total, $49,807,066.53. Administrative and other welfare services amounted to $2,899,062.71. The unemployment benefit receipts were $10,139,441.98 with net benefit payments of $5,992,855.04.

The appropriations for prisons and other institutions for 1951–52 were: the prison at Raiford $936,565; the prison farm at Belle Glade $509,720; the industrial school for boys at Marianna $446,242; the industrial school for girls at Ocala $227,700; the Apalachee Correctional institution $421,000; the Female Correctional institution at Forest Hill near Ocala $75,000. The state supports state hospitals for the insane at Chattahoochee and Arcadia, the Florida Farm colony for the feeble-minded at Gainesville and the Florida School for the Deaf and Blind at St. Augustine. The appropriations for these institutions for 1951–52 were $8,015,350, $1,504,280 and $1,118,950, respectively.

Table I.—*Principal Crops of Florida*

	1951	1950	Average, 1940–49
Corn, bu.	9,616,000	8,582,000	7,831,000
Oats, bu.	500,000	288,000	444,000
Hay, tons	60,000	56,000	64,000
Tobacco, lb.	32,392,000	23,268,000	19,296,000
Cotton, bales	35,000	14,000	14,000
Potatoes, bu.	6,321,000	5,582,000	4,306,000
Sweet potatoes, bu.	510,000	598,000	1,113,000
Peanuts, lb.	61,200,000	59,040,000	64,736,000
Sugar cane, short tons	1,228,000	1,203,000	945,000
Sugar cane syrup, gal.	960,000	980,000	1,936,000
Tung nuts, tons	15,000	8,200	8,645
Oranges, boxes	72,500,000	67,300,000	46,070,000
Tangerines, boxes	5,000,000	4,800,000	3,890,000
Grapefruit, boxes	35,000,000	33,200,000	27,280,000

Source: U.S. Department of Agriculture.

Communications.—The total highway and street mileage in the state at the end of the year 1950 was 51,086 mi., of which 21,075 were paved and 3,946 were hard-surfaced with gravel or stone. Disbursements for the calendar year 1950 were $39,566,899.74 for construction and $8,987,250.72 for maintenance. The state road department's tentative budget for 1951 was $90,411,651 for construction and $7,033,547.67 for maintenance. Florida had in 1951 approximately 5,000 mi. of railroads, exclusive of yard tracks.

Banking and Finance.—On June 30, 1951, there was a total balance in the state treasury of $58,578,148.66, with outstanding warrants of $15,427,977.46. The state is constitutionally forbidden to incur a debt by borrowing except to put down insurrection and repel invasion. The constitution also prohibits the legislature from levying an income tax, forbids any state ad valorem tax on real estate and exempts homesteads from taxation by local taxing units up to the value of $5,000.

On June 30, 1951, there were within the state 63 national banks with deposits amounting to $1,380,064,000, and 135 state banks and trust companies with deposits of $659,512,062.90, representing total deposits of $2,039,576,062.90, a gain of $144,504,851.74 in the fiscal year.

Agriculture.—The sale of citrus products amounted to $222,451,000 for the year 1950. The sale of truck crops, including strawberries, for the year 1950 amounted to $97,848,000. On Jan. 1, 1951, the livestock resources of the state were as follows: 1,200,000 beef cattle and calves; 152,000 milk cows; 631,000 swine; 12,000 sheep; 23,000 horses; 28,000 mules.

The total income from the sale of agricultural commodities for the year 1950 was $498,325,000. This included income from the sale of cattle and hogs $52,258,000; poultry $18,706,000; dairy products $33,955,000; truck crops $97,848,000; citrus $222,451,000; from field crops: tobacco $18,450,000, potatoes $9,165,000, corn $1,188,000, sugar cane $7,702,000.

Manufacturing.—In 1947, according to the census of manufactures, the latest report available, there were 2,807 manufacturing establishments in Florida. Florida factories and plants in 1947 shipped $819,000,000 of goods manufactured in the state. Florida manufacturing establishments which were subject to state unemployment compensation had a pay roll in 1950 of $1,068,204,000, with an average number of employees of 408,911. In 1948 there were about 700 sawmills in Florida which produced 546,900,000 bd.ft. of lumber. The state also produced 1,221,200 cords of pulpwood. The increase from Florida forest products for 1948, the latest report available at the close of 1951, was $200,216,000 wholesale manufactured value. Forest products had a pay roll value in 1948 of $69,821,000. (A. N. P.)

Mineral Production.—The accompanying table shows the tonnage and value of those minerals produced in the state in 1949 whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Florida is by far the largest producer of phosphate rock.

Table II.—*Mineral Production of Florida*

(In short tons, except as noted)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Clays	95,516	$ 1,446,544	126,852	$1,954,641
Petroleum (bbl.)	441,000	*	487,000	?
Phosphate rock	7,633,908	37,857,983	9,056,174	45,377,842
Sand and gravel	2,243,898	1,879,733	2,793,865	2,806,431
Stone	4,215,090	4,748,253	5,313,400	6,885,394
Other minerals		9,065,380		?
Total		$54,998,000		?

*Value included with other minerals.

FILMS OF 1951.—*Exploring Old St. Augustine* (Cornell Film Co.).

Flour. **Wheat Flour Production.**—Commercial production of wheat flour in 1950 for the U.S. totalled 224,900,000 cwt. This was 4% below the 1949 output, but still about 6% above the 212,700,000 cwt. produced in 1940. The 1950 flour milling survey covered all known commercial wheat and rye flour mills in the U.S. The monthly production data collected by the bureau of the census accounts for approximately 96% of the total U.S. output which represents the production of about 375 mills. The remaining 4% is accounted for by approximately 875 mills having relatively small grinding capacities.

Table I.—*U.S. Commercial Wheat Milling Production*

Crop years starting July 1	Wheat flour production (thousand cwt.)	Wheat grindings (thousand bu.)	Offal Production (thousand tons)	Average number of lb. per sack of flour		Flour extraction rate
				Wheat	Offal	
1940	212,700	494,900	4,302	139.6	40.5	71.6
1941	216,800	504,300	4,356	139.6	40.2	71.6
1942	221,100	515,300	4,444	139.8	40.2	71.5
1943	237,900	551,100	4,718	139.0	39.7	71.9
1944	243,400	565,100	4,878	139.3	40.1	71.8
1945	274,400	640,720	5,598	140.1	40.8	71.4
1946	278,900	624,740	4,895	134.4	35.1	74.4
1947	305,499	701,799	5,913	137.8	38.7	72.6
1948	279,133	639,476	5,337	137.4	38.2	72.8
1949	234,351	543,475	4,651	139.1	39.7	71.9
1950	224,899	523,411	4,534	139.6	40.3	71.6

Source: U.S. Department of Commerce, Bureau of the Census.

New Crop Flour Quality.—According to the annual survey of southwestern flours by the staff of *Bakers Weekly*, the 1951 crop of southwestern wheat was shown to have yielded flour of good quality, in general much the same as for 1950. Ash content was substantially the same as for the previous year, while protein content was mostly the same to slightly lower. Absorption was slightly lower, and the mixing response was good to slightly improved over 1950. Fermentation tolerance was good, and baking characteristics were good to excellent. Other characteristics, including gas retention, gassing power and response to oxidizing agents, were reported to be about equal to or slightly better than the flour of the 1950 crop.

Flour Consumption; Domestic Uses and Trends.—Although, according to the U.S. bureau of agricultural economics, the average daily caloric intake for persons in the U.S. for 1950 had declined only about 1% from the 3,350-cal. level of 1920, the per capita rate of flour consumption had dropped from 189 lb. to approximately 138 lb. during the same period. During this time the U.S. population had increased from 105,710,620 to 150,697,361, according to the bureau of the census, so that the total quantity of flour used per annum had actually increased by about 7% since 1920.

Consumption of flour in the home followed a trend toward the use of more packaged cake mixes and less straight flour as indicated in Table II.

Table II.—*Household Flour Consumption in the U.S.*

Year	All-purpose family flour (cwt.)	Packaged cake flour (cwt.)	Cake mixes (flour values) (cwt.)	Total cake (cwt.)	Total family (cwt.)
1947	57,510,000	1,680,000	210,000	1,890,000	59,400,000
1948	57,100,000	1,850,000	370,000	2,220,000	59,320,000
1949	56,500,000	1,630,000	630,000	2,260,000	58,760,000
1950	54,000,000	1,530,000	770,000	2,300,000	56,300,000

Source: *Bakers Weekly* (Sept. 17, 1951).

A summary of the home and bakery uses of flour for food in the U.S. in 1947–50 is shown in Table III.

Table III.—*Domestic Use of Flour for Food Purposes*

Year	Family flour (cwt.)	Bakers' flour (cwt.)	Total flour (cwt.)
1947	59,400,000	138,400,000	197,800,000
1948	59,320,000	141,500,000	200,820,000
1949	58,760,000	142,000,000	200,760,000
1950	56,300,000	142,300,000	198,600,000

Source: *Bakers Weekly* (Sept. 17, 1951).

The trend from home baking to baking by industry from 1929 to 1950 is shown in Table IV.

Table IV.—*Trend of Flour Utilization in the U.S.*

Crop Year	Baking industry (cwt.)	Home baking (cwt.)
1929–30	91,300,000	106,400,000
1939–40	99,500,000	88,300,000
1949–50	142,000,000	56,300,000

Source: *Bakers Weekly* (Sept. 17, 1951).

BIBLIOGRAPHY.—U.S. Department of Commerce, Bureau of the Census, *Facts for Industry;* Charles A. Glabau, "Baking Characteristics of the 1951 Southwestern Flour," *Bakers Weekly* (Oct. 8, 1951); U.S. Department of Agriculture, Bureau of Agricultural Economics, Crop Reporting Board, release of Oct. 25, 1951; Arthur T. Joyce, "America's Changing Food Habits." General references: *American Miller and Processor; Northwestern Miller; Southwestern Miller; American Baker; Baker's Digest; Bakers Helper; Bakers Weekly; Southwestern Baker; Biological Abstracts,* section J; *Cereal Chemistry; Chemical Abstracts.* (H. BD.)

Great Britain.—The quality of bread and bakery products is influenced by many factors but the extraction rate is one of the most important. Before World War II, the miller made, from 100 parts of wheat, about 72 parts of flour, the remainder being coarse offal used for animal feeding. Such flour was designated 72% extraction flour and was, of course, white. During the war, the extraction rate was raised to 85% and even higher, which meant that the flour was darker and, from the baker's point of view, was far from ideal. In 1950, the extraction rate was reduced to approximately 80%, but in 1951 there was no further reduction. The controversy as to the nutritive value of short and long extraction flour continued.

The problem that greatly exercised the minds of millers and bakers during 1951 was the desirability of the chemical treatment of flour and, especially, of the use of nitrogen trichloride. Why is flour treated at all? It is well known that the baking quality of flour, that is, its ability to make satisfactory bread, improves as the flour is stored and aged. Obviously, oxidation has to take place, and the practice in 1951 was to secure this necessary oxidation immediately by such chemical treatment as, for example, the addition to flour of 1 part in 100,000 of potassium bromate. A particularly effective treatment was the use of a trace of nitrogen trichloride. But it was found that, if dogs consumed very large quantities of bread made from flour so treated, running fits might be induced. The actual toxic substance responsible for this was identified, by the Research Association of British Flour Millers, as methionine sulphoximine, which, although it did not affect human beings, raised the whole question of the treatment of food by traces of chemicals. While it was felt that there was a need for the proper use of certain chemicals in foodstuffs, the use of nitrogen trichloride did not seem likely to be continued after 1951.

Improvement in wheat varieties continued and advances in milling technique occurred on the lines indicated in 1950, especially in connection with pneumatic conveying, which led to increased cleanliness and freedom from insect pests. A new instrument for assessing flour colour accurately attracted considerable attention. (*See* also BREAD AND BAKERY PRODUCTS; WHEAT.) (D. W. K-J.)

Food and Agriculture Organization: *see* AGRICULTURE.
Food and Drug Administration: *see* DRUG ADMINISTRATION, U.S.
Food Supply of the World: *see* AGRICULTURE.

Football. The season of 1951 was a rather unhappy one for intercollegiate football in the United States. The game came under the severest criticism in years. The lengths to which some of the colleges went, in their efforts to field a winning team—"doctoring" student high school transcripts, giving athletic scholarships in wholesale quantities and permitting their players to take useless courses counting toward degrees—awakened the country to the need for reform if the game was to survive.

Postseason bowl games also were attacked as harmful overemphasis. A committee of college presidents appointed by the American Council on Education met in Washington, D.C. and reported itself as unanimously in favour of the abolition of all bowl games. The presidents agreed also that restrictions should be put on the length of the season in all of the college sports, that the athletes should be required to maintain the same standard of work in the class room as other students and that all scholarship funds should be handled by the school.

The televising of games was another problem to which the colleges gave serious consideration. Fearful lest the smaller schools lose their patronage and the receipts which made it possible for them to carry on their athletic programs, because of the public's absorbing interest in the telecasting of the big attractions of the leading teams, the National Collegiate Athletic association appointed a committee to make a survey. An experimental program was carried out by the committee throughout the season, restricting the number of games that were telecast. The findings of the survey were to be made known in Jan. 1952.

The end of the playing season found Tennessee ranked as the number one team of the country. The Volunteers had a perfect record for the first time since 1940 and were awarded the Father O'Donnell trophy, given annually to the team that finishes at the top in the final Associated Press poll. Then followed, in that poll, Michigan State, Maryland, Illinois, Georgia Tech, Princeton, Stanford, Wisconsin, Baylor and Oklahoma, the latter just edging ahead of Texas Christian.

The winner of the Heisman award as the football player of the year was Richard Kazmaier of Princeton. The football coach of the year, as voted by the college coaches of the country, was Charles A. Taylor of Stanford, who, in his first year as a varsity head coach, piloted his team to the Pacific Coast conference championship and to the Rose Bowl, though at least three other elevens in the conference were ranked ahead of Stanford at the start of the season.

Kazmaier led Princeton through 22 successive victories, to finish its second consecutive season with a perfect record. The 22 victories, dating from 1949, constituted an all-time Tiger record. Another one was established when Nassau won the Big Three honours for the fifth year in a row, eclipsing the mark of the Harvard teams of 1912–1915. Princeton also won the Lambert trophy, symbol of eastern supremacy, and the Ivy league championship for the second successive year.

Second in the balloting for the Heisman award was Hank Lauricella of Tennessee. Vito Parilli of Kentucky was third; Bill McColl of Stanford, fourth; Johnny Bright of Drake, fifth; Johnny Karras of Illinois, sixth; Larry Isbell of Baylor, seventh; and Hugh McElhenny of Washington, eighth.

Honours were heaped upon Kazmaier. He was also voted the Maxwell trophy, ran far ahead of all others in the Associated Press and United Press polls for the back of the year and was a unanimous choice on the many all-America teams.

The sectional champions were as follows: Eastern, Princeton; Big Ten, Illinois; Pacific Coast, Stanford; Big Seven, Oklahoma (fourth year in succession); Southwestern, Texas Christian; Southeastern, tie between Tennessee and Georgia Tech; Southern, tie between Maryland and Virginia Military Institute; Missouri Valley, Tulsa.

Stanford and Illinois, as the winners of their conference championships, were chosen to play in the Rose Bowl at Pasadena, Calif. They met on New Year's day and Illinois won by the score of 40–7. In the Sugar Bowl at New Orleans, La., Tennessee and Maryland were the opponents and victory went to Maryland, 28–13. Texas Christian and Kentucky played in the Cotton Bowl at Dallas, Tex. and the latter was the winner by the score of 20–7. The Orange Bowl game at Miami, Fla., matched Georgia Tech and Baylor and was won by Georgia Tech, 17–14.

The Army team, wrecked by the dismissal of virtually the entire varsity squad for honour code violations, lost seven games and won two, one of its worst seasons in history. In the final game the West Point team, made up largely of plebes and sophomores, was crushed, 42–7 by Navy, which ran up the largest number of points ever scored by either team in the rivalry.

The outstanding choices for all-America honours were Kazmaier and Lauricella, backs, and McColl, Jim Weatherall of Oklahoma, Don Coleman of Michigan State and Bob Ward of Maryland, linemen. Other backs who were honoured were Ollie Matson of San Francisco, Karras, Bobby Dillon of Texas, Parilli, Pat Cannamela and Frank Gifford of Southern California, Isbell, McElhenny and Al Brosky of Illinois. Other linemen were Ray Beck of Georgia Tech, Pug Pearman of Tennessee, Bob Carey of Michigan State, Les Richter of California, Pat O'Donahue of Wisconsin, Dick Hightower of Southern Methodist, Doug Moseley of Kentucky, Dewey McConnell of Wyoming, Joe Palumbo of Virginia, Bob Toneff of Notre Dame and Ted Daffer of Tennessee. McColl was voted the lineman of the year in the Associated Press poll.

There was a noticeable increase in the roughness of the play, fisticuffs breaking out in many games and at times leading to free-for-all fights in which spectators joined. In the game between Drake and Oklahoma A. and M. Johnny Bright, Negro backfield star, suffered a broken jaw and Drake officials contended he had been slugged by a member of the Oklahoma team. Refusal of the Missouri Valley Conference to investigate the case led to the withdrawal of Drake from the conference, and Bradley university also withdrew.

Professional Football.—The Los Angeles Rams ended the Cleveland Browns' five-year record of invincibility to win the championship of the National Football league. Finishing on top of the National conference division, they defeated the Browns, champions of the American conference, in the play-off at Los Angeles, Calif., 24–17.

During the 1951 season, Cleveland lost its opening game and then won all of its 11 other contests in the American division to finish ahead of the New York Giants, who placed second with 2 defeats, 1 tie and 9 victories. Los Angeles won the honours in the National division on the final day, defeating the Green Bay Packers while the Detroit Lions were losing to the San Francisco Forty-Niners.

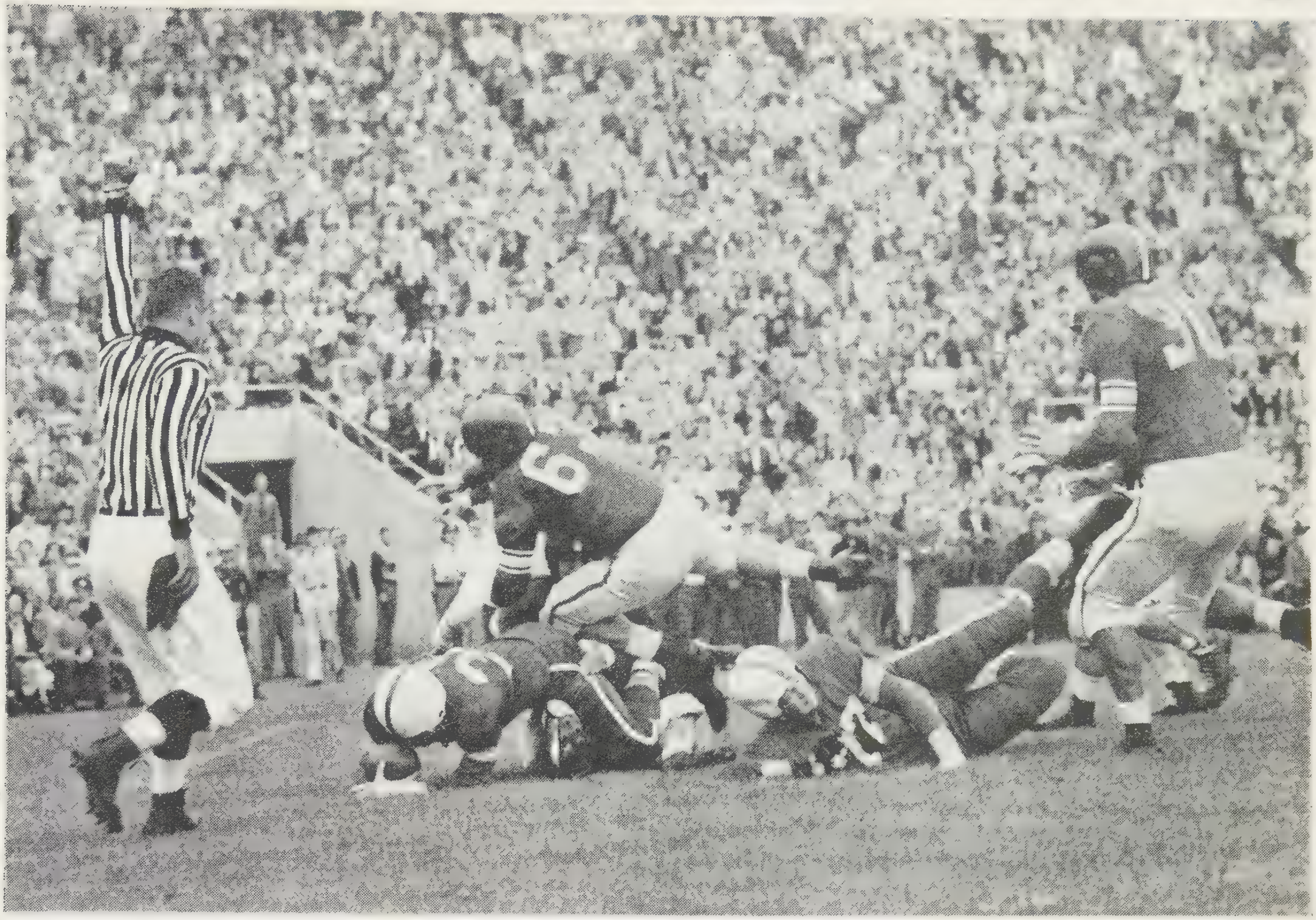
Canada.—A record Canadian football crowd of 27,326 saw the Ottawa Rough Riders win the Dominion championship in Toronto's Varsity stadium. In the East-West final for the Grey cup they defeated the Saskatchewan Roughriders, 21–14.

Before the East-West playoff, three teams tied for first place in each of the two big professional leagues. In the Western Canada conference they were the Saskatchewan Roughriders, the Winnipeg Blue Bombers and the Edmonton Eskimos. The Eskimos defeated the Blue Bombers and then in turn were beaten by the Roughies, who thus earned the right to represent the West.

In the East's Interprovincial Rugby union, commonly known as the Big Four, Ottawa, the Toronto Argonauts and the Hamilton Tiger-Cats tied. First the Tiger-Cats eliminated the Argonauts, 1950 Dominion champions. Then they in turn were defeated by the Ottawa Rough Riders. Finally Ottawa met and overcame the Sarnia Imperials, winner of the Ontario Rugby Football union title, to become champions of eastern Canada.

Bruce Cummings of the Ottawa team won the oldest and most prized award in the Big Four, the Jeff Russell Memorial trophy. It goes annually to the player who best combines good sportsmanship with effective play. Glenn Dobbs was named the most valuable player in the Western Canada conference.

The college championship was won by the University of Toronto Blues. They defeated the McGill Redmen, 11–7, in the final game of the schedule, thus preventing the Redmen from



FIRST-PERIOD PLAY in which Ohio State lost four yards to Michigan State and was pushed back to its own three-yard line, Oct. 6, 1951. Michigan State won the game, 24 to 20

bringing about a sudden-death playoff. (A. Da.)

Great Britain.—*Association.*—England's association football team once more in 1950 resisted every attempt to inflict a first home defeat by a side from outside the British Isles but its supporters had an anxious time before it drew 2–2 with Yugoslavia and France and beat Argentina 2–1.

Tottenham Hotspur, who had been the most attractive side in the country while winning the second division title in 1950 went straight on in the first division to win the 1951 championship, a feat previously achieved only by Everton and Liverpool. For the fourth time in five years the runners-up were Manchester United. Newcastle United won the Football association cup, beating Blackpool by 2–0 in the final. Pegasus, a combination of past and present undergraduates of Oxford and Cambridge, won the Football association amateur cup, with 2–1 against Bishop Auckland in the final.

In Scotland a young Hibernian side was outstanding, finishing ten points ahead of Glasgow Rangers. Celtic won the cup final 1–0.

Scotland won the home international title, beating Wales 3–1 at Cardiff, Ireland 6–1 at Hampden Park and England 3–2 at Wembley, and also defeated Belgium 5–0, France 1–0, and Denmark 3–1, but lost 0–1 and 0–4 to Austria, perhaps the best of the European teams. England beat Wales 4–2 at Sunderland and Ireland 4–1 in Belfast; Wales won 2–1 in Belfast. (For association football in the U.S., *see* the article Soccer.)

Rugby Union.—The South African side visiting Great Britain in 1951 won its first nine games before losing 9–11 to London Counties. Ireland recovered the home international championship. The Welsh began with a 23–5 win over England at Swansea, but lost 0–19 to Scotland in Edinburgh after the Scots had lost 12–14 in Paris. Ireland got home by 9–8 and 3–0 against France and England in Dublin. Ireland beat Scotland at Murrayfield, 7–3. Wales drew 3–3 with Ireland at Cardiff and was beaten 8–3 by France in Paris. France won her first victory at Twickenham by 11–3, but England won the Calcutta cup by beating Scotland 5–3.

East Midlands, runners-up in 1950, won the county championship, beating Middlesex in the final.

Rugby League.—France won the home international championship on points average. and then on her first visit to Australasia beat Australia in the tests and only just lost to New Zealand in a rough match at Auckland. The French team received almost a national welcome on its return to Marseilles, but a few weeks later the side was beaten 17–14 at Hull by Other Nationalities.

Workington Town won the Northern Rugby league championship. Wigan won the Rugby league challenge cup final, beating Barrow 10–0, and retained the Lancashire cup for a sixth year. Leeds won the Yorkshire league and Wakefield the Yorkshire cup. Cumberland took the county title on points average.

The New Zealand team visiting Britain in the autumn of 1951 were unlucky to lose the first two tests 15–21 and 19–20.

Films of 1951.—*Modern Football* (Association Films, Inc.).

(La. M.)

Ford Foundation: *see* Libraries; Societies and Associations, U.S.

Foreign Exchange: *see* Exchange Control and Exchange Rates.

Foreign Investments.

United States Investments Abroad.—The value of United States investments in foreign countries (and international organizations) aggregated approximately $35,660,000,000 on June 30, 1951 or about $1,000,000,000 higher than at the end of 1950. Although the outflow of private and U.S. government capital in the first half of 1951 of about $725,000,000 was more than double the volume during the same period a year earlier, the movement for the year as a whole probably was well below the preceding year because of a sharp decline in private investments in the second half of the year. As a result, the increase in the total value of U.S. investments abroad in 1951 was probably much less than the rise of $2,000,000,000 that occurred in 1950.

The bulk of the growth was for the account of private organizations and individuals as in the previous year. New investments and claims by the U.S. government on foreigners increased by about $140,000,000 in the first half of 1951 and by a small amount during the third quarter, or at about the same rate as a year earlier, according to the U.S. department of commerce. The investment of private capital in the first nine months of the year was $583,000,000 or $476,000,000 less than for the same period of 1950, a year in which a postwar record outflow of more than $1,300,000,000 was reached.

Portfolio Investments.—During 1951, Canadian issuers found it advantageous to borrow directly in the United States and a larger net volume of new Canadian bonds, whose interest and principal were payable in U.S. dollars, were sold in the latter country than in any year since 1930. Through Nov. 1951 there were 20 major Canadian new issues sold in the United States (not including issues of direct-investment companies) of which the amount taken by U.S. investors was about $280,000,000. The issues were by various Canadian provinces and municipalities, and only about $15,000,000 of the total was to refund issues outstanding in the United States. The balance was new U.S. capital going to Canada, although the issuers used some of the funds to retire obligations held in Canada rather than for new works programs.

Aside from Canada, the outflow of United States portfolio investments was mainly to the International Bank for Reconstruction and Development, and there was no apparent revival of interest in large-scale lending to other foreign borrowers. Much of the potential lending to these countries was in fact channeled through the International bank. The two issues of this institution totalling $150,000,000 in 1951, nearly all of which was taken by U.S. investors, were in effect fully guaranteed by the subscription of the United States government to its capital. Most foreign borrowers were able to secure loans from the International Bank on terms better than could be found in the private U.S. capital market. As in earlier years, the experience of the International bank showed that an important limiting factor on the volume of private United States lending either directly or through the bank was the lack of well-conceived and planned projects by potential borrowers.

To finance its ambitious development program, the Israel government undertook to sell $500,000,000 of bonds in the United States beginning in May 1951, without resorting to traditional underwriting and marketing channels. A large corps of salesmen and volunteer workers arranged meetings of potential purchasers throughout the United States and through other means began to market the bonds in the first year of the three allotted for this purpose.

Direct Investments.—The amount of U.S. capital flowing to controlled enterprises in foreign countries in the first nine months of 1951 was $440,000,000, a decline of $125.000.000 from the same period a year earlier. An important factor in the decrease was the completion of major foreign projects of the oil industry. As a consequence, the rate of investments in the third quarter was at about $260,000,000 for the year—only about a third of the average rate in 1949–50. In 1951 the flow of capital to a number of foreign enterprises was reversed as they turned over to their parent enterprises the cash proceeds of their sales of petroleum and other products which they no longer required for investment. However, the aggregate retention abroad of undistributed profits was probably large; in 1950 they had amounted to about $443,000,000. These funds were as important in expanding overseas investments as new funds coming directly from the United States.

The world demand for petroleum and its products was at peak levels in the early part of 1951 when steps were initiated by the Iranian government to nationalize the vast Iranian properties of the Anglo-Iranian Oil company, a British-controlled enterprise. With the subsequent interruption of the flow of oil from Iran, the rising oil exploration and development program of the United States was further accelerated, both at home and abroad.

In Canada, facilities were expanded for the marketing of the oil of newly developed fields in the western portion of the country and the financing of a proposed catalytic refining plant and oil line were discussed. Elsewhere, in central Sumatra, two U.S. companies were developing discoveries of major importance on which it was said that about $20,000,000 was spent in 1951. An oil refinery with a daily capacity of 10,000 bbl. was undertaken in South Africa with a projected cost of $12,000,000. United States firms expanded operations in Mexico, Colombia and Ethiopia and indicated a readiness to participate with Brazilian capital on an equal basis in the exploitation of large hitherto undeveloped Brazilian reserves. Plans were under way for a $10,000,000 investment in Egyptian oil fields, pending the amendment of an Egyptian law requiring that Egyptians hold a majority interest in any company exploiting the nation's oil reserve.

Toward the end of the year it was announced that U.S. companies would invest up to $70,000,000 in refineries in India following a change in that country's policy toward foreign capital. Earlier, Indian policy had required that foreign investors allot to Indian nationals 51% of the controlling shares of an enterprise in India. Under the terms of the agreements with the oil companies, Indian investors would be offered an opportunity to purchase preferred stock to the extent of 25% of the stock capitalization. Other provisions of the agreement included a guarantee that foreign exchange would be made available for annual repatriation of profits, imports of crude oil to feed the refinery would be exempted from customs duty, the importation of machinery by the companies would be assessed at a special low rate, and the enterprises would be permitted to sell their petroleum output in India at a price equal to that of imported products.

In other oil-producing countries the share of local profits from United States oil operations was raised during the year. The ruler of Arabia was believed to have received an income of about $100,000,000 to $120,000,000 during 1951 as a result of an agreement at the end of 1950 that raised his share of the net income from U.S. oil operations to an equal basis with that of the operating company. Beginning with Dec. 1951 a somewhat similar arrangement was made with the Sheikh of Kuwait.

The intensive search for mineral deposits in foreign countries continued during 1951 and U.S. capital was invested in many promising ventures. The U.S. government, insurance companies and industrial organizations, in conjunction or separately, placed on a production basis important mineral deposits in Canada and elsewhere. The extensive explorations of potentially rich iron ore properties in Canada was financed by steel and other companies in the United States. Work was in progress during the year on a railroad from the Gulf of St. Lawrence to the iron ore fields astride the Quebec-Labrador boundary—a distance of 360 mi. In Venezuela a contract between that government and a subsidiary of a leading U.S. steel producer called for the initial investment of $250,000,000 by the company for the extraction and movement to tidewater of high-grade ores from the Cerro Bolivar deposits. Other U.S. companies explored in Venezuela for rich iron ore bodies during the year.

Table I.—*Estimated Value of U.S. Investments Abroad, by Type and Area*

(In millions of dollars; direct investments at book value, other investments at market or stated value)

	Dec. 31, 1950								
Type of investment	Canada	American republics	ERP countries	ERP dependencies	Other Europe	Other countries	International institutions	Total	June 30, 1951, total
Total	7,309	6,528	12,735	680	1,141	2,645	3,656	34,694	35,660
Private	7,298	6,073	4,220	605	663	1,932	227	21,018	21,850
Long-term	7,048	5,514	3,682	588	601	1,717	227	19,377	20,170
Direct*	3,850	5,065	2,272	561	349	1,453	—	13,550	14,180
Foreign dollar bonds	1,113	159	71	—	17	115	227	1,702	1,890
Securities payable in local currencies	1,911	34	371	5	38	61	—	2,420	2,390
Other	174	256	968	22	197	88	—	1,705	1,710
Short-term	250	559	538	17	62	215	—	1,641	1,680
Deposits	145	70	278	6	36	64	—	598	560
Other	105	489	261	11	26	151	—	1,043	1,120
United States government	11	455	8,515	75	478	713	3,429	13,676	13,810
Long-term†	9	445	8,286	73	477	645	3,429	13,364	13,490
Short-term	2	10	229	2	1	68	—	312	320

*No allowance has been made for the value of direct investments abroad damaged during the war, written off or expropriated without compensation. Holdings of portfolio securities of former enemy countries, or of countries where no realistic valuation is obtainable have been excluded.

†Government long-term investments exclude commercial bank loans guaranteed by the Export-Import bank. The latter are included under other private long-term investments. Only the outstanding amount of government loans, rather than the authorized amount, are included in government long-term investments.

Source: U.S. Department of Commerce.

During the year the American and Foreign Power Company, Inc., announced that it planned to make expenditures of $200,000,000 in South and Central America by 1955, and other U.S. interests were considering the investment of vast sums in gas pipe line ventures in Canada and lesser sums in other ventures including wood pulp, cellulose acetate and many organic chemicals.

The efforts of the Israel government to attract U.S. capital resulted in numerous investments in 1951 among which were the country's largest tire and rubber plant and the formation of a $1,000,000 enterprise to manufacture plastics for consumer and industrial use. However, the effort to interest U.S. capital in Israel met with mixed success during the year as a result of political tensions in the near east, and incidents occurred that indicated the type of risk to which capital investments in foreign countries were exposed. For example, in October the Iraqi government banned the importation into that country of all products of a U.S. automobile manufacturer following the establishment in Israel of a plant producing automobiles, spare parts and other products owned by the same company.

The value of new U.S. investments in the former enemy countries, Germany and Japan, remained relatively small during 1951. Among the investments coming to the attention of the public were the opening of a branch bank in Germany and several investments in Japan.

Information regarding the liquidation of U.S. overseas investments during the year was meagre, although publicity was given to the sale of shares of F. W. Woolworth and Co., Ltd., of London. The last large block of U.S.-owned shares of this company with a value exceeding $6,000,000 was sold in the first quarter of the year.

United States Government.—Long-term loans to foreign governments by the United States government remained relatively low during 1951, totalling only $152,000,000 during the first nine months of the year, mainly reflecting the low volume of credits under the declining European Recovery program. Drawings against Export-Import bank loans declined somewhat in this period compared with a year earlier, although several fairly large loans were authorized to Latin American borrowers. Through Aug. 1951 about $46,000,000 of additional loans were authorized by the U.S. government to individual Spanish enterprises for projects having prospects for contributing substantially to the improvement of the Spanish economy. These included railways, fertilizer and steel plants, minerals production, electric power plants and the purchase of certain commodities.

On Oct. 1 the British government paid the final instalment on its $390,000,000 loan from the Reconstruction Finance corporation contracted in 1941. With the payment of this debt the British treasury regained U.S. securities valued at $1,000,000,000. This was about twice their value at the time the loan was made. On the last day of 1951 the British government made the first payments of interest ($87,000,000) and principal ($51,500,000) due on loans granted after World War II, totalling $4,350,000,000.

Other.—In September, the United States and Switzerland concluded a convention designed to eliminate, in so far as possible, the levying of taxes by both countries on income earned in either country. The agreement, which would run for at least five years, followed agreements entered into by the United States and other countries and would relieve considerably from double taxation investment income earned in Switzerland by U.S. citizens, while also relieving from double taxation income earned on Swiss investments in that country.

Foreign Investments in the United States.—The value of foreign investments in the United States rose to approximately $20,570,000,000 on June 30, 1951, or by about $420,000,000 during the first six months of the year. The increase was probably not impaired during the remainder of the year by the re-emergence of a basic disequilibrium in the international transactions of the United States with the rest of the world and among countries in general, since foreign countries probably drew on their gold holdings rather than on their investments to meet indebtedness.

The change for 1951 was in sharp contrast with the increase of about $2,500,000,000 in the value of foreign investments in the United States during 1950. In the latter year, the strong demand for basic products by the United States from other countries in connection with the rising military mobilization program had resulted in sizeable increases in both foreign short- and long-term dollar assets in the United States. The U.S. demand continued to increase during the first half of 1951. However, in the third quarter of the year a relative relaxation in business and consumer demand in many sectors of the market occurred, accompanied by lower price levels, and represented a moderate adjustment from the great demand pressure evident earlier in the year. As part of this softening in demand, U.S. merchandise imports fell about $500,000,000 during the quarter coincidental with declines of about $175,000,000 in government aid to foreign countries and about $340,000,000 in the movement of U.S. private and government capital to foreign countries.

Short-term Investments and Gold.—As a result, many countries that had gained short-term assets in the United States and gold during the first year following the outbreak of hostilities in Korea—the countries producing raw materials or their mother countries—suffered losses thereafter. The sterling area, which had had the greatest gain in reserves to the middle of 1951, had the greatest losses in subsequent months. France, although primarily not a raw material producing country, had a similar

Table II.—*Estimated Value of Foreign Investments in the United States, by Type and Area*

(In millions of dollars; direct investments at book value, other investments at market or stated value)

Type of investment	Dec. 31, 1950								June 30, 1951, total
	Canada	American republics	ERP countries	ERP dependencies	Other Europe	Other countries	International institutions	Total	
Total	3,178	2,625	8,894	479	239	1,951	2,011	20,149	20,570
Private obligations	2,123	2,475	7,999	398	219	1,570	175	14,959	15,440
Long-term	1,696	803	5,333	197	125	300	3	8,457	8,860
Direct	876	141	2,158	18	25	75	—	3,293	3,440
Corporate stocks	608	392	1,966	75	20	129	—	3,190	3,480
Corporate bonds*	72	52	290	20	27	10	3	474	450
Other	140	218	919	84	53	86	—	1,500	1,490
Short-term	427	1,672	2,666	201	94	1,270	172	6,502	6,580
Deposits	393	1,549	2,303	131	72	1,255	128	5,831	5,780
Other	34	123	363	70	22	15	44	671	800
U.S. government obligations	1,055	150	895	81	20	381	1,836	5,190	5,130
Long-term	511	86	443	37	17	36	285	1,415	1,260
Short-term	544	64	452	44	3	345	1,551	3,775†	3,870†

*Includes an estimated $100,000,000 of state and municipal bonds.
†Includes $772,000,000 in 1950 and $790,000,000 in 1951 of U.S. currency held abroad which is not allocable by area.
Source: U.S. Department of Commerce.

experience. On the other hand, Germany, the Netherlands and other countries had lost reserves since mid-1950 but were reacquiring them during the second half of 1951. Other countries that gained dollars and gold included Belgium, Japan and Indonesia.

In the first half of the year foreigners had acquired about $950,000,000 of gold from the United States in addition to acquiring $109,000,000 of short- and long-term investments. In the third quarter of the year foreigners lost almost $300,000,000 of gold to the United States and neither acquired nor lost capital to the United States on balance. In the remaining quarter of the year sizeable foreign liquidations of short-term assets and gold probably occurred. The unstable character of international financial relations was reflected by concern expressed in the fall of 1951 that some foreign countries might have to devalue their foreign currencies, although it was the first occasion since the third quarter of 1949 that foreign countries as a group had had to draw upon their reserves to settle their accounts with the United States. During the intervening 21-month period it had been necessary for the United States to settle its international accounts by making net payments to the rest of the world. These gold and dollar payments had amounted to $5,100,000,000 and had permitted foreign countries in the aggregate to regain from the United States all but $2,500,000,000 of the dollar assets and gold that they had lost to that country during the period from the end of 1945 through Sept. 30, 1949.

The increase in foreign short-term claims on the financial institutions of the United States amounted to about $175,000,000 during the first half of 1951 and may be attributed largely to a shift in the portfolio holdings of foreigners who acquired short-term government issues and other assets with the proceeds of maturing medium-term government issues. In general, foreign governments continued to convert to gold a portion of their rising claims against the United States resulting from the improvement in their financial transactions with that country after 1949.

Long-term Investments.—The aggregate value of foreign long-term investments in the United States reflects (1) the level of share and bond prices on the leading securities markets; (2) the movement of foreign capital, additions and liquidations; and (3) the book value of foreign-controlled enterprises in the United States, direct investments. The combined effect of these influences was to raise the value of foreign long-term investments by almost $250,000,000 in the first half of 1951, to $10,100,000,000. This increase was less than the rise in value resulting from increased security price quotations which was partly offset by a net sale of foreign-held securities.

The value of corporate shares rose $290,000,000 of which all but $23,000,000 represented an 8.4% rise in the stock market prices of the $3,190,000,000 of shares held at the end of 1950. The balance represented new capital invested in the United States. Declines in the values of corporate bonds and obligations of the U.S. government reflected both declines in market prices and liquidations by foreign holders. Sales of the latter consisted mainly of maturing medium-term government issues whose proceeds, as mentioned, were utilized for the acquisition of short-term assets.

The continued absence of foreign purchases of securities during the first half of the year, at a time when both foreign reserves and security prices in the United States were rising, indicated that foreign governments were still exercising fairly rigid controls over the use of dollar earnings. The need for dollar exchange in some countries remained great.

The increase in the value of direct investments was slightly higher than in the same period a year earlier as prosperous business conditions in the United States were reflected in larger net incomes and undistributed profits. Retained earnings accounted for about two-thirds of the increase of $147,000,000 in total value of direct investments. The balance came as advances on book accounts from foreign parent companies who increased their advances over the previous year, pacing the rise in business volume.

Income.—In contrast with U.S. investments abroad, foreign investors in the United States concentrated on portfolio investments, so that the data on investment income released by the U.S. department of commerce in Oct. 1951 show that of some $437,000,000 of income paid to foreigners in 1950, $241,000,000 was on portfolio investments. Dividends paid abroad on portfolio account amounted to nearly half of all income payments. In the postwar period these had risen at a somewhat higher rate than all U.S. dividend payments in spite of some reduction in foreign holdings. This suggested that foreign holdings of U.S. shares were concentrated in stock issues on which dividend rates had risen sharply in recent years.

Interest payments on foreign holdings of private corporate and U.S. government bonds were comparatively minor and were close to $50,000,000 in 1950. Payments on government bonds resulted from a tendency of foreign governments and central banks to invest a portion of their dollar reserves in seasoned interest-bearing securities rather than to hold them all in the form of demand deposits or gold which yielded no income.

As indicated, foreign-controlled companies operating in the United States depended almost entirely on earnings in that country as a source of funds for expansion. For the period 1946–1950 about $750,000,000 of total earnings of $1,200,000,000 were used in this manner. In 1950 direct-investment subsidiaries retained about $172,000,000 of earnings of $282,000,000 and distributed the balance as dividends to foreign parent companies.

More than 70% of all income payments to foreigners went to European Recovery program countries in 1950, reflecting the fact that foreign investments in the United States represented largely a remainder of past foreign investment activities of western European countries, principally England, Switzerland and the Netherlands. Payments to Canada were next in importance, comprising about 18% of total. Most of the income paid to Canada was by Canadian-controlled companies in the United States. (*See* also EUROPEAN RECOVERY PROGRAM; EXCHANGE CONTROL AND EXCHANGE RATES; EXPORT-IMPORT BANK OF WASHINGTON;

International Bank for Reconstruction and Development; International Monetary Fund.) (M. Ab.)

Foreign Loans, U.S.: *see* United States: *Foreign Credits of the United States Government.*

Foreign Ministers' Conferences: *see* European Recovery Program; European Union; Germany; North Atlantic Treaty Organization.

Foreign Missions: *see* Missions, Foreign (Religious).

Foreign Trade: *see* International Trade.

Forests.

The Defense Production act of 1950 authorized U.S. government loans or accelerated tax amortization for expansions of manufacturing plant facilities contributing to the national defense effort. As a result, the National Production authority, a federal agency set up under this act, received hundreds of proposals for plant expansions during 1951. Many of these involved forest products, including proposals for new pulp and paper mills, rayon textile mills, sawmills, plywood manufacturing plants and facilities for the preservative treatment of wood. The proposed forest products plant expansions called for a total expenditure of several hundred million dollars. In the aggregate, they would cause a substantial increase in the drain on the timber resources of the United States, although the installed plant capacity in many areas was already in excess of the growth rate of the local timber. Many of the proposed expansions of plant capacity, however, were based on increased utilization of mill or woods waste, or of hitherto little used tree species.

Others were in locations where an increase in timber growth was in prospect, because of fire protection, reforestation and improved forest management.

The role of forests in watershed protection was recognized in river basin planning during the year. The report of the president's Water Resources Policy commission, appointed to make a special study of the nation's water resources, declared that watershed management should be one of the principal objectives in the planning and development of river basin programs. It recommended action to bring economically controllable deterioration of forest and other watershed lands under control within a reasonable period of time. Federal interagency river basin committees began the preparation of comprehensive plans for the development, utilization and conservation of the water resources of the Arkansas-White-Red river basin and of the New England-New York region. Forestry agencies assisted the committees on matters pertaining to forest watersheds. In the Columbia and Missouri river basins the department of agriculture was engaged in the development of comprehensive agricultural and forestry programs to bring the land phases of river basin planning abreast of engineering programs already advanced for development of the streams.

The area of national forests and other conservation lands under administration of the U.S. forest service on June 30, 1951, was 181,034,882 ac. The properties included 151 national forests, 33 purchase units established pursuant to the Weeks law of 1911, 16 experimental areas, and 9 land utilization projects. During the fiscal year, 25,451 timber sales were made. The volume of timber cut from the national forests totalled 4,688,000,000 bd.ft.

This was the highest for any year since the national forests were established.

CHARRED TREES in the Crook National forest, Ariz., one of more than 250 areas destroyed by forest fires in the tinder-dry state during 1950–51

The largest timber sale of the year made by the forest service was in the Tongass National forest in Alaska. The forest service made final award to the Ketchikan Pulp and Paper company on its bid to purchase 1,500,000,000 cu.ft. of timber. The terms of the agreement called for construction in Alaska of a pulp mill of at least 300 tons daily capacity. The sale contract provided for handling of the timber on a sustained-yield cutting plan, safeguarding of salmon spawning streams important to Alaska's fishing industry, prevention of water pollution and preservation of significant scenic values. This timber sale culminated many years of effort by the forest service to bring about the establishment of a pulp and paper industry in Alaska, where large reserves of publicly owned timber, managed for sustained yield, could support such an industry permanently.

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Canada.—Forest conservation week (May 19–26) was celebrated in 1951 on a Canada-wide basis for the first time. The federal government helped inaugurate the week by announcing measures of federal co-operation with provincial governments under the 1949 Canada Forestry act, to include: (1) payment of half the cost of a national forest inventory to assist sustained yield programs; (2) contributing 25% of the cost of provincial reforestation; (3) research into forest protection from fire.

To finance these measures parliament voted $1,025,000 for 1951–52 operations.

Increased importance of cordage—wood too small for lumber—and the sustained demand for pulp and paper products made the prairie provinces examine their forest resources in a new way. Blueprints were completed for a newsprint mill at Edmonton to use northern Alberta cordage, and plans for newsprint mills in northern Saskatchewan and northern Manitoba moved ahead. The Alberta department of agriculture encouraged the planting of 1,200,000 trees on Alberta farms, as part of its scheme to reach a 100,000,000 total by 1975. But the Alberta rate of planting fell considerably short of the rate achieved by the Saskatchewan department of agriculture, which assisted in the 1951 planting of 20,000,000 trees on farms and along highways.

With about 85% of its land still owned by the people, Ontario moved further toward integrated logging and sustained yield by the dropping of the Doyle rule of timber measurement and by the appointment of Howard Kennedy (chairman of the 1946 Ontario royal commission on forestry) as full-time consultant of the department of lands and forests. Other 1951 Ontario developments: pulpwood producers were required to save the larger logs for timber; timber dues for about 1,000 pulp and sawlog companies were sharply increased; a 1,000,000-ac. forest management unit was established near Sault Ste. Marie; $1,306,000 was spent on reforestation and related works; and more than 20,000,000 trees were shipped from provincial nurseries for planting. (C. Cy.)

Great Britain.—Publication in April of a summary report of the census of woodlands of 1947–49 showed the full extent of wartime fellings; 800,000 ac. needed complete restocking. Up to 1951 only about 82,000 ac. were replanted or restocked, about half by the Forestry commission and half by private owners. This great replanting task was being further increased by about 22,000 ac. of new fellings each year, and it was obvious that the rate of rehabilitation of Britain's woodlands continued to be much too slow.

The planting up of new ground, usually a simpler task than rehabilitation, made good progress, particularly in Scotland where forest villages were built to house those who would be employed on the new woodlands. Mechanization of forestry work increased both in nursery operations and in the extraction of timber, but planting continued to be done by hand, the British soil and climate being unsuitable for tractor-hauled planting machines. The thinning of large areas of young coniferous plantations absorbed even more labour than in previous years, and the 1950–51 financial returns showed that the disposal and use of the resulting small timber had become an important industry.

The scheme of dedication of privately-owned woodlands to permanent forest management, which had made slow progress in the previous four years, at last made better headway and about 250,000 ac. were in process of dedication during 1951. Silvicultural research included a study of the history and present condition of the Yorkshire moors in relation to forest potentialities. Research was continued by the Forestry commission on the effects of drainage of peatlands and in the planting of upland heaths.

Commonwealth.—The progress made during previous years in both aerial and ground surveys of the forests of Australia made possible the compilation of maps of the commercial and reserved forest areas throughout the country. These were completed and printed during 1951, and plans for a national inventory of forests were agreed upon at an interstate conference and work began in June. Australia celebrated its jubilee year with a great tree-planting drive. In Queensland large quantities of nursery transplants were issued free to schools, and at a cheap rate to farmers. The Australian public was becoming tree-conscious and this greatly helped in undertaking new measures to suppress bush fires, the Australian forester's greatest problem. New fire-fighting equipment included two-way radio installations to connect the fire lookout towers with the fire-fighting crews and helicopters to take men to fires in remote areas. The opening up of the Dorrigo area forests in New South Wales made Wauchope the state's largest source of timber.

In South Africa the long-disputed question of logging and sawmilling by the state was settled on lines that gave the private sawmiller a fair share in the out-turn from state plantations. Extensive new plantations of conifers were started in Swaziland by the Colonial Development corporation and this entailed important road and bridge construction to open up the country.

The West African colonies found a greatly increased demand for tropical timbers, and the lesser-known timbers had a readier market. Difficulties in the conversion and seasoning of some of these timbers showed the need for further research, and the prevention of damage by sap stain and wood borers was also a difficult problem. Qualified forestry staff was still very short.

The East African Agriculture and Forest Research organization centre in Kenya opened its new headquarters building in April. The heavy fellings of timber in Northern Rhodesia to meet the fuel and construction needs of the copper mines resulted in forming what was probably the largest single area of newly exploited forest in Africa. The Forest department was doing all that was possible to obtain a satisfactory regrowth on the cleared areas, and it was expected that more coal might be available to reduce the heavy demands for wood fuel. The Rondo plateau in Tanganyika and the Mlanje plateau in Nyasaland were both exploited for the first time on a commercial scale, and similar development on the slopes of Kilimanjaro, Tanganyika, was under consideration.

In British Guiana the exploitation of the forests, not long started by the Colonial Development corporation and a number of private firms, led to some public criticism of the methods employed to ensure future replacement. Reports of the good natural regeneration which followed the heavy fellings were, however, more reassuring.

Europe.—In France good progress was made in the regeneration of the large pine forests in the Landes which were destroyed by fire in 1945 and 1947. The burnt timber had been removed and the sowing of maritime pine was supplemented by planting protective strips of other species. In Switzerland the great avalanches in the early months of 1951 devastated about 2,000 ac. of forest and destroyed more than 100,000 cu.m. of standing timber. In spite of a shortage of timber, which kept sawmills from full production, the fellings in both communal and cantonal forests were not allowed to exceed the annual normal growth increment, and timber-using industries were maintained by larger imports.

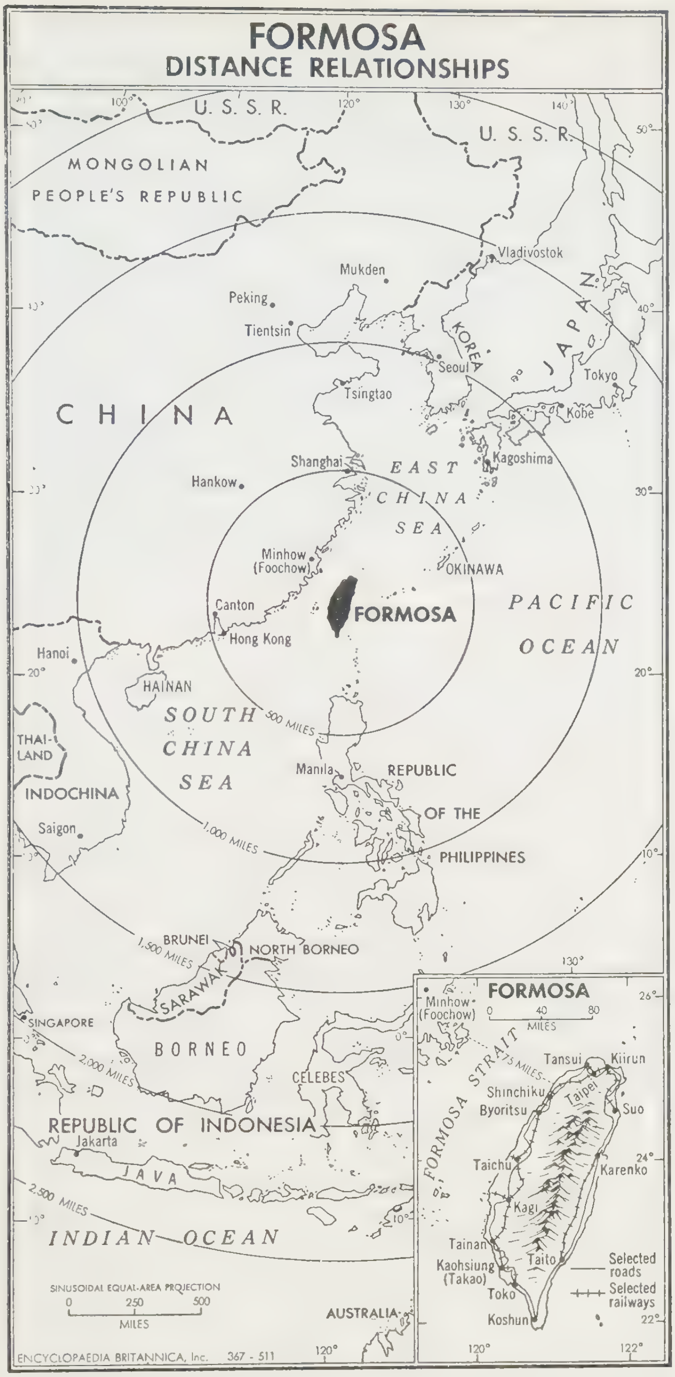
(*See* also LUMBER.) (A. H. LD.)

Formosa

(TAIWAN). Formosa is a large island in the western Pacific, separated from China to the west by the Straits of Formosa and from the Philippines to the south by the Bashi and Balintang channels. Area 13,906 sq.mi., including the Pescadores and 75 neighbouring islands. Population (est. 1951) 10,000,000, including Chinese nationalist troops and refugees from the mainland.

The capital is Taipei (or Taipeh, formerly Taihoku) (pop. 450,777 in May 1950); other municipalities are Kaohsiung (formerly Takao) (275,563); Tainan (229,452); Tai-chung (formerly Taichu) (207,009); and Chi-lung (or Keelung, formerly Kiirun) (145,240). The principal religions are Buddhism, Confucianism and Taoism. K. C. Wu, former mayor of Shanghai, was appointed governor in 1951.

History.—Formosa, the only territory remaining in the control of the Chinese nationalist government after the successful advances of the Chinese Communists, was converted into a nationalist military stronghold in 1949 and 1950. The capital of the nationalist government was moved to Taipei, Formosa's capital, on Dec. 8, 1949. To clarify the position of the U.S. government on the question of giving Formosa aid for its defense against the Chinese Communists, Pres. Harry S. Truman issued a statement on Jan. 5, 1950, which said that the United States would not interfere in any conflict between the Communist and nationalist governments and that the United States would not provide military aid to the nationalist forces on Formosa. As a result of the Communist invasion of the Republic of Korea, President Truman on June 27, 1950, ordered the United States



navy to prevent any Communist attack on Formosa since it would endanger the security of U.S. forces in the far east. At the same time the president called upon the Chinese nationalist government to cease all operations against the Communist-held mainland. He also stated the U.S. government's position that "the determination of the future status of Formosa must await the restoration of security in the Pacific, a peace settlement with Japan, or consideration by the United Nations." To assist the nationalist government in the defense of Formosa, the United States established the U.S. military assistance advisory group on May 1, 1951, under the command of Maj. Gen. William C. Chase.

Education.—In 1949 there were 1,199 primary schools with 900,648 students; 206 intermediate schools (middle, normal and vocational) with 114,616 students; and 6 higher schools (1 university and 5 colleges) with 5,905 students. The literacy rate in 1951 was estimated to be 60%.

Finance.—Upon taking over the administration of the island, the Chinese issued a special currency for Formosa, the Taiwan dollar, based on the former Japanese yen notes. In June 1949 a new currency, the new Taiwan dollar, was issued and the Taiwan dollar was eliminated. A dual exchange-rate system was instituted on April 10, 1951, providing for a foreign exchange certificate rate and an official exchange of 15.95 and 10.30 new Taiwan dollars respectively to U.S. $1.00. Certain transactions on government account, as well as certain specified private transactions, were accorded preferential treatment. On Sept. 30, 1951, the total note issue was about 450,000,000 new Taiwan dollars. Total revenues of the central, provincial and local governments in 1951 were estimated at 1,385,000,000 new Taiwan dollars and expenditures at 2,350,000,000. The deficit was made up from continued liquidation of the government's gold and other assets and from the sale of E.C.A.-financed goods. The E.C.A. program provided for the expenditure of U.S. $98,000,000 in the year ending June 30, 1951. About $80,000,000 was made available by the U.S. in the 1950–51 fiscal year for military assistance.

Trade.—Formosa's chief exports in 1950 were sugar, coal, salt, camphor, tea, rice and fruits. Chief imports were fertilizers, raw cotton and machinery. Japan and the U.S. were Formosa's important trading countries. In 1950 exports amounted to the equivalent of U.S. $72,400,000, of which sugar represented $54,000,000, while imports totalled U.S. $91,600,000, excluding E.C.A. aid. During the first six months of 1951, exports totalled U.S. $54,000,000 and imports totalled U.S. $44,300,000.

Transportation and Communications.—In 1946 there were 981 mi. of government railroads, more than 1,500 mi. of private railroads and 500 mi. of street railways; there were 10,000 mi. of roads of all types of which 2,200 mi. were main highways. In 1939 there were 220 telegraph offices, 195 post offices and 123 telephone exchanges.

Agriculture.—Agricultural production in the 1950–51 crop year in metric tons amounted to: rice (brown) 1,421,800; raw sugar 362,900; tea 6,700; pineapples 26,000; bananas 128,000; citrus fruits 28,800; tobacco 9,600; jute 5,000; sweet potatoes 1,420,000; peanuts 65,000; wheat 12,000; barley 2,000; and fish 64,500. The cultivated area in 1949 was estimated at 2,055,000 ac. or 23% of the total land area.

Industry.—Estimated industrial production in the year ending June 30, 1951, in metric tons amounted to: coal 1,414,000; cement 361,000; paper 19,000; chemical fertilizers 77,000; sulphur 4,500; salt 202,000; cotton yarn 2,155; and cotton cloth 22,000,000 m. About 4,000 troy ounces of gold were mined monthly. Coal reserves were estimated at about 400,000,000 tons.

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(S. NR.)

Foundations: *see* COMMUNITY TRUSTS; DONATIONS AND BEQUESTS; SOCIETIES AND ASSOCIATIONS, U.S.

Four-H Clubs.

Membership of boys and girls in the 4-H clubs of the United States reached 2,000,000, its highest figure, in 1951. Each boy or girl who joins a 4-H club undertakes a project, that is, some farming or homemaking activity to be carried out according to the latest scientific methods at the member's home under the guidance of the county extension agents and the voluntary local leaders trained by the agents. In 1951 the members completed an average of about one and one-half projects per member. The percentage of completed projects had increased slightly each year and reached a little more than 79% of all projects undertaken during 1951. Completion of a project includes doing the actual work involved in growing the crop or animal, in performing the homemaking task or whatever the project comprises, supplemented by keeping records of labour and cost, making an exhibit of the things produced in the project work and writing an account of what was done.

During the year more than 205,000 adults served as voluntary leaders, a considerable number of them former 4-H club members themselves. County extension agents held nearly 59,000 training meetings, helping to prepare these leaders for their work.

The age limits for 4-H club members are usually from 10 to 21 years with some variation in different states. As in previous years, the highest enrolment by age was in the 10- to 14-yr. groups. There was a slight increase in the percentage of members remaining in 4-H club work several years. Forty-eight per cent of the boys and girls who began their club work in 1947 had continued. Membership in the 4-H clubs is voluntary.

Interest of other countries in the methods followed in the conduct of 4-H club work in the United States continued in 1951. Co-operative extension workers and 4-H members in a number of states were visited by 25 representatives of rural youth organizations in eight countries who spent from three to six months studying methods in various parts of the United States. Countries represented were: Belgium, Burma, Denmark, France, Indonesia, Ireland, Norway and the United Kingdom. A number of co-operative extension service employees spent some time in 1951 in other countries, on their invitation, to discuss rural youth extension work.

The 4-H club work is a part of the educational program in agriculture and home economics of the co-operative extension service in which the U.S. department of agriculture, the state agricultural colleges and the county governments participate.

(M. L. W.)

France. Republic of western Europe bounded north by the English channel, northeast by Belgium and Luxembourg, east by Germany and Switzerland, southeast by Italy, south by the Mediterranean sea, southwest by Spain and west by the Atlantic ocean. Area: 213,010 sq.mi., including the Mediterranean island of Corsica (3,367 sq.mi.) and small Alpine territories ceded by Italy in 1947 (273 sq.mi.). Pop.: (1946 census) 40,502,513; (Dec. 1951 est.) 42,400,000. Language: French is almost universally spoken but there are also other regional languages or dialects: German in Alsace and part of Lorraine; Breton in Brittany; Flemish in the northern corner of the Nord *département;* Provençal in the Alpes Maritimes, Basses-Alpes, Var and Bouches-du-Rhône *départements;* Catalan in Roussillon (Pyrénées-Orientales); Basque south of Bayonne; and Italian in Corsica. Religion: mainly Roman Catholic with *c.* 1,000,000 Protestants and more than 230,000 Jews. Chief towns (pop., 1946 census): Paris (cap., 2,725,374); Marseilles (636,264); Lyons (460,748); Toulouse (264,411); Bordeaux (253,751); Nice (211,165); Nantes (200,265). President of the republic: Vincent Auriol (*q.v.*); premiers in 1951: René Pleven, Henri Queuille (from March 9 to July 10) and again René Pleven.

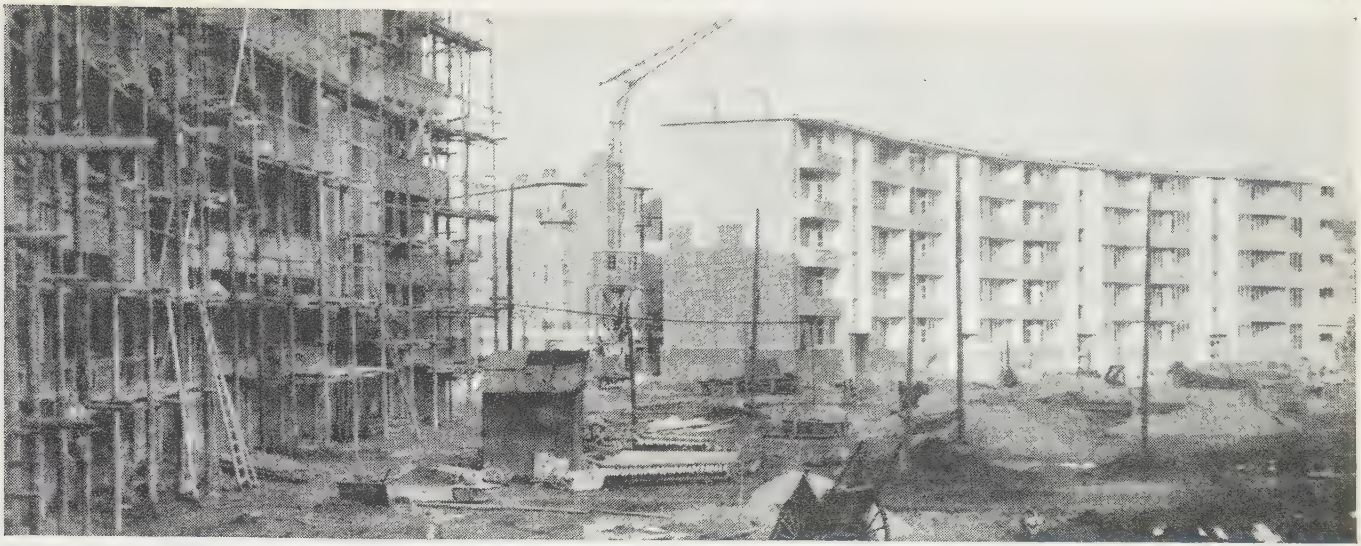
History.—During 1951 France had three governments. René Pleven (Union Démocratique et Socialiste de la Résistance), who had come into office on July 11, 1950, resigned on Feb. 28, 1951; Henri Queuille (Radical) was elected on March 9 and resigned on July 10 as soon as the new national assembly, elected on June 17, had re-elected Edouard Herriot as its president. After an exceptionally long interregnum René Pleven again became premier on Aug. 8 and brought his government before the assembly on Aug. 11. Robert Schuman (Mouvement Républicain Populaire) was foreign minister throughout the year. Queuille was minister of the interior both in the first Pleven cabinet and in his own; Charles Brune (Radical) became minister of the interior under Pleven. Maurice Petsche (Independent) was minister of finance in Pleven's first government and in Queuille's and was succeeded by René Mayer (Radical). Jules Moch (Socialist) was minister of national defense in the first Pleven government and in Queuille's and was succeeded by Georges Bidault (M.R.P.).

There was a certain similarity between the beginning and the end of the year. Pleven was at both times in office and his government was on both occasions coaxing the assembly into passing additional taxation. At either end of the year the police, mobilized in strength, prevented a Communist demonstration in the Avenue des Champs Elysées. But these similarities were deceptive. The victory won over Communist violence in 1950 was maintained in 1951. The only serious outbreak of strikes was at Easter time in both Paris municipal and national transport; there was no degeneration into disorder. The main theme of the year was the attempt to prevent the rise of prices in face of constant inflationary pressure. In this the French government was less successful than those of other member states of the Organization for European Economic Cooperation. A report on inflation issued by the council of that body (Nov. 1951) noted that price increases were 50% higher in France than in other western European countries. The weak position of the successive governments faced with very divided assemblies was no doubt partly responsible for this. René Mayer in November painted a grim picture to the assembly of a budget in prospective deficit, of a deficitary trade balance and a still graver deficit in dollars. But with the U.S. aid increased by $250,000,000 and an energetic attitude on the part of the government the situation looked somewhat more favourable at the beginning of December. The assembly was at least much further advanced with the next year's budget than had been its predecessor which had passed only the national defense section by the New Year and did not get the whole budget for 1951 into law till the night of May 24–25, when it was about to disperse forever. The 1952 budget was also presented in a new form, much clearer and more succinct.

Fall of the First Pleven Cabinet.—Pleven began the year with some successes which might ordinarily have been expected to foreshadow continuance in office. On Dec. 29, 1950, the assembly had approved national defense credits at the new total of 740,000,000,000 fr. by 416 votes to 180 and on Dec. 31 Pleven received four votes of confidence on his rearmament and taxation program. In Jan. 1951 Pleven announced his visit to Washington, D.C. This was at a time when French public opinion was particularly anxious about relations with the United States, being divided between fear of an extension of the war in the far east and that of diverging so far from the U.S. views on the question of German rearmament as to lose some of the benefits of U.S. assistance. The results of the visit to Washington (Jan. 29 and 30) were considered reassuring and more particularly a personal success for Pleven. In February the five-power conference to prepare a plan for a European army as proposed by Pleven in the previous year began to sit in Paris. But in internal politics Pleven was faced with the extremely difficult problem of preparing a new electoral law for elections to be held at the latest in October. This was described by Paul Reynaud, not without good reason, as a necessary measure of national defense. The proportional representation adopted for the elections of 1945 and maintained in 1946 was the system most favourable to a widely scattered party like the Communists and another election on this basis was likely to produce a parliament in which the parties of the republican coalition would be in a minority, as well as the Communists and the Gaullists—in which there would in fact be no majority at all and no possibility of forming a government.

That the country needed an electoral system less favourable to the Communists and more likely to produce a majority was common ground to all the parties of the majority, but there was no agreement as to what that system should be. The Radicals wished for the return of the prewar system; that is, single-member constituencies with a second ballot if no candidate obtained an absolute majority at the first, thus enabling voters to support a second preference if their preference had obviously no chance. The M.R.P. complained that this system too often ended in an anticlerical alliance. They wanted a system with only one ballot and if possible a form of proportional representation. This was comprehensible since the existing system was as favourable to them as to the Communists. Now the M.R.P. and the Communists had together a majority in the assembly. Pleven proposed on behalf of the government to accept as the government's policy any electoral reform scheme approved by the majority of the majority, but unfortunately, because of the division between the M.R.P. and the Radicals, the majority of the majority was only a minority of the assembly. Pleven resigned on Feb. 28 when it became evident that his plan for getting agreement on electoral reform was only splitting the coalition more and more deeply.

Second Queuille Cabinet.—After ten days' negotiation Queuille became premier on March 9 with a program to form a "100 days' government" and hold elections early in June. The two cabinets



HOUSING PROJECT in Suresnes, a suburb of Paris, Fr., designed to accommodate 155 families; it was one of several developments under way in the Paris area in 1951

were practically identical. The reason for holding elections at this date was first of all to wind up the assembly elected on Nov. 10, 1946, which was already so hagridden by the prospect of elections that it could do no useful work, and second to give the new assembly time to get into its stride early enough for the budget of 1952 to be voted by the end of 1951. It was not till May that a compromise bill finally became law. The battle had been so severe that the premier's health gave serious ground for anxiety. The new law provided for the maintenance of the multimember constituencies and voting for lists of candidates. In the Paris area pure proportional representation was maintained; elsewhere it was maintained only if neither one list of candidates, nor a group of lists, which had declared themselves to be in association (*apparentement*), gained an absolute majority. The list or group of associated lists which gained an absolute majority took all the seats, in the latter case dividing them proportionally among the jointly victorious lists. The point of this arrangement was that nowhere had the Communists allies with whom to enter into association, and that the Gaullists, as a result of the nature of their program, could do so only in a small number of departments. This left the advantage of "association" with its hope of an absolute majority (and therefore all the seats in a given constituency) to the parties of the republican majority. The disadvantage of the system was that the ordinary Frenchman expects to compromise in parliament rather than at the polls and was shocked to see anticlerical Socialists, Catholic M.R.P. and Independents (Conservatives) appealing for his vote under a system that was mutually advantageous, even though they maintained their identity and had separate lists. It also seemed odd that a party gaining only 20% of the votes, but forming part of a victorious "association," might win two or three seats whereas an isolated opponent winning 40% of votes might receive none.

Meanwhile the government was faced with one serious outbreak of strikes in the year, which began and ended with Paris passenger transport in March and April but which affected for a few days a large part of the French railways, gas and electricity and some other industries. In the course of these strikes and threats of strikes the national minimum wage was raised from 78 to 87 fr. an hour and the miners received an increase of about 12%.

After a last fortnight of embittered parliamentary business in which Queuille had to fight hard to keep vote-catching items off the agenda the budget in its final form nearly failed to be passed because of a dispute between the M.R.P. and the Socialists as to whether it should or should not include tax relief for Catholic schools (which received no public subsidy).

Meanwhile, after long negotiations and in face of much scepticism in France itself as well as elsewhere, an agreement had been reached on the basis of the Schuman plan with Belgium, the Netherlands, Luxembourg, Italy and Germany for the creation of a European steel and coal "community." In order that the Saar might be included and Germany also participate, the French signature was held to bind the Saar also and France agreed that the Saar should be represented on the assembly by 3 of its 18 seats. The treaty was signed on April 18. (*See* also EUROPEAN UNION.)

The election campaign was calm but the polling was about 78%. The electoral law played strongly in favour of the "associated" parties so that the Socialists and the combined lists of Radicals and U.D.S.R. both lost votes and gained seats. Opinion had changed so profoundly that the election results were compared less with the results of 1946 than with intervening expectations. Thus the M.R.P. was thought to have done well because it did not lose even more to the Gaullists as it would have done in 1947 or 1948, and the Gaullists to have done not so well because they did not sweep 30% of the voters into their net as in the municipal elections three years earlier.

Second Pleven Cabinet.—The elections gave 380 seats to members of the parties which had formed coalitions in the old assembly as against 224 to the two incompatible oppositions, Gaullist and Communist, but there were also 313 deputies from Gaullists to M.R.P. in favour of at last giving some financial assistance to Catholic schools, a proposal bitterly opposed by the Socialists and most of the Radicals as well as the Communists. The friends of the Catholic schools, already deeply committed, insisted that though theirs was not a majority that could govern, since on most other questions it was divided, it must be allowed to express itself in this one issue. The Socialists on the other hand insisted that any government they joined must prevent any breach of the lay school principle. The first consequence of this was that no government could be formed for 29 days after Queuille had resigned and that when Pleven was elected he had to form his government on a minority basis and stand by while the parties he wished to unite behind him tore themselves to pieces over a private member's bill giving about 12,000,000,000 fr. additional appropriation to the state schools in order also to give 4,000,000,000 fr. to the Catholic schools by a system so complicated (so that it might be arguably not a breach of the lay principle) that an administrative formula for putting it into effect had not yet been

"HARD TO KEEP ON THE ROAD," a cartoon by Alexander of the *Philadelphia Evening Bulletin* (Pa.), published in 1951

found in the first week of December.

When this had been voted on Sept. 10 the Socialists avenged themselves with an automatic sliding scale bill which they got through the assembly with the help of Communists and Gaullists. Pleven's cabinet felt too weak to oppose it at this stage and continued the practice of government by self-effacement, hoping to modify it when it returned from the council of the republic (upper house) in December. It was not till the end of September that the new assembly which had begun so inauspiciously, could be persuaded to adjourn.

These weary wrangles were not all France's history at this time. Gen. Alphonse Juin was at last released from his task as resident general of Morocco to assume the post of commander in chief of the North Atlantic treaty forces in the central sector of the European theatre. The government meanwhile had to fight price increases and adjust wages to them. For the second time in the year the basic minimum wage was raised, this time from 86 fr. an hour to 100 fr.—four points above the level required by a rigid interpretation of the index figure. War was opened on butchers, who tried closing their shops in protest against price fixing but finally yielded to the government's policy. The government was at least successful in avoiding strikes which had been expected in the autumn, but the franc was seriously weakened on the free market. In November the bank rate which had been raised from 2½% to 3% in October went up to 4%. Meanwhile the government had taken the unpopular measure of raising the price of both gasoline and tobacco by 20% to provide some immediate revenue for the treasury—a measure that would bring in about 70,000,000,000 fr. in a full year. In November the finance minister, René Mayer, told a depressed assembly that another 200,000,000,000 fr. taxes would be needed and that for lack of dollars the import program from the dollar zone would have to be cut from $850,000,000 to $500,000,000. This cut meant reduced import of coal, petroleum and a number of other raw materials. The whole foreign trade position had been reversed so that exports covered only 64% of imports in the third quarter of the year instead of 81% in the first. A program of austerity to meet the crisis did not gain the government votes. In November it had to be content with a majority of only 247 to 229 with the Socialists and half the Peasant party abstaining. The latter party split a few days later, 20 of its members adopting a new name and passing into the wake of the Gaullist French People's Rally. By the end of the month Mayer was able to announce that the United States had guaranteed an additional $250,000,000 in the U.S. budget year, $130,000,000 being probably available for Indochina but also at least $120,000,000 to increase the import program, especially of coal and petroleum. The favourable vote of the assembly foreign affairs commission on the ratification of the Schuman plan, by 26 votes to 18, gave hope of a consolidation of the government majority.

There was naturally a good deal of speculation in the second half of the year as to whether a centre-right majority could not be formed including the Gaullists and without the Socialists. Although Gen. Charles de Gaulle referred to other parties with greater cordiality than usual at the Nancy congress of his party in November, his claims to leadership, his ungracious references to the U.S. policy and his sharp opposition to both the Schuman and the Pleven plans were felt in most of the non-Gaullist right to make political co-operation still impossible.

On July 23 Henri Philippe Petain, the former marshal, died, still legally a prisoner but no longer in a fortress. Permission to live in an annex to a military hospital (in fact a private house so labelled) was given as soon as the elections were over. The treatment accorded Petain continued to cause bitter dissension, and even four months after his death a requiem mass in Notre Dame provoked a counterdemonstration. (*See* also FRENCH UNION; NORTH ATLANTIC TREATY ORGANIZATION.)

(D. R. GI.)

Education.—(1949–50) Elementary schools: state infant 3,726, pupils 446,947; private infant 188, pupils 23,116; state elementary 69,843, pupils 3,775,775; private elementary 11,028, pupils 886,948; state higher elementary, pupils 192,801; private higher elementary, pupils 58,916; total elementary 84,785, pupils 5,384,503. Secondary schools: boys' 588, pupils 225,000; girls' 395, pupils 187,000; total 983, pupils 412,000. Lower technical and vocational schools numbered more than 220 with more than 200,000 pupils in 1949. Higher education: state universities 17, students (July 31, 1950) 136,744, including 39,056 in the law faculties. There were 10 other state institutions of higher education, 6 free (Catholic) universities and more than 80 state and private institutions of higher technical education.

Finance.—Budget: (1950 est.) revenue 2,218,000,000,000 fr., expenditure 2,217,500,000,000 fr.; (1951 est.) revenue 2,104,000,000,000 fr., expenditure 2,648,000,000,000 fr.; (1952 est.) revenue 3,370,000,000,000 fr., expenditure 3,285,000,000,000 fr. National income (1950) 7,395,000,000,000 fr. Public debt (Sept. 30, 1949): internal 2,662,900,000,000 fr., external 1,181,900,000,000 fr. Currency circulation (Oct. 31, 1951) 1,828,000,000,000 fr. Deposit money (Oct. 31, 1951) 1,723,000,000,000 fr. Official exchange rate: 350 fr.=U.S. $1.

Foreign Trade.—Imports in 1951, including the Saar, were valued at 1,599,000,000,000 fr., compared with 1,072,728,000,000 fr. in 1950; exports in 1951 amounted to 1,480,000,000,000 fr. in 1951, compared with 1,072,644,000,000 fr. in 1950. Main sources of imports (1950): French union 26.2%, U.S. 12.3%, western Germany 6.6%, Australia and New Zealand 5%, Belgium-Luxembourg 4.6%, U.K. 3.7%. Main destinations of exports: French union 36.2%, U.K. 9.2%, western Germany 7.9%, Belgium-Luxembourg 6.4%, Switzerland 5.1%, U.S. 4%.

Transport and Communications.—Railways (1950): 41,272 km. including 4,026 kilometres electrified. Railway traffic (monthly average, 1950): passenger-kilometres 2,200,000,000; goods, ton-kilometres 3,244,000,000; goods transported 12,700,000 metric tons. Roads (1950): 715,696 km. including 80,231 km. of first-class national roads. Motor vehicles licensed (Jan. 1950): 2,295,000 including 572,800 commercial. Navigable inland waterways (1948): 8,488 km.; cargo (monthly average, 1950): loaded 2,986,000 metric tons, unloaded 2,865,000 metric tons. Shipping (Jan. 1951): merchant vessels 733, gross tonnage 3,080,000. Cargo in external trade (monthly average, 1950): loaded 1,562,000 metric tons, unloaded 2,586,000 metric tons. Civil aviation traffic, Air France only (monthly average, 1950): passenger-kilometres 93,200,000; cargo, ton-kilometres 3,900,000. Telephones (Jan. 1950): 2,318,673 including 1,411,678 (60.9%) automatic. Radio receiving set licences (1947): 5,728,000.

Agriculture.—Production (metric tons, 1951): wheat 7,028,000; rye 504,000; barley 1,667,000; oats 3,602,000; maize 612,000; potatoes 12,093,000. Livestock (Sept. 1950): cattle 15,432,000; pigs 6,760,000; sheep 7,480,000; goats 1,288,000; horses 2,414,000. Foodstuff production (metric tons): meat (1949) 1,805,000; butter (1950) 225,000; cheese (1948) 190,000; sugar, raw value (1950) 1,434,000; milk (1949) 125,000,000 hl. France is the world's largest producer and consumer of wine. Wine production in 1951 was 47,329,000 hl., compared with 65,132,000 hl. in 1950. In 1951, 11,000,000 hl. of wine were imported; in

RE-ENACTMENT of the first hydrogen balloon ascent, staged in Paris in July 1951, during celebrations marking the 2,000th anniversary of the French capital

1950 982,000 hl. were exported.

Industry and Production.—Industrial production (metric tons, est. 1951): coal 53,600,000; iron ore (33% metal content) 33,600,000; pig iron 8,640,000; steel ingots and castings 9,720,000; cement 8,100,000; woven cotton fabrics 171,000; cotton yarn 260,000; wool yarn 132,000; rayon filament yarn 56,000; rayon staple fibre 50,000; gas 2,400,000,000 cu.m.; electricity 34,000,000,000 kw.hr. There were 312,000 motorcars and 132,000 trucks produced. In 1950 the number of dwelling units built amounted to 68,050, including 30,120 repaired. The mid-1951 index of employment in manufacturing stood at 117, and the mid-1951 index of industrial production was 131 (1937=100).

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FILMS OF 1951.—*Ageless Paris* (Films of the Nations Distributors, Inc.); *Paris 1900* (Brandon Films, Inc.). (K. SM.)

Franco, Francisco (1892–), Spanish army officer and statesman, was born at El Ferrol, Galicia, Dec. 4. He graduated from the military academy of Toledo in 1910. (For his early career, see *Encyclopædia Britannica.*) On the outbreak of civil war in July 1936 he became leader of the rebels. After a bitter three-year struggle, he emerged as the *caudillo y generalísimo* of Spain. During World War II, although his sympathies were pro-German and anti-soviet, he remained neutral. On June 7, 1947, the *cortes* passed unanimously the Succession act making Spain a nominal kingdom, confirming Franco in office as chief of the state for life and according him the right to nominate his successor.

In a Columbia Broadcasting system interview on Dec. 31, 1950, Franco asked that Spain be included in the west's plans for containing communism, and in March he told Stanton Griffis, the U.S. ambassador, that Spain was ready to send troops to serve under Gen. Dwight D. Eisenhower, supreme commander of the Allied powers in Europe. Despite opposition from Great Britain and France to Spain's inclusion in the North Atlantic Treaty organization, these approaches led in July 1951 to the exploratory mission to Franco of Adm. Forrest P. Sherman, U.S. chief of naval operations.

Franco had to deal in the spring of 1951 with strikes and riots in various parts of Spain caused by seasonal unemployment and rising living costs; penalties imposed on the strikers were remitted by him in October. (R. JAN.)

Franklin Institute: *see* SOCIETIES AND ASSOCIATIONS, U.S.
Freemasonry: *see* SOCIETIES AND ASSOCIATIONS, U.S.
Freer Gallery of Art: *see* SMITHSONIAN INSTITUTION.
French Colonial Empire: *see* FRENCH UNION.

French Equatorial Africa. This federation of four colonies, described since 1946 as overseas territories of the French union, is situated in central Africa and is bounded west by the Atlantic ocean, Nigeria and French West Africa, north by Libya, east by the Anglo-Egyptian Sudan and southeast by the Belgian Congo. The southeastern part of the former German colony of Kamerun (Cameroun), under French trusteeship, is administered with French Equatorial Africa. Areas and populations (1946 census) are: Gabon, area 103,089 sq.mi., pop. 422,904; Middle Congo, area 132,046 sq.mi., pop. 631,151; Ubangi-Shari, area 238,224 sq.mi., pop. 1,065,390; Chad, area 495,752 sq.mi., pop. 2,011,494. Total area 969,111 sq.mi., pop. 4,130,939. Cameroun has an area of 170,230 sq.mi. and a pop. of 2,819,000. In 1950 the total population was estimated at 4,346,000, including 17,440 Europeans (5,825 French); the population of Cameroun was estimated at 3,011,000 including 7,536 French. The natives are mainly Bantu, but the northern savannah districts are peopled by semi-Hamitic semi-Negroid pastoralists. Religion: animism; Moslem 46%; *c.* 280,000 Christians in the Gabon and the Middle Congo. Chief towns: Brazzaville, capital of A.E.F. (Afrique Equatoriale Française) (pop., mid-1949 est., 83,579, including 4,353 Europeans); Bangui (1948 est., 41,000); Fort Lamy (18,300); Libreville (12,600); Yaoundé, capital of Cameroun (1946 est., 50,000). High commissioner in French Equatorial Africa: Governor General Paul Chauvet. Governors: Gabon, Pierre Pellieu; Middle Congo, Hippolyte Le Layec; Ubangi-Shari, Louis Grimald; Chad, Ignace Colombani. High commissioner in Cameroun: André Soucadaux.

History.—The elections of June 17, 1951, brought no important changes in representation of French Equatorial Africa in the French national assembly, except that Chad sent three Gaullist members. The double-college system was kept, with eight deputies for the natives and three for the Europeans.

The financial situation of the territories was thought so precarious as to require a limitation of expenditure. The balance of trade showed a large deficit. Gold production tended to fall because of low prices throughout the world. Cotton, constituting 40% of exports, suffered from the instability of prices; the yield was low, and cultivation impoverished the soil. Output of diamonds, sisal, coffee and tobacco increased. Fisheries provided 1,402 whales in 1950. In Gabon 221,000 metric tons of *okoumé* (light mahogany) came from the forests; but there was a shortage of labour in this territory, and the introduction of workers from Nigeria was still far from proving a success. The road-building program called for revision, as being too ambitious for so vast and so thinly populated a country (in 1950 the density was only 4.5 per square mile). Meat from Chad for Middle Congo had to be transported by air (450 metric tons in 1951).

Cameroun was smaller and development better concentrated—around the ports—so that the territory seemed markedly more prosperous. It was decided to link the western and central regions by a 1,800-m. bridge across the Vouri. At the same time work was begun on a heavy-traffic road to link Douala and Yaoundé via Edéa. The two railways were to be modernized. The Edéa dam on the Sanaga progressed. The port of Douala handled 500,000 metric tons in 1950; it was hoped, with the new quays under construction, to provide seven berths for ships and to handle 1,000,000 metric tons of merchandise.

Education.—Schools (1950) *French Equatorial Africa:* pupils, primary 67,000, secondary 1,200, technical 2,350, bursaries in France 181; *Cameroun:* pupils, primary 128,000, secondary 1,060, bursaries in France 142.

Finance.—*French Equatorial Africa:* budget (1952 est.), balanced at 8,700,000,000 fr. C.F.A. *Cameroun:* budget (1951 est.), balanced at 4,682,000,000 fr. C.F.A. Franc C.F.A. (Colonies Françaises d'Afrique) = metropolitan fr.2. Exchange rate (1951): 350 metropolitan francs = U.S. $1.

Foreign Trade.—(1950) *French Equatorial Africa:* imports 13,393,000,000 fr. C.F.A., including 9,080,000,000 fr. from the French union; exports 7,277,000,000 fr. C.F.A., including 5,340,000,000 fr. to the French union. Principal exports: cotton 2,755,000,000 fr.; timber 1,974,000,000 fr.; coffee 574,000,000 fr.; gold 346,000,000 fr.; diamonds 223,000,000 fr.; almonds and palm oil 320,000,000 fr.; cocoa 110,000,000 fr. *Cameroun:* imports 10,564,000,000 fr. C.F.A., including 8,950,000,000 fr. from the French union; exports 8,190,000,000 fr. C.F.A., including 4,969,000,000 fr. to the French union. Principal exports: cocoa 3,977,000,000 fr.; coffee 1,082,000,000 fr.; bananas 1,022,000,000 fr.; almonds and palm oil 986,000,000 fr.; timber 410,000,000 fr.; rubber 126,000,000 fr.

Transport and Communications.—(1950) *French Equatorial Africa:* railways 512 km., roads 9,000, tracks 29,000; motor vehicles 10,300; ships entered (all ports) 700; aircraft landed 1,026. *Cameroun:* railways 505 km., roads 8,000; motor vehicles 7,000; ships entered 683; aircraft landed 1,072.

See *Encyclopédie Maritime et Coloniale: Afrique Equatoriale Française* (Paris, 1951). (Hu. De.)

French Guiana.

A former French colony on the northeast coast of South America, the status of which was changed in 1946 to that of an overseas *département,* French Guiana has an area, including the territory of Inini (30,301 sq.mi.), of 34,740 sq.mi. Pop. (1946 census) 28,506, including Inini (4,993); (1950 est.) 26,000. The coastal lowland population is Negro or mixed; Inini, aboriginal Indian; Europeans are *c.* 5%. Religion: mainly Roman Catholic. Capital and chief port: Cayenne (pop., 1948 est., 10,961). Prefect: Robert Vignon.

History.—The *département* was divided into two *arrondissements:* that of Cayenne, comprising all the coastal communes; and that of Inini, covering the whole forest of the hinterland, which is almost uninhabited and requires special organization. In the 1951 elections to the national assembly in Paris, the deputy going out, a Socialist, was replaced by a Gaullist. Three Gaullists, three Radicals and one Independent were elected to the local general council. Efforts were made by France toward lifting the *département* out of its stagnation. An Institute of Tropical America was set up at Cayenne. Prospecting for gold and bauxite went on. A wharf was to be constructed. Displaced persons were established at Saint Laurent du Maroni, as well as an ethnographic and medical service responsible for the Indians. Several missions reached the Tumuc Humac region.

Education.—One school per commune; a college at Cayenne.

Finance.—The currency is the metropolitan franc. The exchange rate in 1951 was 350 metropolitan francs per U.S. $1.

Foreign Trade.—(1950): Imports 1,393,000,000 fr., including 1,070,000,000 fr. from the French union; exports 210,000,000 fr. (including gold 160,000,000 fr., timber 24,000,000 fr.).

Transport and Communications.—Roads 36 km.; motor vehicles 250. Movement is almost all by sea and by river. (Hu. De.)

French Guinea: *see* French West Africa.

French India.

This group of four settlements in India has a total area of 193 sq.mi. Pop. (1948 est.): 317,300. The Bengali-speaking Chandernagore (4 sq.mi.; pop. 44,800) was transferred to India on May 2, 1950. The four Tamil-speaking southern settlements are: Pondicherry, area 112 sq.mi., pop. (1948 est.) 222,600; Karikal, area 52 sq.mi., pop. 70,500; Mahé, area 23 sq.mi., pop. 18,300; Yanaon, area 6 sq.mi., pop. 5,900. Chief town and seat of administration, Pondicherry (pop., 1948 est., 22,572). Commissioner: André Ménard.

History.—The treaty yielding Chandernagore to India was ratified on Feb. 2, 1951. Neutral observers were sent by the International Court of Justice to inspect the conditions under which the future referendum would be held in the four settlements. They reported favourably on the French administration.

In the elections of June 17, 1951, a member who had stood for reunion with India was replaced as deputy to the French national assembly by a supporter of the policy of remaining within the French union.

Thanks to imports of rice from Indochina, French India did not suffer from food shortages as independent India did. Its balance of trade showed a surplus. The textile industry provided exports. A new electric generating station, the construction of which was subsidized by France, was opened at Pondicherry.

Education.—Schools (1950): pupils, primary 15,892; secondary 894; higher 79; bursaries in France 21.

Finance.—Budget (1951 est.) balanced at Rs. 9,000,000. Monetary unit: rupee = 73.50 metropolitan francs, or 21 cents U.S. (Hu. De.)

French Indochina: *see* Indochina.

French Literature.

The gradual drift away from the Sartrian school of "engaged" or committed literature, which began to be noticeable just before 1950, found the French literary bark of 1951 headed for the open sea, well outside the comfortable waters of dogma and schools, with no clearly defined currents in sight.

In the domain of the novel, an occasional breaker, such as Julien Gracq's political allegory *Le Rivage des syrtes* (Prix Goncourt), or Pieyre André de Mandriargue's collection of *nouvelles, Soleil des loups* (Prix des Critiques), seemed to augur a resurgence of surrealism; and the excited rediscovery of Victor Hugo by a number of younger critics was accompanied by such echoes of 19th-century romanticism as Anne de Tourville's *Jabadao* (Prix Fémina) or Marcel Schneider's *La Première île.* Quite unexpectedly (his own translation of an earlier work, *Murphy,* having attracted little attention when it had appeared a few years before), the Irishman Samuel Beckett, long a French resident, leaving well behind him the relatively indulgent "blackness" of his immediate progenitors James Joyce, Franz Kafka and Jean-Paul Sartre, made a considerable stir with two books written in French, *Malloy* and *Malone meurt.* By means of a brilliantly directed technique of assertion and retraction, these books expressed human personality in terms of semiconscious and frequently cloacal babble. There was little indication, however, despite the high praise accorded in certain critical circles to both works, that they would attract disciples among native French writers. Robert Margerit's *Le Dieu nu* (Prix Théophraste Renaudot) offered a purely psychological analysis in the 18th-century tradition. Louise de Vilmorin's two popular little tales, *Julietta* and *Madame de,* the latter high on several prize lists, were finely executed vignettes of the contemporary Parisian *mondaine.*

Even the most exacting critics conceded that there was evidence of greater attention to style, increased variety of theme and treatment and, above all, a more abundant output of well-written novels than at any time since 1945. Among more than 30 that received favourable critical attention may be mentioned: *Cherchant qui dévorer,* by Luc Estang; *Rage blanche,* the second volume of Jean Hougron's Indochinese trilogy; *Les Fruits du Congo,* a story of childhood fantasy by Alexandre Vialatte, the French translator of Franz Kafka; and *La Clé,* by Yassu Gauclère (Prix Sainte-Beuve). The year 1951 also saw the appearance of new novels by a number of representative older writers—Claude Farrère, Pierre Benoit, André Maurois, François Mauriac, Jules Romains, Georges Duhamel, Paul Morand

and others—also the publication of the complete works of Colette, Valery Larbaud, François Mauriac, André Maurois, Jacques Chardonne and Jean Genêt. A review entitled *Roman,* entirely devoted to the problems of the novel, was being edited from Vence. In other words, *roman pas mort,* despite the evident passing of the so-called *roman noir.*

For the poets, despite the unusual event of a poets' congress (held in Belgium under the auspices of the *Journal des poètes,* with Jean Cassou presiding), the year was more one of probing recapitulation than inspiration. In addition to a collection of his own prewar poems, Paul Eluard published an original *Prèmiere anthologie vivante de la poésie du passé;* Jules Supervielle in *Naissances* and René Char in *A une Sérénité crispée* sought to penetrate the secrets of poetic creation; finally, Pierre Reverdy and Pierre MacOrlan were enshrined in volumes 25 and 26 of Pierre Seghers' excellent series *Poètes d'aujourd' hui.* Under the title *Poètes contemporains,* Léon-Gabriel Gros published a volume of essays on the work of about 15 poets who may be said to have marked the second quarter of the century. Among works by the much younger poets, *Air,* by André du Bouchet, and *Langue morte,* by Alain Bosquet, revealed authentic talents.

In the French theatre 1951 seemed likely to be remembered as the year of Jean-Paul Sartre's *Diable et le Bon Dieu* and Jean Cocteau's *Bacchus,* both set in the Germany of the Reformation and both presenting, in dramatic form, the essence of these authors' philosophy. This was also true of Georges Schéhadé's tenderly poetic *Monsieur Bob'le,* with the difference that the latter play was set against a purely imaginary background. *Colombe,* by Jean Anouilh, and *Lorsque l'enfant paraît,* by André Roussin, were among the better new plays of the year.

The list of essays was not so long as in preceding years. It contained, however, a number of important titles: *Petite préface à toute critique,* by Jean Paulhan; *Les Voix du silence,* by André Malraux (a greatly revised version of his *Musée imaginaire*); Albert Camus' much discussed *L'Homme révolté,* and a posthumous study by Simone Weil, *La Condition ouvrière.* Among the philosophers, Jean Wahl published a volume of his Sorbonne lectures on *La Pensée de l'existence;* Gaston Bachelard discussed *L'Activité rationaliste de la physique contemporaine;* Louis Lavelle discussed sainthood in a volume entitled *Quatre saints,* and the German-born Eric Weil brought out an authoritative volume, *Hegel et l'état,* in addition to his doctor's thesis entitled *Logique de la philosophie.* Among the numerous works in the related fields of aesthetics, psychology, sociology, ethnology, history and the sciences, the following of immediate, topical interest were much discussed: *Visa pour Moscou,* by Michel Gordey; *Réflexions politiques* (1932–1952), by Hubert Beuve-Méry, editor of *Le Monde; La Guerre en question,* by Jules Monnerot; *Les Guerres en chaine,* by Ramond Aron; *Où va le peuple américain?* (vol. II) by Daniel Guérin; and *La Chine,* by Jean-Jacques Brieux.

The death of André Gide was marked by a special memorial issue of the former *Nouvelle revue française* (of which he was a founder), also by several other volumes of appreciation and reminiscences. His intimates could only deplore the fact that an unauthorized commercial distribution of the fragment of his *Journal* that touched upon his marriage (under the title *Nunc manet in te*), should have surrounded his death with much the same atmosphere of scandal and dissension that had so frequently surrounded him in life.

More than a dozen well-edited literary reviews and weekly newspapers continued to promote discussion and criticism. (*See* also LITERARY PRIZES.)

FILMS OF 1951.—*Balzac* (A. F. Films, Inc.). (M. JOL.)

French Overseas Territories: *see* FRENCH UNION.

French Pacific Islands: *see* PACIFIC ISLANDS, FRENCH.

French Union.

With the establishment, by the constitution of 1946, of the French union, in which are comprised both the mother country and the former empire, the old colonial terminology was abolished and for the colonies were substituted four categories of overseas regions. The older, completely assimilated colonies claimed recognition as French *départements* administered as in the mother country; the others became overseas territories (*territoires d'outre-mer*) which henceforward would elect representatives to parliament and would have their own local assemblies possessed of wide powers; the trust territories, to be known in future as *territoires associés,* were similar in structure to the overseas territories and had the same electoral privileges; lastly, there were the former protectorates, now styled *états associés,* which could belong to the union only by an act of voluntary accession. Total area of the overseas territories of the French union: approximately 4,587,890 sq.mi.; total population (1948 est.): 78,700,000. Certain essential information on the component parts of the French union is given in the table. (*See* also separate articles.)

History.—The constitutional organs that cover at the same time the French republic and the associated states were by 1951 set up. On Nov. 29 the high council met for the first time in Paris, with Viêt-Nam, Cambodia and Laos taking part. The assembly of the union continued to demand real powers instead of the purely consultative function that it in fact had. Albert Sarraut, a former prime minister and colonial minister, became president of this assembly in the place of Jacques Fourcade, who had been elected deputy.

Tunisia and Morocco still refused to take part in these institutions, which they thought prejudicial to their independence. In Tunisia the Neo-Destour party joined the government in order to obtain reforms tending toward autonomy. In Morocco the intransigence of the Istiqlal led to conflict with the resident general, and the sultan had to disown the nationalists.

On May 24, the French national assembly (for France and the overseas *départements* and territories) voted an electoral law giving the territories the right to 43 deputies (1 for every 800,000 inhabitants) and enlarging the number of electors by admitting heads of families who pay taxes and mothers of two children. Including Algeria and the *départements,* overseas deputies in 1951 numbered 80. The elections of June 17 resulted in a strengthening of the parties of the centre and the right, as in France. The Algerian elections were contested by the nationalist parties. In French West Africa the Rassemblement Démocratique Africain lost seats and renounced its Communist affiliation.

Administration was still divided between the ministry of the interior (Algeria and the overseas *départements*), the ministry of foreign affairs (Tunisia and Morocco), the ministry for France overseas (the territories) and the ministry for associated states (Viêt-Nam, Cambodia and Laos).

French Union

Country and area, sq. mi. (approx.)	Population* (000's omitted)	Capital, status, governors, rulers, etc.
AFRICA		
Algeria, 846,124	8,900	Algiers, group of three *départements, Governor General:* Roger Leonard.
Morocco, 153,870	8,410	Rabat, protectorate, *Sultan:* Sidi Mohammed ben Youssef III; *Resident general:* Gen. Augustin Guillaume.
Tunisia 48,332	3,475	Tunis, protectorate, *Bey:* Mohammed el-Amin; *Resident general:* Louis Périllier.
French West Africa, 1,805,287	16,375†	Dakar, group of territories, *High commissioner, governor general:* Bernard Cornut-Gentile.
Mauritania, 364,092	524	Saint-Louis, overseas territory, *Governor:* Marie Rogué.
Senegal, 81,081	1,994	Saint-Louis, overseas territory, *Governor:* Camille Bailly.
Sudan, 461,389	3,137	Bamako, overseas territory, *Governor:* Edmond Louveau.

INDOCHINESE FARMERS ordered by the government to speed the harvesting of rice crops in the summer of 1951 to safeguard the national staple in the event of a communist invasion

French Union (Continued)

Country and area, sq. mi. (approx.)	Population* (000's omitted)	Capital, status, governors, rulers, etc.
AFRICA (Continued)		
Upper Volta‡, 121,892	3,044	Ouagadougou, overseas territory, *Governor:* Albert Mouragues.
Ivory Coast, 129,807	2,031	Abidjan, overseas territory, *Governor:* Lucien Gay.
French Guinea, 108,455	2,130	Conakry, overseas territory, *Governor:* Paul Siriex.
Niger, 493,822	2,041	Niamey, overseas territory, *Governor:* Jean Toby.
Dahomey, 44,749	1,474	Porto Novo, overseas territory, *Governor:* Charles Bonfils.
Togoland, 21,235	998	Lomé, trust territory, *Commissioner:* Yves Digo.
Cameroun, 170,230	3,006	Yaoundé, trust territory, *High commissioner:* André Soucadaux.
French Equatorial Africa, 969,111	4,131‡	Brazzaville, group of territories, *High commissioner, governor general:* Paul Chauvet.
Gabon, 103,089	423	Libreville, overseas territory, *Governor:* Pierre Pellieu.
Middle Congo, 132,046	631	Brazzaville, overseas territory, *Governor:* Hippolyte Le Layec.
Ubangi-Shari, 238,224	1,065	Bangui, overseas territory, *Governor:* Louis Crimald.
Chad, 495,752	2,011	Fort Lamy, overseas territory, *Governor:* Ignace Colombani.
French Somaliland, 8,376	60	Jibuti, overseas territory, *Governor:* Numa Sadoul.
Madagascar and dependencies, 228,589	4,430	Antananarivo, overseas territory, *High commissioner, governor general:* Robert Bargues.
Comoro archipelago, 849	142	Dzaoudzi, dependency, *Administrator:* Pierre Coudert.
Réunion, 970	255	Saint-Denis, overseas *département, Prefect:* Roland Béchoff.
AMERICA		
Saint-Pierre and Miquelon, 93	5	Saint-Pierre, overseas territory, *Administrator:* Alain Alaniou.
French Guiana, 34,740	26	Cayenne, overseas *département, Prefect:* Robert Vignon.
Guadeloupe, 686	289	Basse-Terre, overseas *département, Prefect:* Maurice Philipson.
Martinique, 427	273	Fort-de-France, overseas *département, Prefect:* Christian Laigret.
ASIA		
French India, 193	317†	Pondicherry, overseas territory, *Commissioner:* André Menard.
State of Viêt-Nam, 126,608	23,093	Saigon, associated state, *Ruler:* Bao Dai; *High commissioner, commander in chief:* Gen. Jean de Lattre de Tassigny.
Cambodia, 69,866	3,296	Pnom-Penh, associated state, *King:* Norodom Sihanouk; *Commissioner:* vacant.
Laos, 89,320	1,214	Vientiane, associated state, *King:* Sisavang Vong; *Commissioner:* Miguel de Pereira.
OCEANIA		
New Caledonia and dependencies, 7,654	50	Nouméa, overseas territory, *High commissioner for the Pacific Islands:* Raoul Angammare.
New Hebrides, 4,633	49	Vila, Franco-British condominium, *High commissioner:* Pierre Anthonioz.
French Pacific Islands, 1,545	60	Papeete, overseas territory, *Governor:* René Petitbon.

*1950 est. if not otherwise stated.
†1948 est. ‡1946 census.

Considerable sums of money were assigned to industrialization and development in overseas countries, whether under the Monnet plan in the case of North Africa or by the Investment Fund for Economic and Social Development (F.I.D.E.S. or Fond d'Investissement pour le Développement Économique et Social). The latter, which was devoted to the territories, had by 1951 invested 250,000,000,000 fr., of which a large proportion was derived from France and the remainder from the territories themselves or from the European Recovery program. Two-thirds of this money went to installations: harbours (notably that at Abidjan, French West Africa, inaugurated during the year), roads, railways, electricity, town planning. A new tendency toward limiting credits for roads so as to be able to increase production was remarked. Expenditure on social services (education and health) accounted for 10% of the investments.

See H. Deschamps, *L'Union Française: histoire, institutions, réalités* (Paris, 1951–52); Ministère de la France d'Outremer, *L'Equipment des territories français d'outremer* (Paris, 1951). (Hu. De.)

French West Africa. This group of eight colonies, described since 1946 as overseas territories of the French union, is situated in western Africa and is bounded west and south by the Atlantic ocean, north by the Spanish Sahara, the southern territories of Algeria and the Fezzan, and east by Chad and Nigeria. The eastern part of the former German colony of Togo, under French trusteeship, is administered with the A.O.F. (Afrique Occidentale Française). Areas and populations are:

	Area (sq. mi.)	Population (1936 census)	(1948 est.)
Mauritania	364,092	383,000	524,000
Senegal	81,081	1,791,000	1,994,000
Sudan	461,389	3,569,000	3,137,000
Upper Volta*	121,892	—	3,044,000
Niger	493,822	1,747,000	2,041,000
Ivory Coast	129,807	3,850,000	2,031,000
French Guinea	108,455	2,011,000	2,130,000
Dahomey	44,749	1,351,000	1,474,000
Total	1,805,287	14,702,000	16,375,000
Togoland	21,235	781,000	953,000

*Territory of Upper Volta was formed on Jan. 4, 1947, from parts of Sudan, Ivory Coast and Niger.

The population is mainly Negro, but in the savannah lands there is some Arab and Berber admixture. Pop.: European (1948), 51,760 (including about 40,000 French) in the A.O.F., 841 in Togoland. Religion: animists estimated at 53.4%, Moslems 44.2% and Christians 2.4%. Chief towns (pop., 1948 est. if not otherwise stated): Dakar, capital of the A.O.F. (1951 est., 330,000); Saint Louis (62,900); Bamako (70,492); Conakry (38,000); Abidjan (36,000); Porto Novo (31,000); Lomé, capital of Togoland (30,100). High commissioner in the A.O.F.: Gov. Gen. Bernard Cornut-Gentile. Governors: Mauritania, Marie Rogué; Senegal, Camille Bailly; Sudan, Edmond Louveau; Upper Volta, Albert Mouragues; Niger, Jean Toby; Ivory Coast, Lucien Gay; French Guinea, Paul Siriex; Dahomey, Charles Bonfils; Togoland, Yves Digo.

History.—The elections on June 17, 1951, to the French national assembly in Paris were notable for an advance made by the moderate elements. Out of 21 seats, the extremists of the Rassemblement Démocratique Africain (which shortly before had renounced its Communist affiliation) got only 2; their leader, Félix Houphouet-Boigny, was re-elected in the Ivory Coast. Lamine Gueye, a Socialist deputy and the president of the French West African grand council, was thoroughly beaten in Senegal. All the deputies were natives.

In Togoland the Parti Togolais du Progrès was clearly ahead of the Comité de l'Union Togolaise, which supported Ewé autonomy. In the permanent consultative commission for Togo affairs all the delegates from French Togoland opposed the setting up of an Ewé state and the unification of the two Togolands.

On his being elected deputy, High Commissioner Paul Béchard was succeeded by Cornut-Gentile.

On Feb. 5 the harbour of Abidjan, capital of the Ivory Coast, was inaugurated. Abidjan is the terminus of the Ivory Coast and Upper Volta railway and is also the centre of the coastal lagoons which, on completion of two canals, would connect 300 km. of coast.

Town planning operations (avenues, squares, skyscrapers and water supply) changed the appearance of Dakar and prepared for the extension of the Grand Dakar. In 1951 there were 330,000 inhabitants (*cf.* 131,000 in 1939), including 30,000 Europeans. Reckoned by the number of ships entering, Dakar was the third port of the French union, after Marseilles and Le Havre.

New mineral deposits were found: copper at Akjoujt (Mauritania); high-grade iron at Fort Gouraud (Mauritanian Sahara); and tin in the Air (a Saharan region of the Niger).

Education.—*French West Africa:* Schools (1950): state, primary 827, pupils 99,000; secondary 66, pupils 6,610; technical, pupils 1,200; private 237, pupils 33,000; higher Institut des Hautes Etudes de Dakar; bursaries in France 900. *Togo:* pupils elementary 37,000, secondary 700, technical 200.

Finance.—Budget (1951 est.): *French West Africa:* balanced at 27,234,000,000 fr. C.F.A. *Togo:* balanced at 650,000,000 fr. C.F.A. Franc C.F.A. (Colonies Françaises d'Afrique) = metropolitan Fr. 2. In 1951, 350 metropolitan francs = U.S. $1.00.

Foreign Trade.—*French West Africa:* (1950): imports 42,400,000,000 fr. C.F.A., including 31,930,000,000 fr., from the French union; exports 31,000,000,000 fr. C.F.A., including 24,540,000,000 fr. to the French union. Principal exports: groundnuts, oil cake and groundnut oil 11,550,000,000 fr.; palm kernels and palm oil 3,000,000,000 fr.; coffee 7,000,000,000 fr.; cocoa 4,600,000,000 fr.; bananas 1,000,000,000 fr.; timber 650,000,000 fr. *Togo:* imports 1,600,000,000 fr. C.F.A., including 1,070,000,000 fr. from the French Union; exports 1,500,000,000 fr. C.F.A., including 860,000,000 fr. to the French union.

Transport and Communications.—*French West Africa and Togo* (1950): Railways 4,370 km.; roads 79,000 km., including only 25,000 km. passable to vehicles in all weathers. Ships entered (all ports) 3,944. (HU. DE.)

Frequency Modulation: *see* FEDERAL COMMUNICATIONS COMMISSION; RADIO.

Friends, Religious Society of.

In 1951 there were almost 180,000 Friends (Quakers) of whom considerably more than half were in the United States. According to the American Friends Fellowship council report of 1951, 100 new meetings had been established in the United States in the previous 14 years. Organized into Yearly Meetings (53 throughout the world) Friends represented somewhat varying views, but all shared a belief in "the inner Divine Light" which is in every man. During 1951 there were increasing evidences of a feeling of unity among all Friends, shown particularly by the enthusiastic preparation for a world conference of Friends to be held in Oxford, Eng., in 1952.

There were in 1951 three outstanding events that showed the Quaker concern for international peace.

In May there was published an official report of a mission of four U.S. Quakers to Yugoslavia which had taken place in Sept. and Oct. 1950. Sent by the American Friends Service committee, this delegation spent five weeks in Yugoslavia. It was an informal visit to observe social and economic conditions, to talk with government officials and ordinary citizens and to make a genuine, friendly contact between Yugoslavia and the west.

Also early in May the American Friends Service committee published a 64-pp. pamphlet, *Steps to Peace; A Quaker View of U.S. Foreign Policy,* prepared by a working committee of 15. There were 95,000 copies printed and distributed. The pamphlet offered a critical analysis of U.S. foreign policy and recommended methods other than armaments and force to resolve the east-west conflict. It specifically urged that more persistent attempts be made toward negotiating differences both within and without the United Nations; that more effort be devoted to a program of universal disarmament; and that a program of mutual economic aid under U.N. direction be developed.

In July a group of members of London Yearly Meeting visited the U.S.S.R. Responding to an invitation from the Soviet Peace committee, these Friends spent two weeks visiting Moscow, Kiev and Leningrad. On July 26 they had a three-hour interview with Jacob Malik, soviet deputy foreign minister, and presented him with a seven-point plan for peace containing suggestions for reconciliation between the Soviet Union and western governments.

During the year the American Friends Service committee received two notable gifts to aid its program, one from a private and one from a governmental agency. The Ford foundation gave the committee two substantial grants for use in its world-wide program of education and reconciliation. The Technical Cooperation administration of the U.S. department of state contributed $150,000 to help finance a "pilot project" in social and technical assistance in the state of Orissa, Ind. The Service committee would work there with the local government in carrying out a program for improved agricultural methods, public health and sanitation and village industry. (*See* also CHURCH MEMBERSHIP.) (LY. W. R.)

Fruit.

The 1951 U.S. deciduous fruit crop was 10% more than that of 1950 and 6% in excess of the 1940–49 average. Grapes and sour cherries set new production records; only peaches, prunes, sweet cherries and apricots were below average. Some commercial apples, clingstone peaches and plums were abandoned, either because of small size, market agreements or high harvest costs. A 1951–52 citrus crop of about 7,300,000 tons was indicated, a decrease in grapefruit and an increase in oranges giving a total 3% less than in 1950–51.

Canned fruit available to civilians was estimated at 6% less than in 1950, but frozen and dried fruit and canned juices, of which there was a good carry-over, were abundant. Prices, particularly for most fresh and canned fruits, tended to be higher than in 1950 by 5% or more. Exports of fruit from the U.S. in 1950–51 totalled 1,465,000,000 lb., about half to Canada and more than one-fourth to European Recovery program participating countries.

Apples.—The United States 1951 commercial apple crop of 112,935,000 bu. was 3% above average but small compared with 123,126,000 bu. in 1950 and 133,742,000 bu. in 1949. About 7% of the crop, or 8,399,000 bu., were abandoned because of small size and low prices in relation to harvesting costs.

The Delicious variety, with 16% of the total as compared with 23% in 1950, nevertheless remained the leader; other leading varieties, in order of production, were: McIntosh, Winesap, Jonathan, Rome Beauty and Stayman.

World apple production for 1951–52 was estimated at 575,000,000 bu., 15% down compared with 675,000,000 bu. in the preceding year, but above the prewar average of 498,000,000 bu. The European crop was estimated at 390,000,000 bu., compared with 480,000,000 bu. in 1950. The apple crop of Great Britain was about 40% larger than in 1950, whereas the Japanese crop was 40% less than in the preceding year.

Apricots.—The U.S. 1951 commercial apricot crop of California (168,000 tons), Washington and Utah was a small one of 180,600 tons, compared with 215,100 tons in 1950 and a 1940–49

Table I.—*U.S. Commercial Apple Production by Leading States*

(In thousands of bushels)

State	951	1950	Average, 1940–49	State	1951	1950	Average, 1940–49
Washington . .	20,034	35,532	28,469	New Jersey . .	3,200	2,520	2,455
New York . . .	18,095	18,700	14,007	Oregon . . .	2,242	2,940	2,788
Virginia . . .	10,064	12,580	9,331	Idaho	1,701	1,360	1,782
Michigan . . .	9,085	7,020	6,850	Connecticut . .	1,568	1,406	1,206
California . . .	8,625	6,748	7,960	Indiana	1,434	1,020	1,292
Pennsylvania .	8,200	6,930	7,168	Colorado . . .	1,292	903	1,511
Ohio	4,400	3,534	3,598	Missouri . . .	1,280	1,020	1,213
Illinois	3,740	2,852	3,117	Maryland . . .	1,200	1,352	1,441
West Virginia .	3,654	4,260	3,779	Maine	1,154	1,391	788
Massachusetts .	3,516	3,825	2,537	Vermont. . . .	1,080	972	695

Table II.—*U.S. Orange Production by States*

(In thousands of boxes*)

State	1951	1950	Average, 1940-49
Florida			
Early and midseason	40,000	36,800	25,050
Valencias	32,500	30,500	21,020
Tangerines	5,000	4,800	3,890
California			
Navels and miscellaneous	15,400	14,610	18,273
Valencias	28,000	30,500	29,923
Arizona			
Navels and miscellaneous	425	650	466
Valencias	600	750	439
Texas			
Early and midseason	250	1,800	2,260
Valencias	100	900	1,356
Louisiana	50	300	308

*Boxes hold 77 lb. in California and Arizona; 90 lb. in other states.

average of 220,120 tons. Only 6,700 tons were processed as dried apricots as compared with 14,200 tons in 1950. World apricot production was 5% less than in 1950.

Avocados.—Production by new trees and more favourable weather gave a large 1951 avocado crop in California and Florida of 36,000 tons, compared with 27,900 tons in 1950 and only a 19,153-ton average for 1940–49.

Bananas.—This fruit was imported into the U.S. in 1950–51 in the amount of 50,303,000 bunches, valued at $55,553,000; comparative data for 1949–50 were 53,788,000 bunches and $55,933,000.

Cherries.—The 1951 U.S. commercial cherry crop of 235,610 tons was substantially in excess of the 1940–49 average of 185,814 tons, but slightly below the 241,730 tons of 1950. The sour cherry crop was 162,001 tons, a new high record slightly exceeding the previous (1950) record of 159,850 tons and greatly exceeding the 94,860-ton average for 1940–49. Sweet cherries, produced largely in the Pacific coast states, because of damage by late spring frost, amounted to 73,410 tons, less than the 81,880 tons of 1950 or the 1940–49 average of 90,954 tons.

The world cherry crop of 1,162,000 tons was 2% more than in 1950 and 14% above the prewar average.

Cranberries.—The 932,500-bbl. cranberry crop of 1951 was moderately smaller than the 984,300 bbl. of 1950 but exceeded the 728,200-bbl. average of the previous decade. Massachusetts produced more than 60% of the total, Wisconsin about 20%.

Dates.—The California date crop of 17,000 boxes (of 70 lb. net) in 1951 exceeded the 15,060 boxes of 1950 and was far larger than the 10,773 boxes average of 1940–49.

Figs.—The 1951 California crop amounted to 29,200 tons of dried figs and 14,000 tons for canning or preserving, both larger than the small crop of 1950, but less than the 1940–49 average of 33,150 tons dried and 16,100 tons not dried. The small Texas crop of 230 tons for preserving compared with 886 tons, the average for 1940–49.

The dried fig pack of the leading commercial producing countries was estimated at 171,500 tons, 14% below the 1940–49 average and compared with 182,200 tons in 1950. United States imports in 1950–51 of 5,000 tons were double the average.

Grapefruit.—The grapefruit crop, about seven-eighths of it from Florida, was estimated at 40,690,000 boxes, compared with 46,580,000 boxes in 1950 and the 50,852,000 boxes average for 1940–49. The Texas crop, because of a disastrous freeze in February, dropped to 250,000 boxes against 7,500,000 in 1950. The price to growers was estimated at 96 cents per box, compared with $1.09 in the preceding year.

Table III.—*U.S. Peach Production by Leading States*

(In thousands of bushels)

State	1951	1950	Average, 1940-49	State	1951	1950	Average, 1940–49
California	35,670	29,668	30,169	Ohio	1,044	927	878
South Carolina	6,474	468	3,799	Utah	983	130	763
Georgia	4,725	875	4,790	Washington	810	135	2,387
North Carolina	3,024	548	2,158	Michigan	728	4,800	3,607
Pennsylvania	2,352	2,194	2,029	Maryland	722	563	563
New Jersey	2,116	1,810	1,498	Alabama	644	440	1,309
Virginia	1,950	837	1,572	West Virginia	607	557	539
New York	1,312	1,023	1,285	Missouri	602	950	752
Arkansas	1,296	1,980	2,206	Oregon	528	325	657
Texas	1,189	783	1,777	Oklahoma	507	378	471

Grapes.—The U.S. 1951 grape crop was the largest on record, 3,280,900 tons, compared with 2,707,400 tons in 1950 and 2,797,000 tons average in 1940–49. The record California crop of excellent quality and 3,107,000-ton size was 28% larger than the 1950 crop and 19% above average whereas the Great Lakes area output was only about half as large as in 1950. Prices were less than two-thirds those of 1950. Raisin production of 227,000 tons was 47% larger than in 1950 but 12% below average.

The indicated 1951 world grape crop of 35,300,000 tons was 2% less than in 1950 and 4% less than prewar; the European crop was 23,500,000 tons against 24,800,000 tons in 1950. Of the total, 29,000,000 tons or 82% was exported to be used for wine, 12% for table use and 6% for raisins.

Raisin production outside the U.S. was indicated as 214,600 tons, compared with 241,200 tons in 1950. Turkey and Iran were the leading producers, each with about one-fourth of the total.

Lemons.—The California lemon crop of 1951–52 was indicated at 12,900,000 boxes, approximating the average for the decade but less than the 13,400,000 boxes of 1950–51. Prices were slightly higher than in 1950.

Limes.—The Florida crop for 1951 was indicated at 260,000 boxes, compared with 280,000 boxes in 1950 and an average for 1940–49 of 184,000 boxes. Prices were up about 20%, compared with 1950.

Olives.—California in 1951 produced a large olive crop of 67,000 tons, 60% more than in 1950 and 36% above average. The Spanish pickled olive pack for export gave early indications of being a record one, about 80% above average.

Oranges.—Conditions as of early December were generally favourable and the indicated 1951–52 crop of 117,325,000 boxes was slightly more than the 116,810,000 boxes of 1950 and substantially exceeded the 1940–49 average of 99,096,000 boxes. The season average price to growers was estimated at $1.43 per box compared with $1.96 in the previous year.

The Australian 1951–52 citrus crop was forecast as smaller than the 4,002,000 boxes of the previous year.

Tangerines.—The Florida crop for 1951–52 was indicated at 5,000,000 boxes; in 1950 there were 4,800,000 boxes and the 1940–49 average was 3,890,000 boxes.

Peaches.—The 1951 U.S. peach crop of 70,265,000 bu. was 1% below the decade average but 31% larger than the small 1950 crop. However, the regional distribution was very different, the southern peach states having a crop about 300% larger than in 1950 and the north central states having a crop only one-third of that of 1950.

World production was indicated at 109,000,000 bu., 20% more than in 1950 and 25% above prewar. Dried peach production of 12,300 tons was only half as large as the 1940–49 average.

Plums and Prunes.—A 1951 plum crop of 101,800 tons was about 23% above 1950 and average; California produced 97,000 tons against 177,000 in 1950; Michigan was a low second producing area.

The prune crops of Oregon, Idaho and Washington, mostly sold fresh, canned and frozen, was 95,500 tons, compared with 45,900 tons in 1950.

Table IV.—*U.S. Pear Production by Leading States*

(In thousands of bushels)

State	1951	1950	Average, 1940–49	State	1951	1950	Average, 1940–49
California				Michigan	1,035	812	774
Bartlett	13,418	12,668	10,534	New York	1,024	1,066	850
Other	1,917	1,500	1,458	Pennsylvania	358	359	342
Washington				Georgia	355	234	375
Bartlett	4,290	3,950	5,334	Texas	312	270	385
Other	1,584	1,753	1,820	Illinois	306	244	379
Oregon				North Carolina	297	150	266
Bartlett	2,170	1,896	1,964	Virginia	292	121	297
Other	2,850	3,871	2,825	Ohio	234	205	274

The U.S. dried prune crop of 184,900 tons was slightly below average but well above the 149,000 tons of 1950; California was credited with 181,000 tons. Exports of dried prunes from the U.S. declined sharply to 26,360 tons in 1950–51 from 79,700 tons in the preceding year.

World production of plums and prunes estimated at 2,768,000 tons was 3% larger than 1950 but 2% smaller than prewar. The 1951 dried prune pack in six leading non-U.S. areas totalled 48,700 tons, compared with 38,300 tons in 1950 and an average for the decade of 30,900 tons.

Pears.—The 1951 pear crop of 32,687,000 bu. was about 5% above average and 1950 production. The important west coast crop was 2% above 1950 and 10% more than average. The production of Bosc, Comice and Hardy types increased; Anjous declined as compared with 1950.

World production was indicated at 156,000,000 bu., compared with 184,000,000 bu. in the preceding year and 131,000,000 bu. prewar. The European crop was 22% smaller than in 1950.

Pineapples.—The large 1951 Florida crop of 10,500 boxes much exceeded the 6,500 boxes of 1950 and the 1940–49 average of 8,665 boxes. However, much of the U.S. consumption continued to be imported.

Strawberries.—The strawberry crop of 11,846,000 crates substantially exceeded the 11,295,000 crates of 1950 and the 1940–49 average of 8,864,000 crates. Acreage increased more than 15%, compared with 1950, but yield and value per crate declined. (*See* also HORTICULTURE.) (J. K. R.)

Furniture Industry.

The 1951 output of the 4,000 factories in the United States making wooden and upholstered furniture totalled approximately $1,525,000,000, a gain of 1½% over the 1950 production of $1,500,000,000, the highest volume ever before attained. The 1951 unit volume, however, was 9% smaller than the 1950 output. The high production during 1951 was the result of scare buying following the outbreak of the Korean conflict, when merchants anticipated many shortages that never materialized, and were left with furniture and appliance inventories 30% above normal. This created a buying lull during the spring and early summer season when furniture production dropped from the U.S. department of commerce index figure of 198 for Oct. 1950 to 165 for Aug. 1951. Fall and holiday buying during the balance of the year, however, brought the total dollar volume above the previous year's total.

The buying lull, which lasted five months, resulted in surprisingly few failures, but there were more mergers than in any other single year. Many old, established medium and large factories were sold to syndicates operating other furniture plants. These mergers affected the upholstery as well as the case goods branch of the industry and were charged to the banking laws which made large loans for expansion purposes difficult to obtain from normal banking sources. During the year, nevertheless, there were enough small new factories entering the picture to maintain about the same total for the industry as a whole.

Comparing Oct. 1951 with Oct. 1950, unfilled orders were down 43%, new orders were 6% lower, shipments were down 11%, payrolls down 9%, the number of employees down 10% and receivables were up 3%. For the first ten months of 1951 compared with the same period of the previous year, the picture was brighter with new orders down only 1%, shipments 6% higher and payrolls 4% higher.

Plant time in 1951 averaged 44 hr. per week compared with 49 hr. in 1950, and a few plants were closed for several weeks during the summer because of lack of orders. Weekly wages averaged $52.42 for the industry. By fall, dealers had reduced their inventories from 30% above normal to 5% above normal and were again "open-to-buy." They attended the Jamestown, N.Y., and High Point, N.C., fall furniture markets in large numbers and placed the heaviest volume of orders in more than six months. From October on, the furniture industry rapidly regained its stride.

HOME FURNISHINGS featured at "Good Design," a 1951 exhibit at the Merchandise Mart, Chicago, Ill., sponsored jointly by the Mart and the Museum of Modern Art, New York city

Furniture prices advanced 12% at the manufacturers' level in 1951. Some factories received small price increases from the Office of Price Administration upon proof of higher production costs, but the majority asked for no relief, in order to remain competitive. The prices of upholstered furniture rose less than those of case goods, because of lower prices for fabrics. Lumber prices went down slightly, but this small saving was offset by reduced volume.

French Provincial furniture was the favourite style in the U.S. in 1951, especially in the costlier range. While Modern still accounted for the largest number of units produced and sold, French Provincial was rapidly approaching it and was second in demand, producing almost as much dollar volume as Modern. Colonial and Early American, in maple and cherry, also were popular, but 18th century English designs, such as Chippendale and Hepplewhite, were definitely trailing.

Indications for 1952 were that, barring unforeseen controls on lumber and labour, the industry could anticipate another good year. Few furniture factories had been granted government orders, so that most production capacity could be concentrated on household furniture, for which the demand was again increasing. (*See* also INTERIOR DECORATION.) (J. A. G.)

Furs.

Retail sales of furs in the United States continued good through the first quarter of 1951, but thereafter steadily declined, and from June onward a period of confusion and difficulty was experienced in the trade. August, the traditional opening month for retail fur sales, showed an 18.5% decline from 1950. September and October were both off about 20.4%.

Even mink, which had led in popularity for several years, became difficult to sell, mainly because it was priced too high. During the early part of the year, when business was unusually good, raw fur prices shot upward to levels 25% to 30% above those prevailing in late 1950. When manufacturers made up their new lines in May and June, they found prices higher than the consumer would pay. After months of gradual downward price adjustments, mink again began to move, especially in the mutation family of pastels, silver blues, Aleutians and others. Persian lamb also encountered price difficulty, but managed to continue among the better sellers, along with sheared raccoon, Alaska seal, mouton, muskrat, beaver, squirrel and marmot.

France, Italy, Switzerland, Belgium, west Germany and Scandinavia bought more furs than in any year since World War II. As a result, London again became the centre of world distribution of furs.

A feature of the year was the further development of blonde dye colour on many furs. Introduced on otter a few years back, it was expanded to nutria, beaver, sheared raccoon and Australian opossum, and was well received in many sections of the U.S.

Styles followed the modified pyramid, with natural shoulders and mostly small collars and turn-back, cocktail cuffs. Small fur pieces—capes, jackets, capelets, and especially stoles—proved more popular than ever, one reason being the high prices of full-length coats during the first half of the year.

Two important pieces of legislation affected the fur trade. One was the passage of the Fur Products Labeling act, which was to go into effect in Aug. 1952 and was designed to prevent deceptive and misleading fur advertising. Another was the government ban on seven types of Russian furs—ermine, kolinsky, weasel, marten, mink, muskrat and fox—effective Jan. 5, 1952. These furs were banned as being competitive with U.S. furs, but represented a total import value of only about 25% of all Russian furs brought into the country, or $10,000,000 out of $40,000,000.

Production of ranch and mutation mink continued to increase. The total world crop was estimated at 3,500,000 to 4,000,000 skins, compared with about 3,000,000 to 3,500,000 in 1950.

U.S. ranchers produced about 2,000,000 to 2,500,000 skins, Canada about 800,000 and the Scandinavian countries about 500,000. The new mutation, "Sapphire," a clear, light blue, introduced in 1950, brought as high as $350 a skin, a record for any mink. A "Sapphire" coat brought $36,000 at Neiman-Marcus, Dallas, Tex.

Fur trade insolvencies were high, numbering more than 100 for the first 10 months of the year. Gross losses were also high, about $7,500,000. Excessive credit to undercapitalized firms was blamed for the large number of failures.

According to government tax collections, total sales for the year would be from $250,000,000 to $260,000,000, or about the same as 1950, which was also a subnormal year. Four or five years earlier the total volume had been between $400,000,000 and $450,000,000.

A strike of short duration occurred in the New York market during the spring contract negotiations between the Associated Fur Manufacturers and International Fur and Leather Workers union. Unemployment was high through most of the year, many of the 15,000 workers being employed a total of less than six months.

FILMS OF 1951.—*Fur Trapper of the North* (Encyclopædia Britannica Films Inc.). (E. SN.)

Future Farmers of America: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Galapagos Islands: *see* ECUADOR.

Gambia: *see* BRITISH WEST AFRICA.

Gambling: *see* BETTING AND GAMBLING.

Gas, Natural and Manufactured.

Lack of data from many of the smaller producing countries prevented the compilation of a world production table for gaseous fuels, and figures can be presented only for the larger producers.

Natural Gas.—Table I shows the outputs of countries other than the United States where the quantity is significant.

Table I.—*Natural Gas Production*

(In millions of cubic feet)

	1946	1947	1948	1949	1950
Venezuela	331,991	402,585	470,388	499,205	557,262
Canada	47,886	52,548	58,481	75,008	70,346
Mexico	27,121	35,258	37,631	41,954	59,244
France	3,899	5,170	6,145	8,052	8,687
Italy	2,246	3,305	4,153	8,348	17,798
Brunei	1,017	890	19,883	20,468	26,613

United States.—The United States is by a large margin the world's largest producer of natural gas, as indicated by the data reported by the U.S. bureau of mines and summarized in Table II.

Table II.—*Production and Consumption of Natural Gas in the U.S.*

(In thousands of millions of cubic feet)

	1945	1946	1947	1948	1949	1950*
Gross production	5,902.2	6,190.2	6,733.2	7,178.8	7,546.8	?
Loss and waste	896.2	1,020.0	1,067.9	810.2	853.9	?
Returned to ground†	1,087.3	1,057.6	1,092.8	1,220.6	1,273.2	?
Marketed	3,918.7	4,095.0	4,582.2	5,148.0	5,419.7	6,281.0
Exports	18.2	17.7	18.1	18.7	20.1	26.2
Consumption	3,900.5	4,077.3	4,426.5	4,945.1	5,195.5	6,026.4
Domestic	607.4	650.0	802.2	896.3	992.5	?
Commercial	230.1	237.3	285.2	323.1	347.8	?
Field use	917.0	960.0	933.8	1,021.5	1,059.6	?
Carbon black	431.8	478.3	484.9	480.6	427.9	?
Oil refineries	338.5	355.0	363.9	441.5	422.4	?
Cement plants	38.3	57.7	60.5	72.1	84.5	?
Other industrial	1,337.4	1,339.0	1,496.1	1,710.0	1,860.7	?
Public utilities‡	326.2	306.9	373.0	478.1	550.1	?
Interstate traffic	1,029.8	?	1,402.0	?	2,007.9	?

*Preliminary. †Mostly for repressuring oil fields; small amounts of surplus gas are returned to the ground for storage. ‡Includes manufactured gas, and not included in the consumption total.

The only data on output in 1950 available at the close of 1951 were: marketed production 6,281,048,000,000 cu.ft.; domestic consumption 6,026,410,000,000 cu.ft.; exports 26,191,000,000 cu.ft.

Manufactured Gas.—In areas where natural gas is not available, manufactured gas is made and used in large quantities. Outputs for the more important producing countries are shown in Table III.

Table III.—*Manufactured Gas Production*

(In millions of cubic feet)

	1946	1947	1948	1949	1950
Australia	31,953	33,393	36,317	36,572	37,589
Austria	8,136	8,475	11,950	12,671	12,586
Belgium	28,266	31,698	59,964	57,633	51,065
Canada	24,240	24,579	25,596	25,893	27,037
Denmark	10,754	11,569	12,586	13,052	13,306
France	86,450	86,450	88,992	86,450	85,602
Saar	?	?	41,106	47,463	46,615
Germany	?	?	217,396	275,029	322,915
Italy	?	44,920	53,819	55,938	55,938
Japan	11,315	17,417	26,274	32,249	38,012
Netherlands	33,902	41,954	49,581	51,277	56,362
United Kingdom	469,965	494,967	508,104	522,089	544,973
United States	553,872	597,097	584,807	563,195	563,195

Coke-Oven Gas.—While much of the gas produced in the operation of by-product coke ovens is used in heating the ovens, there is a considerable surplus available for use as a commercial fuel. In the United States in 1950 the coke-oven gas output amounted to 979,592,988,000 cu.ft., an average of about 13,500 cu.ft. for each ton of coke made. Of this total, 360,583,554,000 cu.ft. was used in heating the ovens. Since much of the coke is made by iron and steel plants for their own use, the producers also used 414,127,459,000 cu.ft. in their boilers and furnaces. Of the remainder, 149,429,729,000 cu.ft. was distributed through city gas mains, 39,258,789,000 cu.ft. was sold for industrial uses and 16,193,457,000 cu.ft. was lost or wasted. (*See* also Federal Power Commission.) (G. A. Ro.)

Gasoline: *see* Petroleum.

Gasperi, Alcide de

(1881–), Italian statesman, was born on April 3 at Pieve Tesino, Trentino. He studied at the University of Vienna, in 1911 was elected to the Austrian parliament as an Italian minority representative, and after the union of his native province with Italy, he was elected deputy to the Italian parliament in 1921. He opposed Mussolini's dictatorship and in 1926 was sentenced to imprisonment for anti-fascist activities. When released in 1931, he became an official of the Vatican library. During World War II De Gasperi took part in the resistance movement in Rome and in June 1944 joined the first Ivanoe Bonomi cabinet as minister without portfolio. Minister of foreign affairs of the second Bonomi (Dec. 1944) and Ferruccio Parri (June 1945) cabinets, he was elected leader of the reconstructed Christian Democratic party and on Dec. 9, 1945, became prime minister. In July 1951 he again reconstructed his cabinet, the eighth cabinet being much similar to its predecessor, except that De Gasperi himself superseded Count Carlo Sforza at the foreign office.

In 1951 De Gasperi paid an official visit to London, Eng., from March 12 to 15, attended the Ottawa, Ont., meeting of the NATO council (Sept. 16–20), and was warmly received at Washington, D.C. (Sept. 24–26).

(*See* also Italy.)

Gas Turbine: *see* Automobile Industry.

Gem Stones.

While there is no United States output of precious stones (diamond, emerald, ruby or sapphire), there is a considerable production of semiprecious and ornamental stones, the most important being beryl, kunzite, nephrite jade, tourmaline, turquoise and various forms of silica, such as agate, rose quartz, jasper and petrified wood.

Table I shows the imports of gem stones into the United States.

Table I.—*U.S. Imports of Gem Stones*

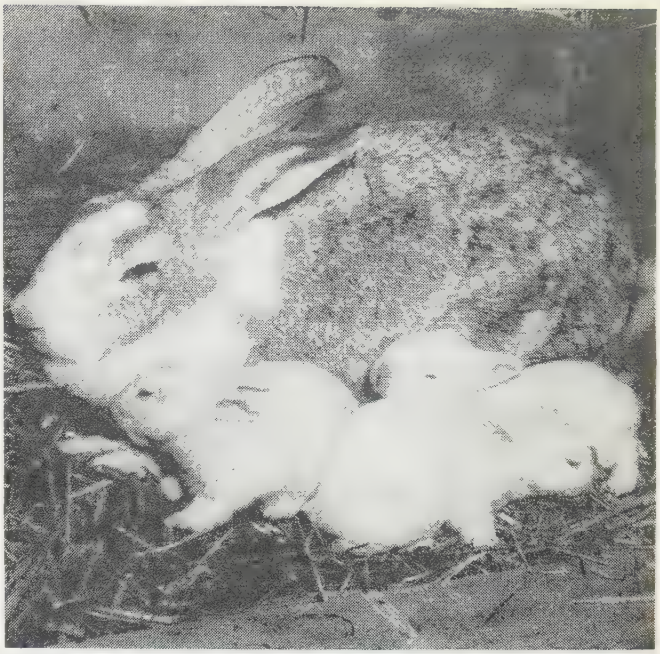
	1950		1949	
	Carats	Values	Carats	Values
Rough diamonds . . .	819,083	$44,775,769	633,731	$28,246,634
Cut diamonds	492,671	58,524,902	335,487	41,427,718
Rough emeralds . . .	12,142	7,991	80,231	226,233
Cut emeralds	9,706	237,446	13,723	284,578
Pearls, natural. . . .		410,970		532,310
Pearls, cultured . . .		3,192,334		1,733,698
Marcasites		136,768		178,207
Other varieties				
Rough		324,089		208,124
Cut		2,429,992		2,045,476
Imitation		9,601,196		9,249,488
Total.		$119,641,457		$84,132,466

The total value of imports during 1941–50 is shown in Table II.

Table II.—*Value of U.S. Imports of Gem Stones*

1941	$33,777,215	1946	$189,017,646
1942	28,520,070	1947	110,076,029
1943	72,109,788	1948	115,940,031
1944	77,529,806	1949	84,132,466
1945	114,435,231	1950	119,641,457

Of the 1950 imports, 86% of the total value was rough and cut diamonds, 10% imitation and synthetic stones, 3% pearls and 1% all other gems. (*See* also Diamonds; Mineralogy.) (G. A. Ro.)



GRAY RABBIT and her three white albino young, born after the transplantation of fertilized ova from an albino doe. The experiment was conducted at the Southwest Research institute, San Antonio, Tex., in 1951

Genetics.

A symposium on genes and mutations held at Cold Spring Harbor, Long Island, N.Y., June 7–15 included 150 workers from Europe and America. Edward D. DeLamater, reporting on the chromosome cycle of several species of bacteria, showed remarkably clear preparations of the chromosomes in all phases of cell division, both mitotic and meiotic. These preparations fully confirmed the genetic evidence presented by Joshua Lederberg that certain bacteria reproduce sexually and have chromosomes with gene loci which can be mapped in linkage experiments.

New Techniques.—Aaron Novick and Leo Szilard described a device, the chemostat, whereby a culture of bacteria could be supplied with new liquid culture medium at a measured rate. This apparatus made possible a precise quantitative study of mutation rate and selection of mutant types in bacteria. Ernst Hadorn and H. K. Mitchell applied the method of paper chromatography to the study of chemical differences in wild-type and many mutant forms of the fruit fly *Drosophila melanogaster*. The method was applicable to individuals and to different stages in development from egg to adult. The discovery of parthenogenesis in 13 species of *Drosophila* by Harrison Stalker added a new tool for the investigation of cytogenetic problems in this widely studied genus.

Human Genetics.—R. R. Race, H. A. Holt and J. S. Thompson reported that the recently discovered blood group system, termed Duffy after the patient in whom it was first found, was not linked to any of the seven blood group systems previously known. The Duffy antigen was found in about 65% of more than 400 individuals tested and thus proved to be a valuable new genetic marker. J. V. Neel and M. M. Hanig found a significant difference in the distribution of alleles at the MNS blood group locus between white and Negro populations. This locus was thus shown to have possible utility in defining human subgroups. T. C. Fang demonstrated significant differences in an inherited palm pattern of epidermal ridges in samples of three racial groups. Bentley Glass found evidence of genetic drift in the frequency of blood group and other genes in small inbred human populations, isolated for religious and cultural reasons from the general population. R. R. Race and Ruth Sanger reported a probable deletion in a human Rh chromosome, which seemed to add evidence that the Rh complex is the result of three closely linked loci.

Mammalian Genetics.—W. L. Russell studied X-ray-induced mutation rate at seven specific loci in mice. He found the rate to be on the average higher than induced mutation rates in *Drosophila.* Several new mutant types were described in mice: pintail, a dominant reducing the length of the tail, by W. F. Hollander and L. C. Strong; recessive vestigial tail by W. E. Heston; a recessive coat colour, ruby-spotted, by J. A. Weir; and a recessive lethal allele at the dilution coat colour locus by A. G. Searle. W. E. Castle reported a new allele at the hooded coat colour locus in the rat. H. P. Donald and co-workers reported the first authentic case of monozygotic (single egg) quadruplets in cattle. Clyde Stormont, R. D. Owen and M. R. Irwin described two blood group loci in the chromosomes of cattle, one with a minimum of 80 recognizable alleles and the other with 22 alleles. Stormont also demonstrated a completely recessive antigen in the blood of sheep. This antigen and the Lewis antigen in man were unique in this respect among the large number of mammalian antigens thus far tested.

Radiation Genetics.—C. P. Swanson and H. T. Yost found that the increase in X-ray-induced chromosome aberrations in the plant *Tradescantia,* brought about by pretreatment with infra-red radiation, could be eliminated by heat shocks of 48° C. for 30 seconds between infra-red and X-ray exposures. R. S. Caldecott and Luther Smith treated barley seeds with X-rays, at a heat of 75° C. for 30 minutes, and a combination of these agents. While heat treatment alone had no effect, in combination with X-rays it raised the induced mutation rate 30% to 50% and reduced chromosome aberrations 30% to 50%. H. J. Muller and J. I. Valencia found that neutrons produced visible mutations in *Drosophila* generally associated with lethal effects. They considered that the crowding of ionizations in neutron tracks resulted in these multiple effects.

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Genocide, Convention on: *see* INTERNATIONAL LAW.

Geography.

International Affairs.—The year 1951 may be described as one of detailed planning for the coming year when the geographers of the United States were to be hosts to the geographers of the world through a series of meetings, conferences and congresses to be held in New York city and Washington, D.C., during the summer of 1952. The program was to include the third consultation on geography of the Pan-American Institute of Geography and History, the annual meetings of the Association of American Geographers and the National Council of Geography Teachers, the 17th International Geographical congress and the 7th International Congress of Photogrammetry. In addition, the American Geographical society was to hold its centennial celebration in New York city.

The U.S. national committee of the International Geographical union held several important meetings with the National Research council in Washington, D.C., and with the Association of American Geographers in Chicago (March 1951) to complete plans for the summer of 1952. Numerous subcommittees of the U.S. national committee were authorized to prepare for all phases of the various meetings, including a committee to arrange for financial aid and subsistence grants to visiting geographers.

The advisory committee to the United States member of the commission on geography of the Pan-American Institute of Geography and History met a number of times and established functioning subcommittees such as the one which was preparing a detailed report on geographic activities in the United States since the last consultation was held in Santiago, Chile, in Oct. 1950. This report was to be published early in 1952.

Geographers in Government.—The influx of geographers into the various government agencies which became pronounced in 1950 continued through 1951, but less rapidly. The new positions being filled by geographers were civilian and not military and the recall of geographers to active duty status was less pronounced. Most geographers were being employed in military intelligence work on those areas of the world where there was tension. With a few exceptions, such as in the army map service or the quartermaster corps, geographers were not concentrated in any one agency but were scattered throughout government service. As of Jan. 1951, there were about 350 members of the Association of American Geographers with addresses in the general area of Washington, D.C., and most of them were in government service.

Geography in the Colleges and Universities.—The *New York Times* surveys of Dec. 1950 and June 1951 gave the impression that geography was being ignored in the colleges and universities of the United States—a picture not entirely true. The *Times* surveys did find that less than 5% of the college students were taking courses in geography, and that the misconceptions and misinformation shown on a nation-wide quiz conducted in the spring of 1951 were almost unbelievable, but the inference that the colleges and universities of the United States were ignoring geography seems an overstatement. The *Directory of College Geography of the United States,* published in Feb. 1951, showed that nearly 3,500 courses in geography were being taught in 727 institutions of higher learning in the United States. Quantitatively the *Times* survey built up a convincing case that geography was almost ignored in institutions of higher learning, but qualitatively it failed to take into consideration the number of universities with strong departments of geography that were offering curricula leading to graduate degrees and professional training. Graduates of these departments were holding important positions in government, business and industry, and on the faculties of many leading universities.

The Association of American Geographers.—The enlarged association, whose membership in 1951 numbered approximately 1,750, held its 47th annual meeting in Chicago in March, with an attendance of about 600 members. During the three days of the meeting, several symposia were held. One dealt with geographical research in northern lands, with two papers on Alaska, two on Scandinavia and two on Canada. A second symposium on urban-regional relationships had seven papers on physical geography, five on economic-regional geography and five on urban geography. A third symposium on Indonesia consisted of five papers on that region.

The final session included a panel discussion of the teaching of cartography.

The American Geographical Society.—With the centennial of the society planned for Aug. 4–6, 1952, in New York city, the director and his staff devoted their major efforts during 1951 toward planning for that event. The *Geographical Review* published four outstanding issues with articles on various areas of the world. The society's new department of medical geography issued two maps of its projected *Atlas of Disease,* showing world distribution of cholera and of malaria vectors. The new monthly publication *Focus,* launched in Oct. 1950, continued to appear on timely topics such as Viêt-Nam, Yugoslavia, outlook for steel, strategic Iran, poliomyelitis in the United States, new Israel and the changing south. The *New York Walk Book,* originally published in 1923, was completely revised and republished in 1951. A history of the society was being prepared and was expected to be ready for the centennial celebration. (*See* also CARTOGRAPHY; EXPLORATION AND DISCOVERY; NATIONAL GEOGRAPHIC SOCIETY; SOCIETIES AND ASSOCIATIONS, U.S.)

FILMS OF 1951.—*Geography of Australia* (Young America Films, Inc.); *Geography of New England, Global Concepts in Maps, Maps and Their Uses, Maps Are Fun* (Coronet Films); *Maps and Their Meaning* (Academy Films); *Physical Geography Series* (5 films), *The Earth and the Sun's Rays (Distribution of Insolation), The Seasons (Revolution of Earth around the Sun)* (United World Films). (E. J. Fo.)

Geology. The demand for well-prepared geologists remained high during 1951 and an insufficient number was trained to fill all needs. Because of the ever-increasing necessity for mineral products, search was intensified by petroleum and mining companies and by government agencies. Research also was stressed, particularly by colleges, universities and government agencies, with considerable emphasis placed on the utilization of chemical and physical principles. Academic interest in geology was evidenced by numerous articles and the number of new or revised textbooks made available in 1951.

General Geology.—Different approaches were presented in three textbooks. In *Principles of Geology*, the authors, James Gilluly, Aaron C. Waters and A. O. Woodford, gave a broad outline of the study of the earth, treating the conclusions as integral parts of a connected picture. Pictures of models were emphasized by L. Dudley Stamp in *The Earth's Crust*, to illustrate geologic phenomena. An analytical approach to general geology was given by Robert M. Garrels in *A Textbook of Geology*.

Guide to Geologic Literature by Richard M. Pearl was published, and *Lexicon of Geologic Names of the United States (including Alaska)*, compiled by M. G. Wilmarth, U.S. geological survey Bulletin 896, parts 1 and 2 (1938), was reprinted.

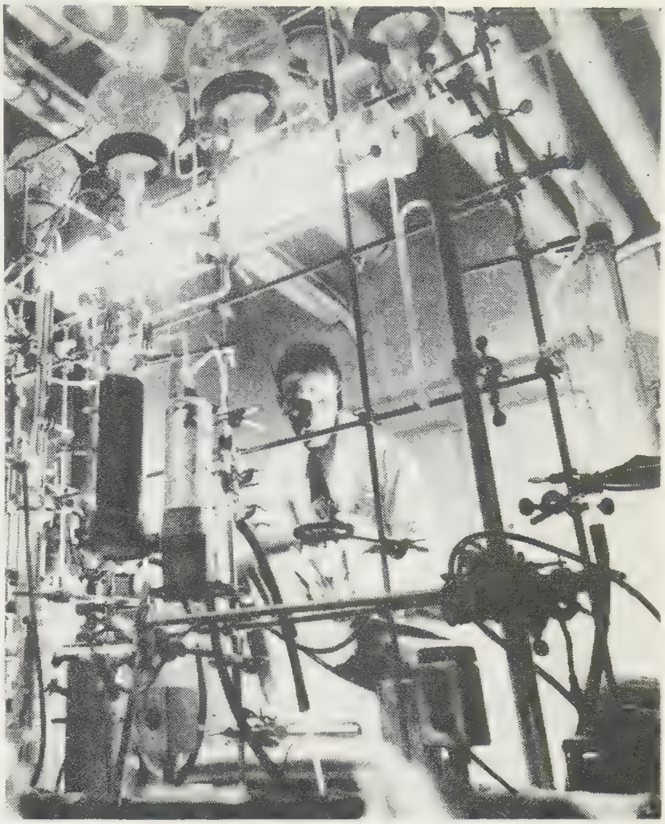
Regional Geology.—Information on regional geology of many portions of the world became accessible in various North American, South American and European journals. Of more than usual interest were "Regionalna Geologia Polski, Tom 1, Karpaty (Praca Zbiorowa) Zeszyt 1, Stratygrafia" edited by M. Ksiazkiewicz and "Descripcion Geologica de la Patagonia" by Egidiro Feruglio.

Geomorphology and Glaciology.—Principles of earth processes and forms were presented by Arthur N. Strahler in *Physical Geography*. Coloured visual aids, keyed to this text, also were made available by the publisher. L. J. Chapman and D. F. Putnam gave the results of their detailed investigation in *The Physiography of Southern Ontario*. Interest in glaciology and Pleistocene geology was evidenced by numerous papers which appeared mainly in the *Journal of Geology*.

Historical and Stratigraphic Geology.—Historical development of the earth and life on the earth was discussed in three books. In an excellently illustrated reference, *Evolution Emerging*, William K. Gregory discussed in detail the evolutionary development of modern life. Harold F. Blum in *Time's Arrow and Evolution* showed how physical and chemical laws channelled the course of evolution.

Numerous articles on local stratigraphy and sedimentation appeared in professional journals throughout the world. Of more general interest were "Studies of Devonian and Carboniferous of Western Europe and North Africa" by F. Delépine in the *Proceedings* of the Geologists' association; "Some Relations among Sedimentation, Stratigraphy, and Seismic Exploration" by W. C. Krumbein in the American Association of Petroleum Geologists' *Bulletin;* and "Tectonique et Rythmes de Sédimentation" by Albert Carozzi in *Archives des sciences*. Basic facts influencing deposition of ancient sediments were described and integrated in *Stratigraphy and Sedimentation* by W. C. Krumbein and L. L. Sloss. Marshall Kay in *North American Geosynclines* gave a classification of geosynclines and discussed the stratigraphy and sedimentation of each type.

Petrology and Petrography.—Based on field and petrographic data, and on physical and chemical behaviour as determined by experiment and deduced from thermodynamic theory, *Igneous and Metamorphic Petrology* by Francis J. Turner and Jean Verhoogen represented an advanced, unified discussion of origin and evolution of rocks.



EXPERIMENTAL LABORATORY of the Lamont Geological observatory at Palisades, N.Y., dedicated in May 1951. The observatory is part of Columbia university

Structural Geology and Field Geology.—In a large, comprehensive volume, *Structural Geology of North America*, A. J. Eardley covered in detail the post-Proterozoic structural evolution of the North American continent. The descriptive volume *The Tectonics of Middle North America* by Philip B. King could be used as an explanatory text for *Tectonic Map of the United States* (1944) and *Tectonic Map of Canada* (1950). In the *Bulletin* of the Geological Society of America also appeared "Tectonics of East Side of Cordillera of Western Canada" by A. J. Goodman.

Symphony of the Earth by J. H. F. Umbgrove correlated a variety of terrestrial processes. A paper on "Origin of Compressional Mountains and Associated Phenomena" by John L. Rich was published in the *Bulletin* of the Geological Society of America, and in the *Journal of Geology* appeared "Deep Tectonics and Isostasy" by H. D. Cizancourt.

The Elements of Field Geology, by the British authors G. W. Himus and G. S. Sweeting, became available.

Petroleum Geology.—*Petroleum Geology* by Kenneth K. Landes, *Principles of Petroleum Geology* by William L. Russell, *How Oil Is Found* by W. A. Ver Wiebe and *Practical Oil Geology*, sixth edition, by Dorsey Hager were published. *Petroleum Geology* by E. N. Tiratsoo was printed in London. Also available was *Bibliography of Stratigraphic Traps* edited by W. E. Pugh and B. G. Preston.

The February *Bulletin* of the American Association of Petroleum Geologists was devoted entirely to "Possible Future Petroleum Provinces of North America." Also of interest were: "Erdöl und Ölschiefer in Brasilien" by Erich Malzahn (1950) which appeared in *Erdöl und Kohle*, and "Types of Oil and Gas Traps in the Rocky Mountain Region" by Alex W. McCoy III, *et al.*, which appeared in the *Bulletin* of the American Association of Petroleum Geologists. As in 1950, numerous articles appeared in which the major emphasis was on the geology and oil possibilities of Canada and northwestern United States.

Mineral Deposits.—"Classification and Definitions of Textures and Mineral Structures in Ores" by G. M. Schwartz, "The Influence of Permeability on Ore Distribution in Limestone and Dolomite" by Ernest L. Ohle, "The Formation of Late Magmatic Oxide Ores" by Alan M. Bateman and "Notes on Manganese Ores of Brazil" by C. F. Park, Jr., *et al.*, as well as numerous articles on more specific areas and problems, appeared in *Economic Geology*. Also made available was *Die Erzmineralien und ihre Verwachsungen* by Paul Ramdohr (1950), a comprehensive volume on ore minerals and their intergrowth. The almost completely revised *Nonmetallic Minerals*, second edition, by Raymond B. Ladoo and W. M. Myers was an important contribution providing a comprehensive coverage of nonmetallic minerals. In *The Formation of Mineral Deposits*, Alan M. Bateman presented a nontechnical discussion of the origin of mineral deposits.

Geochemistry.—Various authors of short papers in *Economic Geology* and the *Bulletin* of the Geological Society of America emphasized theoretical and experimental geochemical studies on formation of ore deposits. Studies of methods of chemical analysis and geochemical prospecting were continued mainly by members of the U.S. geologic survey. (*See* also MINERALOGY; NATIONAL GEOGRAPHIC SOCIETY; PALAEONTOLOGY; SEISMOLOGY.)

FILMS OF 1951.—*Geysers and Hot Springs, Lassen Volcanic National Park* (Arthur Barr Productions). (T. H. K.)

George VI

(1895–1952), King of Great Britain, Ireland and the British dominions, was born at York cottage, Sandringham, Norfolk, on Dec. 14. (For his early career see *Encyclopædia Britannica.*) On Jan. 1, 1951, he broadcast to Australia on the opening of the jubilee year of the commonwealth. But his proposed tour of Australia and New Zealand in 1952 had to be cancelled after his operation in September, and it was announced that Princess Elizabeth, accompanied by the duke of Edinburgh, would carry it out in his stead.

The first report in 1951 of the king's being unwell was in March. He fulfilled a number of engagements that month and in April, however, and on May 3 opened the Festival of Britain. He received King Frederick and Queen Ingrid of Denmark on their state visit, May 8–11. Later in May he had influenza and early in June suffered from catarrhal inflammation of the lung and was ordered to take complete rest.

On Sept. 1 he was visited at Balmoral by George Cordiner, a radiologist, and Geoffrey Marshall, an authority on respiratory diseases. He visited London on Sept. 8–9 to permit further clinical investigations and on Sept. 15 returned to London from Balmoral; three days later a bulletin stated that certain structural changes had developed in the lung and that he had been advised to remain in London for further treatment. On Sept. 22 a bulletin said that he had been advised to undergo an operation. This operation for lung resection was performed at Buckingham palace on Sept. 23 by Clement Price Thomas, with seven other doctors assisting.

On Sept. 27, the king appointed five councillors of state to relieve him of formal constitutional duties; they were Queen Elizabeth, Princesses Elizabeth and Margaret, the duke of Gloucester and the princess royal. On Oct. 6 a bulletin said that the postoperative stage had passed without complication but that progress toward the convalescent stage "must necessarily be slow and gradual." After the general election he received personally, on Oct. 26, Clement Attlee and Winston S. Churchill. His recovery seemed to be proceeding satisfactorily, but on Feb. 6, 1952, he died in his sleep at Sandringham. He was buried at Windsor castle on Feb. 15. (R. JAN.)

George, Walter Franklin

(1878–), U.S. senator, was born on Jan. 29 at Preston, Ga. He took his bachelor's and law degrees from Mercer university, Macon, Ga., in 1900 and 1901 respectively and began practising law at Vienna, Ga., in the latter year. From 1907 to 1912 he was solicitor general of a state judicial circuit, and from 1912 to 1917 judge of the circuit's superior court. In 1917 he became associate justice of the supreme court of Georgia, resigning in 1922 when he was elected U.S. senator from Georgia to fill a vacancy. He was re-elected in Nov. 1950 for his sixth consecutive term (1951–57). In 1938 Pres. Franklin D. Roosevelt's attempt to purge George as a reactionary failed when the senator won the Democratic nomination easily over Roosevelt's candidate. Thereafter a prominent member of the anti-New Deal Democrats, George became known for his frequent criticism of government spending. In 1950–51 he was also a leader in senate attacks on the state department and U.S. foreign policy. He sat on the senate committee investigating the dismissal of Gen. Douglas MacArthur. George was particularly critical during 1951 of additional appropriations for foreign military and economic assistance, declaring in August that if European nations "can't stand on their own feet now, there is no use . . . thinking they will do it later."

Georgia.

Georgia, located in the south Atlantic region of the United States, is called the "empire state of the south." It has an area of 58,876 sq.mi. and a population (1950 census) of 3,444,578. Of the population, 54.7% was rural and 45.3% urban. The chief cities and their 1950 populations were: Atlanta, the capital, 331,314; Savannah, 119,638; Columbus, 79,611; Augusta, 71,508; and Macon, 70,252.

History.—The new general assembly was in session from Jan. 8 to Feb. 16, 1951. The most outstanding action was enactment of a 3% sales and use tax and a resultant appropriation of $207,000,000 for fiscal 1951–52, compared with $139,000,000 the preceding year. Much of this increase went to finance the minimum foundation program for education. The appropriation provided that funds should be cut off from any public school system or university system unit found not to be in compliance with state constitutional provisions requiring segregation of the white and coloured races. In the event a competent court found denial of funds to a single system or unit unconstitutional, all appropriations for public schools or the university system would be cut off.

Other important measures enacted were: an optional municipal home rule act; an antimask law; the Uniform Motor Vehicle Safety Responsibility act; the Uniform Support of Dependents act; and the Uniform Extradition act.

Important amendments proposed for referendum in Nov. 1952 were requirements: (1) that all political parties entering candidates in a general election for statewide offices must have nominated these candidates by means of the county unit system of voting; (2) that appropriations for highway purposes equal collections from motor fuel and licence taxes during the preceding year; (3) that constitutional amendments applying only to specified localities should be ratified or rejected solely by the voters of those localities.

Preparations were completed for the annexation by the city of Atlanta on Jan. 1, 1952, of an area which would make it three times its former size and increase its population by about 100,000.

Inaugurated in Jan. 1951 for four-year terms were: governor, Herman E. Talmadge; lieutenant governor, S. Marvin Griffin;

secretary of state, Ben W. Fortson, Jr.; comptroller general, Zach D. Cravey; attorney general, Eugene Cook; treasurer, George B. Hamilton; commissioner of agriculture, Tom Linder; commissioner of labour, Ben T. Huiet; and superintendent of schools, M. D. Collins.

Education.—During the school year 1950–51 there were 3,572 public schools in Georgia with an enrolment of 787,580 pupils and a teaching staff of 23,928, according to the state department of education. Total expenditures by all units of government for elementary and secondary education were $78,858,994 (not including capital expenditures). Of this total, $62,068,841 was expended for white schools and $16,790,153 for Negro schools.

There were 2,858 elementary schools (1,090 for white children and 1,768 for Negro children) with an enrolment of 613,791 (394,878 white children and 218,913 Negro children) and 16,678 teachers (11,101 white and 5,577 Negro). There were 714 high schools (474 for white children and 240 for Negro children) with an enrolment of 173,789 (131,363 white children and 42,426 Negro children) and 7,250 teachers (5,593 white and 1,657 Negro).

During the fall quarter of 1951 the 15 units of the state university system had an enrolment of 20,513 students, a decrease of 2,893 from the fall quarter of the preceding year. Included were 2,105 students in the three Negro colleges of the state and 1,188 students who were taking work in off-campus centres.

Total expenditures of the state government for education during the fiscal year ending June 30, 1951, were $60,170,000, compared with $59,313,940 the preceding year.

Social Insurance and Assistance, Public Welfare and Related Programs.—Public assistance payments during the fiscal year ending June 30, 1951, amounted to $40,482,863, an increase of approximately 20% over the previous year. Old age assistance amounted to $29,243,932.50; aid to the blind, $980,403.50; and aid to dependent children, $10,258,527. In Dec. 1951 a total of 95,705 persons received old age assistance with an average allowance of $31.12 (compared with 102,366 persons in Dec. 1950, with an average allowance of $23.82); 2,912 blind persons received benefits averaging $35.88 (compared with 2,825 persons in Dec. 1950, receiving benefits averaging $28.40); and 52,847 dependent children received benefits averaging $19.57 (compared with 44,130 children in Dec. 1950, receiving benefits averaging $18.22).

The U.S. bureau of labour statistics reported 15,500 persons drawing unemployment compensation in June 1951 under the Georgia program. This compared with 21,100 in June 1950.

On June 30, 1951, there were 6,407 prisoners in the state and county penal institutions under the control of the state board of corrections. Budget allotments to this board for the fiscal year were $1,054,315. On the same date there were 555 boys and girls in the state training schools.

Communications.—As of June 30, 1951, the state highway department reported that there were 92,253 mi. of public roads in Georgia. The state highway system extended 15,176 mi., and county roads extended 77,077 mi. For the fiscal year ending June 30, 1951, total expenditures for highways in Georgia amounted to $42,843,528.

On Dec. 31, 1950, there were 6,043 mi. of main-line railroad track in Georgia. As of the same date there were 585,168 telephones in the state. The Civil Aeronautics administration reported that Georgia had 1,153 mi. of airways and 112 airports as of Nov. 1, 1951 (56 municipal, 12 commercial, 10 military, 33 private and 1 intermediate).

Banking and Finance.—On June 30, 1951, there were 401 banks in Georgia with deposits of $1,724,116,000 and total resources of $1,882,794,000, according to the Federal Deposit Insurance corporation. This included savings and loan associations which accepted deposits. Of the total, 51 were national banks.

There were 72 savings and loan associations as of Dec. 1, 1951, 62 chartered by the federal government and 10 by the state. These 72 associations had resources of approximately $290,000,000.

Total receipts of the state government for the fiscal year ending June 30, 1951, were $153,338,788; budget allotments for the period were $139,195,709. On June 30, 1951, the state had a net surplus of $18,448,292.

Agriculture.—In Dec. 1951 the U.S. department of agriculture estimated the total value of field crops produced in Georgia during 1951 at $477,275,000, an increase of 19% over 1950. Cash income of farmers for 1950 was $529,991,000, an increase of 17% over the 1949 income and 45% greater than the 1940–49 average. Income from livestock and livestock products accounted for 36.3% of the total cash income.

Manufacturing.—There was an average of 296,129 persons employed in manufacturing in Georgia during 1950, according to the preliminary report on the *1950 Annual Survey of Manufactures* by the U.S. bureau of the census. This compared with an average of 268,335 persons employed in 1949. These persons received a total of $638,809,000 in salaries and wages in 1950. A value of $1,227,442,000 was added by manufacture, compared with $1,001,242,000 in 1949 and $1,015,999,000 in 1947. (M. W. H. C.)

Table I.—*Principal Crops of Georgia*

Crop	1951	1950	Average 1940–49
Cotton, bales	935,000	488,000	738,000
Cottonseed, tons	379,000	205,000	298,000
Corn, bu.	49,536,000	50,514,000	46,799,000
Peanuts, lb.	569,320,000	680,680,000	690,583,000
Tobacco, lb.	136,806,000	102,120,000	90,527,000
Potatoes (sweet), bu.	1,625,000	4,000,000	6,551,000
Hay, tons	610,000	593,000	752,000
Oats, bu.	10,296,000	12,879,000	14,113,000
Velvet beans, tons	176,000	169,000	361,000
Wheat, bu.	1,794,000	1,350,000	2,470,000
Peaches, bu.	4,725,000	975,000	4,790,000
Pecans, lb.	43,000,000	41,000,000	27,846,000
Sugarcane syrup, gal.	1,360,000	2,100,000	3,783,000
Potatoes, Irish, bu.	483,000	680,000	1,517,000
Lespedeza (seed), lb.	7,000,000	9,700,000	9,850,000
Cowpeas, bu.	341,000	336,000	655,000
Sorgo syrup, gal.	280,000	392,000	918,000

Source: U.S. Department of Agriculture.

Table II.—*Principal Industries of Georgia*

Industry	Value added by manufacture 1950	1949	1947
Textile mill products	424,356,000	314,589,000	398,023,000
Food and kindred products	145,472,000	142,215,000	133,448,000
Lumber and products, except furniture	123,454,000	80,039,000	88,466,000
Paper and allied products	96,633,000	77,313,000	54,207,000
Chemicals and allied products	74,761,000	51,211,000	77,043,000
Stone, clay and glass products	34,045,000	28,272,000	26,651,000

Mineral Production.—Table III shows the tonnage and value of those minerals in the state in 1949 whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of the year.

Table III.—*Mineral Production of Georgia, 1949–1950*

(Short tons)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Barite	50,267	$ 465,325	?	?
Clays	1,983,001	16,653,426	2,325,292	$20,937,991
Iron ore	256,132	692,649	226,718	677,248
Sand and gravel	984,488	757,680	1,211,782	936,726
Stone	4,156,220	8,427,627	6,144,980	11,917,482
Talc	49,338	580,405	70,749	774,148
Other minerals		7,832,099		?
Total		35,409,000		?

Georgia Warm Springs Foundation: *see* SOCIETIES AND ASSOCIATIONS, U.S.

German Literature.

More than in preceding years, in 1951 the political uncertainty of European affairs affected literary production, and the controversial issues of the recent past were accentuated by the debate on rearmament. Aversion to measures likely to increase the existing tension was general, despite practical unanimity in declining the eastern type of regime, a conviction strengthened by the uninterrupted influx of political refugees. The momentous progress of economic reconstruction made with the aid of European Recovery program funds did not diminish the urgent need for international attention to the problem of expellees and refugees in western Germany. Jürgen Thorwald's *Flight in the Winter*, available in a one-volume U.S. edition, was timely reading. Reports such as the one published by the county magistrate of Wolfratshausen, Bavaria, on the community of *Geretsried* impress the reader with the ingenuity of resettling refugees in thickly populated areas. Evidence of an increasing interest in matters political was given by the content and success of Werner Weber's challenging inquiry into the constitution of the Federal Republic of Germany (*Spannungen und Kräfte im Westdeutschen Verfassungsleben*). In foreign policy the plan of a European federation was still the most popular hope and, consequently, H. Gollwitzer's *Europa-Bild und Europa-Gedanke* provided an important historical analysis. The historian Hans Rothfels set an example of sound political thinking by an essay on the interrelations between domestic and foreign policy in our time (*Gesellschaftsform und Auswärtige Politik*) and proved to be equally understanding of German as of western European and U.S. thought and conditions.

Literary and philosophic works reflected the struggle with nihilism. Ernst von Salomon's *Der Fragebogen* was the most successful exhibition of a mentality which is inevitably produced by an age of utter confusion and disorder. The clever use as a frame of reference of the questionnaire made up for the denazification procedure was bound to make an impact upon the hundreds of thousands of the author's generation who once were equally bewildered by these 131 questions yet unable to answer them with the forthright and often rather cynical brilliance of the one-time nationalistic plotter, anti-nazi and movie director. On a higher level of literary art, Ernst Jünger continued his search beyond nihilism in his *Der Waldgang*. Hans Carossa, in *Ungleiche Welten*, told his story of the nazi years, granting insight into the survival of Goethean humanity in an inhumane age but also into the helplessness of even the best-intentioned individual under collectivist despotism. In his volume *Der Unbehauste Mensch,* Hans Egon Holthusen faced squarely the challenge of modern man's unsheltered existence, coming close to T. S. Eliot in both style and convictions. The diaries of Franz Kafka (*Tagebücher*) enhanced the reading of his prose.

Among foreign authors, Antoine de St. Exupéry and Thornton Wilder attracted the widest attention.

Modern German thought was firmly linked with the past through the work of Friedrich Hölderlin. The new volumes of the *Stuttgarter Ausgabe* (edited by F. Beissner) were a triumph of philological method. They were indispensable to the interpretation of the hymnic poems which many conceived as the prophetic poetry essential to our age of world history. Ernst Beutler's well-indexed standard edition of Goethe's *Works, Letters, and Conversations* (Gedenkausgabe, Artemisverlag, Zürich) was near to completion, and Hermann Gmelin achieved a momentous task by a new translation in verse of Dante's *Göttliche Komödie.* The same devotion to the significance of literature for life was characteristic of Ernst Robert Curtius' *Kritische Essays zur Europäischen Literatur.* A second volume of prose was added to the collected works of Hugo von Hofmannsthal (*Gesammelte Werke*). Robert Boehringer, heir to George's papers, completed, on the basis of this authentic material, an authoritative account (*Mein Bild von Stefan George*).

The debate among theologians was enriched by Urs von Balthasar's book on *Karl Barth.* Josef Pieper proved a master of style and insight in an essay on Goethe's art of silence (*Uber das Schweigen Goethes*) and a philosophy of history in terms of an eschatology of hope (*Uber das Ende der Zeit*). The Protestant theologian Helmut Thielicke joined in the struggle beyond nihilism by a vigorous criticism of modern sceptics in philosophy, literature and law (*Der Nihilismus*). Even among more specialized scholars the philosophic issue was of primary significance; for example, in Helmut Coing's search into the foundations of law (*Grundzüge der Rechtsphilosophie*); in V. Achter's inquiry into the origins of punishment (*Geburt der Strafe*); in Victor von Weizsaecker's *Diesseits und Jenseits der Medizin,* where the author, through the medium of psychiatry and sociology, tackled problems decisive for modern man; and in A. E. Jensen's *Mythos und Kult bei Naturvölkern,* which was an ethnological contribution of general importance to the study of religion. Friedrich Oetinger made a forward-looking proposal for political education conceived as partnership among citizens in his *Wendepunkt der Politischen Erziehung.*

(AR. B.)

Germany.

A country of central Europe, Germany is bounded north by the North sea, Denmark and the Baltic sea, east by Poland, south by Czechoslovakia, Austria and Switzerland and west by France, Luxembourg, Belgium and the Netherlands. According to a declaration signed in Berlin on June 5, 1945, the country was under the supreme authority of the four Allied powers—the United States, Great Britain, the U.S.S.R. and France—and divided into the four following zones together with Berlin (*q.v.*):

Zones	Area (sq. mi.)	Population (1939 census)	(1946 census)
British	37,723	19,785,500	22,344,900
United States	41,506	14,257,600	17,174,400
French	15,405*	6,088,900	5,004,000*
Soviet	41,623	15,157,100	17,332,900
Berlin	344	4,321,500	3,179,200
Total	136,601†	59,610,600	65,035,400

*Excluding the Saar (area 734 sq.mi.; pop. 874,400).

†Including some small German frontier areas which, as agreed upon under the six-power agreement of March 26, 1949, were taken over by Belgium, Luxembourg, the Netherlands and the Saar respectively (total area, 52.1 sq.mi.; total pop., c. 13,500).

Before the *Anschluss* of Austria the area of Germany was 181,742 sq.mi. with a population (1939 census) of 69,317,000. The British, soviet and U.S. zones contained larger populations than in 1939; by 1946 the zonal increases were: British zone 12.9%, soviet 14.4%, U.S. 20.5%. The additional inhabitants were mainly Germans evacuated or transferred from Poland and Czechoslovakia. Only the population of the French zone was less (3.5%) than in 1938. Language (1946 est.): German with small admixture of Lusatian (260,000 in Kottbus-Bautzen area), Polish (150,000, mainly in Westphalia) and Danish (17,000). Religion (1938 est.): Protestant 62.7%; Roman Catholic 32.5%; Jewish 0.7%; others 4.1%. Chief cities (first figure, 1939 census; second, 1946 census): Berlin (4,332,242; 3,179,200); Hamburg (1,711,877; 1,406,158); Munich (829,318; 738,018); Cologne (772,221; 489,812); Leipzig (707,365; 608,111); Essen (666,743; 520,592); Dresden (630,216; 463,032); Frankfurt-on-Main (553,464; 389,097); Düsseldorf (541,410; 421,506); Dortmund (542,261; 436,198); Hanover (470,950; 347,040).

During the year 1951 Germany remained partitioned into two states with a special provisional regime for Berlin.

Western Germany.—Area, 94,634 sq.mi. Pop. (Sept. 13, 1950, census): 47,557,926 (including 25,259,619 women) which indicated an increase of 3,034,626 since Oct. 29, 1946. Capital: Bonn (pop., Dec. 1949 est., 110,000). President of the German Federal Republic: Theodor Heuss; federal chancellor: Konrad Adenauer (*q.v.*). Allied high commissioners: British, Sir Ivone Kirkpatrick; French, André François-Poncet; U.S., John J. McCloy. Allied commanders in chief in western Germany (Dec. 31, 1951): British, Gen. Sir John Harding; U.S., Lieut. Gen. Manton S. Eddy; French, Lieut. Gen. Roger Noiret.

Eastern Germany.—Capital: Berlin-Pankow. President of the German Democratic Republic: Wilhelm Pieck; prime minister: Otto Grotewohl. Soviet Control commission: Army Gen. Vasili Ivanovitch Chuikov, chairman; Ivan Fedorovich Semichastnov, deputy chairman; Vladimir Semenovich Semenov, political adviser.

History.—*International.*—The unification of Germany was still the goal for both eastern and western Germans, but no great advance in that direction was made during 1951. Grotewohl's letter of Nov. 20, 1950, proposing conversations between the two governments on the formation of an all-German constituent council, was answered by Adenauer in a broadcast on Jan. 15, 1951, in which he laid down conditions for free, secret, direct and truly democratic all-German elections. In reply to another appeal for union the federal chancellor reminded the German Democratic Republic (Feb. 10) that it had signed away a quarter of the pre-1938 territory of Germany, that since 1945 about 200,000 eastern Germans had been placed in concentration camps and 37,000 deported to the U.S.S.R. Adenauer also suggested that the release of political prisoners would be one proof of the soviet zone's sincerity. (Pieck announced the liberation of 20,000 prisoners in September, but by December it was still unclear how many of these were political prisoners or how many had been released.)

From March onward came numerous proposals and counter-proposals both from Pankow and Bonn. Then, on Sept. 27, Adenauer presented in the *bundestag* a program including the following points: in any really free elections all parties should be able to submit candidates throughout the whole country; there should be no travel restrictions from the Federal Republic into the soviet zone and into greater Berlin for at least three months before elections; freedom of political meeting and personal freedom should be guaranteed as well as international protection and supervision.

HAMBURG BUS DEPOT opened in 1951, reported to be the largest in Germany

About the same time, the Allied High commission agreed to bring the question of all-German elections before the United Nations and to request a preliminary U.N. investigation on political conditions in Germany, as to whether democratic elections could be held—a request rejected by eastern Germans as "foreign interference."

As the issue of all-German elections unfolded, it became clear that the Democratic Republic was concerned not with elections but with discussions which could drag on interminably. For the main Communist objective was to prevent western Germany from becoming an integral part of any western European community and especially to prevent its making any military contribution to the North Atlantic Treaty organization.

The Communists also wanted to discuss a German peace treaty and the withdrawal of Allied troops. The Social Democrats proposed on Sept. 25 that the federal parliament should sponsor all-German elections under international control and that elections throughout Berlin should be the first step toward achieving German unity. To a similar suggestion made earlier by the mayor of west Berlin, Ernst Reuter, Grotewohl replied that he was not interested in "parish elections."

At their Washington conference the three foreign ministers stated on Sept. 14 that their aim was "a democratic Germany, on the basis of equality, in a continental European community." Agreement along these lines was reached in Paris, on Nov. 22, between Adenauer and the foreign ministers of the United States, Great Britain and France. Four gains were registered by western Germany at that conference: complete freedom of decision for the German government; the end of economic restrictions; German control of foreign trade; and an assurance that Germany would be heard whenever its interests were involved. Many Germans were, however, sceptical because the agreement and German participation in a European army were to become effective simultaneously.

On this latter issue of rearming, differences existed not only abroad but also among the Germans themselves. The Social Democrats objected to the Pleven plan—or any other—which did not first guarantee full security to the Federal Republic against possible soviet aggression. Objections also came from neutralists like Martin Niemöller who said at Frankfurt on April 17 that Germany could best serve the cause of peace by becoming a buffer state between east and west. There was also the Emergency Committee to Save European Peace founded in November by Frau Helene Wessel, chairman of the Zentrum (Catholic) party, and counting among its leaders Gustav Heinemann, chairman of the Evangelical Church synod and former federal minister of the interior, who were opposed to German rearmament.

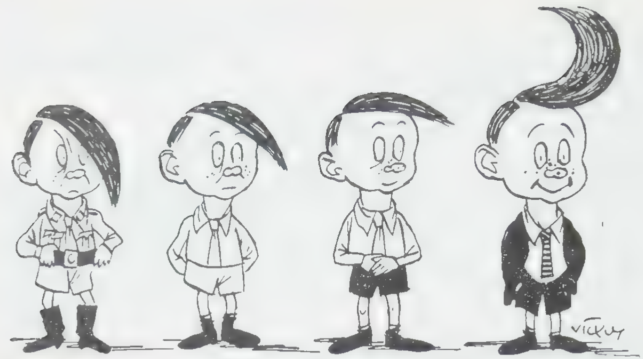
During the year the state of war between the Federal Republic and many other states was officially ended: in the United States a proclamation was issued by the president on Oct. 24, after a resolution to that effect had been adopted by the congress; with the United Kingdom this was announced on July 9 by a notice published in the *London Gazette*.

Chancellor Adenauer (also officially foreign minister since March 15) visited Paris to sign the Schuman plan (April 18) and again to sign the agreement on the new status of the Federal Republic (Nov. 22). He was in Rome from June 14 to 20 and visited London from Dec. 3 to 8.

On March 6 the Federal Republic accepted in principle responsibility for Germany's prewar and postwar debts estimated at 19,000,000,000 DM. ($4,500,000,000). Jewish claims for restitution were dealt with on Sept. 27 in a statement which promised the rapid implementation of legislation, but also stressed the limits of German capacity to pay in view of other victims' claims. The federal government expressed its readiness to discuss the issue with the representatives of world Jewry and the Israeli government.

While the Federal Republic strengthened its contacts with the west, the Democratic Republic did likewise with the east. President Pieck paid an official visit to Prague, Czech., on Oct. 23 and Pres. Bolesław Bierut of Poland visited Berlin-Pankow on April 22. Eastern and western German governments continued to be sharply divided over the frontier with Poland. The former accepted the Oder-Neisse line as the "final peace frontier" in a treaty signed at Frankfurt-on-Oder on Jan. 27. Chancellor Adenauer on the other hand declared in Berlin on Oct. 6, "For us, the territory east of the Oder-Neisse line belongs to Germany." The western Allies' point of view was that the frontiers of Germany would be finally settled by some future peace treaty.

Federal Republic.—Political battles were fought mainly about international rather than internal issues during the year: Western Germany's rearming and the Schuman and Pleven plans, with the Saar problem cropping up periodically in leading de-



"RE-EDUCATION," a cartoon by Vicky of the *News Chronicle* (London), published in 1951

bates between the government and the opposition. The Social Democrats continued to press for a new federal election (not due until 1953) because Adenauer's party, the Christian Democratic union, lost heavily in *Länder* elections and because the rearming was such a vital issue that the electorate should be consulted before any action was taken.

A special feature of the local elections in Lower Saxony, Schleswig-Holstein and Bremen, apart from the defeat of the Communists, was the increase in the support of the neonazis, the Socialist Reich party. One of its outstanding members, Otto Ernst Remer, who in the July 20, 1944, *Putsch* played an important part on the nazi side, was sentenced in May to four months' imprisonment for slandering the government. The federal government announced in November that it would seek a juridical ruling from the supreme court on banning both the Communist and neonazi parties.

The supreme court, whose function was to interpret the constitution and decide issues between federal and *Land* authorities, was officially constituted at Karlsruhe on Sept. 28. In its first case it decided in favour of a plebiscite on the creation of a southwest state out of the existing states of South Baden, Württemberg-Baden and Württemberg-Hohenzollern. Voting took place on Dec. 9. Rather less than 60% of the registered electors voted and only the South Badener provided a majority against the plan; 69.8% voted for a southwest state and 30.2% for the reconstruction of the former *Länder* of Baden and Württemberg.

One of the outstanding struggles in industry had been over *Mitbestimmung* (co-partnership) of employers and employees. This system was introduced into the coal, iron and steel industries of the Ruhr by the British occupation authorities and, by a law passed on April 11, it would be continued there. But important details as to the form of workers' representation on various committees had still to be agreed on. Meanwhile, the German trade union movement (Deutscher Gewerkschaftsbund or D.G.B.) demanded that the system be extended to other industries; *e.g.,* chemicals. Throughout the year there was only one big strike, that of the metal workers in Hesse for higher wages (Aug. 27 to Sept. 24).

Little progress was made toward a satisfactory agreement between the federal and *Länder* governments for equalizing of burdens or for the implementation of a six-year plan for resettling the 9,000,000 refugees concentrated mainly in Schleswig-Holstein and Bavaria.

Allied plans for decentralizing the iron and steel industries and for breaking up the chemical trust (Interessen-Gemeinschaft Farbenindustrie or I.G.F.) were announced on Aug. 24. A law depriving the former German owners of the legal right and title to assets abroad, thereby confirming the Allied use made of them for reparations and other claims, was promulgated on Sept. 5.

The federal budget for 1950 closed with a deficit of 256,800,000 DM. For the first six months of the financial year 1951, receipts from the ordinary and extraordinary budgets were 13,100,000 DM. less than expenditure. Germans attributed these deficits mainly to the heavy occupation costs and mandatory expenses. For the fiscal year 1951–52 these were fixed by the Allies at 6,595,000,000 DM. (1,132,000,000 DM. more than the previous year). German demands that these charges should be reduced and converted into security costs for the upkeep of Allied forces stationed in the Federal Republic and possibly later for meeting the costs of any German contingent in a European army were under consideration. The unofficial Allied estimate of 13,000,000,000 DM. as the Federal Republic's contribution for the first year of rearming was condemned as far too high by German experts. But it represented only 11% of the calculated national production for 1952, and Great Britain and France were themselves paying somewhat higher percentages for their rearming.

Western Germany received from the E.C.A. funds, from 1948 to Sept. 30, 1951, $1,317,284,000. Of this, 50% went into industry in the form of machinery and machine tools and raw materials. Most of the rest went to improve agriculture. (The 1951 harvest was a record for postwar years.) From G.A.R.I.O.A. (Government Appropriation and Releases in Aid of Occupied Areas) funds $80,340,116 was received in 1950–51. The grand total of U.S. aid amounted to about $3,500,000,000 from 1945.

Whereas in the spring the Federal Republic had an adverse balance with the European Payments union, this was later corrected through the increase of exports and restricted imports. For October the monthly surplus in trade balance was 77,000,000 DM.: exports were 1,260,000,000 DM. and imports 1,183,000,000 DM. Ludwig Erhard, the federal minister for economic affairs, announced in parliament on Oct. 11 that the German dollar reserves amounted to $950,000,000.

Production, though by Oct. 1951 only 91% per head of the 1938 figure, was phenomenal as compared with 1946 (26%). Coal was still a great problem. Daily extraction needed to be raised from 375,000 tons to 410,000 tons to be sufficient for all needs. Conditions of ownership in the industry, more houses for miners, a capital investment program to modernize equipment and the retention of the existing coal-marketing system (which the western powers rejected) were among the essential issues that the government was considering in co-operation with the German Coal board and the trade unions.

In 1950 and 1951 more than 700,000 dwellings, with accommodation for 2,500,000 persons were built.

German Democratic Republic.—Differing economic structures in western and eastern Germany presented different problems. Whereas the western republic was predominantly industrial, the eastern was mainly agricultural, but striving to become an industrial state. In 1950, western Germany imported foodstuffs to a value of 5,000,000,000 DM., whereas similar imports by eastern Germany were not 5% of that value. Production, especially in heavy industry, was the main concern of the five-year plan, 1951–55. This envisaged an annual pig iron production of 1,250,000 tons and of 3,000,000 tons of crude steel. Foreign trade increased after 1949, when it amounted to 700,000,000 DM. (East) (exports and imports, without reparations), to about 1,200,000,000 DM. (East) in 1950 and was expected to be still higher in 1951. But 90% of this trade was with the Soviet Union and the people's democracies (the U.S.S.R. led with 50%, then came Poland and Czechoslovakia). In fact, rapid strides were made toward incorporating eastern Germany into the economic bloc of eastern Europe. A five-year trade treaty extending to 1955 was signed in Moscow in September.

Eastern Germany was still dependent, however, upon western

Germany for about 50% of its machinery and raw materials, so that interzonal trade was essential for the success of its five-year plan. Yet the trade agreement signed in July was not in force by December because the eastern German government refused to remove hindrances to traffic on the international highway between west Berlin and western Germany. This agreement was for an exchange of goods valued at about 500,000,000 DM.—manufactured goods from the west and agricultural products from the east. Illegal interzonal trade was such a menace that any west Berlin firms caught engaging in it were threatened with the stoppage of E.C.A. aid. In October, in a single case before a west Berlin court, 15,000 tons of steel valued at 9,000,000 DM. were involved.

The ownership and management of industrial concerns were further concentrated in the hands of the Sowjet Aktien Gesellschaften (S.A.G.)—entered in the trade register as owned by the ministry of foreign trade in Moscow—and of the eastern German nationalized industries, the so-called *volkseigene Betriebe.* By Nov. 1951 only 26% were in private hands, and of these 2% were under trusteeship. The S.A.G. owned 66% of the chemical industry, 95% of gasoline and diesel oil, 36% of brown coal and 45% of the electrical industries.

Production in April was said to be 75% (in volume) of that for 1936. But some idea of the outlook for the individual might be gathered from the fact that Walter Ulbricht, the deputy premier and general secretary of the Sozialistische (Communist) Einheitspartei, in dealing with the five-year plan promised that in 1955 it would be possible to give every person in the soviet zone 1.24 pairs of leather shoes—a rise of 376% over 1950 supplies.

Political activities continued to concentrate upon criticism of the west. A White Book on *American-English Policy of Intervention in Western Germany and the Revival of German Imperialism* was published on Aug. 11. Party organizations were still being purged of all unreliable elements and a sharp watch was being kept on all publications. In November most of the Russian staff of the soviet-controlled newspaper *Tägliche Rundschau* was replaced as were also some of the chief German editors of the soviet-licensed press agency, A.D.N. (Allgemeiner Deutscher Nachrichtendienst). Literature was being carefully scrutinized by a new branch of the A.D.N. Every new book was judged from the standpoint of whether it fulfilled its "intended social function." Publishing firms were controlled, after some of their publications had been withdrawn because they were too "objective." (*See* also EUROPEAN UNION; NORTH ATLANTIC TREATY ORGANIZATION; REFUGEES; UNION OF SOVIET SOCIALIST REPUBLICS.) (J. E. WI.)

Education.—*Western Germany.*—Schools (May 1950): elementary 28,400, pupils 6,291,000, teachers 130,400; higher elementary 579, pupils 196,067, teachers 6,011; secondary 1,488, pupils 620,488, teachers 28,872; universities 16, students 74,258, professors and lecturers 3,450; Roman Catholic theological and philosophical faculties 10, students 3,778; technical colleges 7, students 21,640. The Free university in western Berlin had 2,000 students in 1951.

Eastern Germany.—Universities 5, students (1948) 12,269, teaching staff 671. In addition there was the University of Berlin with, in 1948, 5,634 students and 157 professors and lecturers.

Finance and Banking.—*Western Germany.*—Budget: (1950–51 est.) balanced at 13,013,600,000 DM., including occupation costs of 4,598,400,000 DM.; (1951–52 est.) balanced at 17,260,000,000 DM., including occupation costs of 7,300,000,000 DM. National income (1950): 73,400,000,000 DM. Bank deposits (May 1951): 8,200,000,000 DM. Currency circulation (June 1951): 7,550,000,000 DM. Monetary unit: deutschemark, created by the currency reform of June 20, 1948; official exchange rate (Dec. 1951): U.S. $1 = 4.20 DM.

Eastern Germany.—Budget (1950 est.): balanced at 13,500,000,000 DM.(East), including occupation costs estimated at 6,100,000,000 DM.-(East). Currency circulation (Oct. 1950): 4,169,000,000 DM.(East). Although theoretically at par with the western mark, the free exchange rate in Berlin was (Dec. 1951): 1 DM. = 5.60 DM.(East).

Foreign Trade.—Western German imports in 1951 doubled in value in comparison with 1949. As exports increased more than threefold, the adverse balance of trade was wiped out. Imports (1949) 7,332,000,000 DM., exports (1949) 3,804,000,000 DM.; imports (1951) 14,400,000,000 DM., exports (1951) 13,200,000,000 DM. Eastern German imports and exports were together estimated at 700,000,000 DM.(East) in 1949 and at 1,200,000,000 DM. (East) in 1950.

GERMAN WOMEN stencilling plastic balloons with the Polish word for "freedom" in 1951. About 2,000,000 such propaganda messages were launched from Munich to drift over Poland and Czechoslovakia in an international anti-communist campaign titled "Winds of Freedom"

Transport and Communications.—Railways (Dec. 1950): western Germany 30,734 km., eastern Germany 14,400 km. Railway traffic (western Germany, monthly average, 1950): 2,443,000,000 passenger-kilometres; goods 4,007,000,000 ton-kilometres; goods transported 19,360,000 metric tons. Roads (Dec. 1950): western Germany 127,621 km.; eastern Germany 54,900 km. Motor vehicles licensed (western Germany, Dec. 1950): 2,155,355, including 987,583 motorcycles. Cargo in western German ports in external trade (monthly average, May 1951): loaded 820,000 metric tons, unloaded 1,578,000 metric tons. Telephones (Jan. 1950): western Germany 2,112,728; eastern Germany about 300,000.

Agriculture.—*Western Germany without the Saar.*—Main crops (metric tons, 1951): wheat 2,949,000; rye 3,034,000; barley 1,688,000; oats 2,835,000; potatoes 24,103,000. Livestock (Sept. 1950): cattle 10,883,000; pigs 9,698,000; goats (includes the Saar) 1,445,000; sheep 2,020,000; horses 1,629,000; poultry 39,957,000. Food production (metric tons, 1951 est.): meat 1,212,000; butter 276,000; sugar, raw 1,085,000; milk 156,000,000 hl.

Eastern Germany.—Main crops (metric tons, 1950): wheat 815,000; rye 2,130,000; barley 515,000; oats 1,140,000; potatoes (1951) 10,890,000. Livestock (Sept. 1950): cattle 3,310,000; pigs 4,310,000; goats 1,644,000; sheep 900,000; horses 695,000; poultry 19,902,000. Food production: milk (1947) 22,220,000 hl.; butter (1949) 64,000 metric tons; meat (1949) 419,000 metric tons; sugar, raw (1951) 775,000 metric tons.

Industry.—*Western Germany.*—The index of industrial production, which stood at 89 in 1949 (1936 = 100), rose to 113 in 1950 and reached 148 in 1951. The number of persons employed in industry in Sept. 1951 was 14,884,500, but there were still 1,234,900 unemployed. Chief items of production (metric tons, 1951 est.): coal 118,900,000; lignite 80,000,000; electricity 50,400,000,000 kw.hr.; gas 10,200,000,000 cu.m.; crude oil 1,300,000; pig iron 10,300,000; steel 13,500,000; cement 12,000,000; cotton yarn 312,000; woven cotton fabrics 210,000; wool yarn 96,000; rayon filament yarn 55,000; rayon staple fibre 120,000. Motorcars produced (1951) 312,000; trucks 132,000.

Eastern Germany.—Eastern Germany produced in 1951 about 2,500,000 metric tons of coal, about 900,000 tons of crude steel and about 100,000,000 tons of lignite.

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G.I. Bill of Rights: *see* VETERANS ADMINISTRATION (U.S.).

Gibraltar. A British fortress colony, Gibraltar is situated on a peninsula from the southwest coast of Spain covering the western outlet of the Mediterranean. Area: 2.12 sq.mi. (including reclamation). Pop., excluding armed forces:

(mid-1950 est.) 25,000. Governor in 1951, Lieut. Gen. Sir Kenneth Anderson.

History.—The new legislative council, which had been opened by the duke of Edinburgh on Nov. 2, 1950, got under way in 1951 and ran into no trouble until the autumn session when it was presented with bills introducing income tax and workmen's compensation, neither of which were popular. On April 27 an Admiralty supply vessel, the "Bedenham," blew up in the harbour; ten civilians were killed and extensive, though largely superficial, damage was done to the town, particularly to Government house and the secretariat. The big flat-building scheme continued to make good progress: the first part of it was completed by the end of the year. On Aug. 4 the Spanish government organized the first annual "Gibraltar day" to impress upon Spanish youth the continuing tragedy, as the Spaniards saw it, of occupation of the fortress by foreigners.

Education.—Primary and infant schools 15 (1,638 pupils), secondary schools 6 (1,013 pupils).

Finance and Trade.—Currency: pound sterling with local notes. Budget (1951 est.): revenue £819,000; expenditure (including development) £1,240,000. Foreign trade: imports (1950) £5,000,000; exports (including re-exports) £634,000. (K. G. B.)

Gilbert and Ellice Islands Colony: *see* PACIFIC ISLANDS, BRITISH.

Girl Scouts: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Glands: *see* ENDOCRINOLOGY.

Glass. In 1951 the U.S. glass industry continued to be prosperous. Production reached new high levels in several fields. Enough pieces of glassware were made to supply every person in the country with 115 bottles and jars, more than 4 automatically-made tumblers and 3 pieces of household glassware. Competition by foreign producers of handmade glass tableware began to be felt. Plastic substitutes for tumblers and small dishes appeared in larger numbers than formerly.

Flat-glass production ran 8% ahead of 1950, which was a record year. Automobiles required the major portion of the polished plate and a great deal of the window glass, while an expanded construction program accounted for further increases in consumption. The flat-glass industry made progress in the improvement of glass quality and in techniques such as the bending of polished plate.

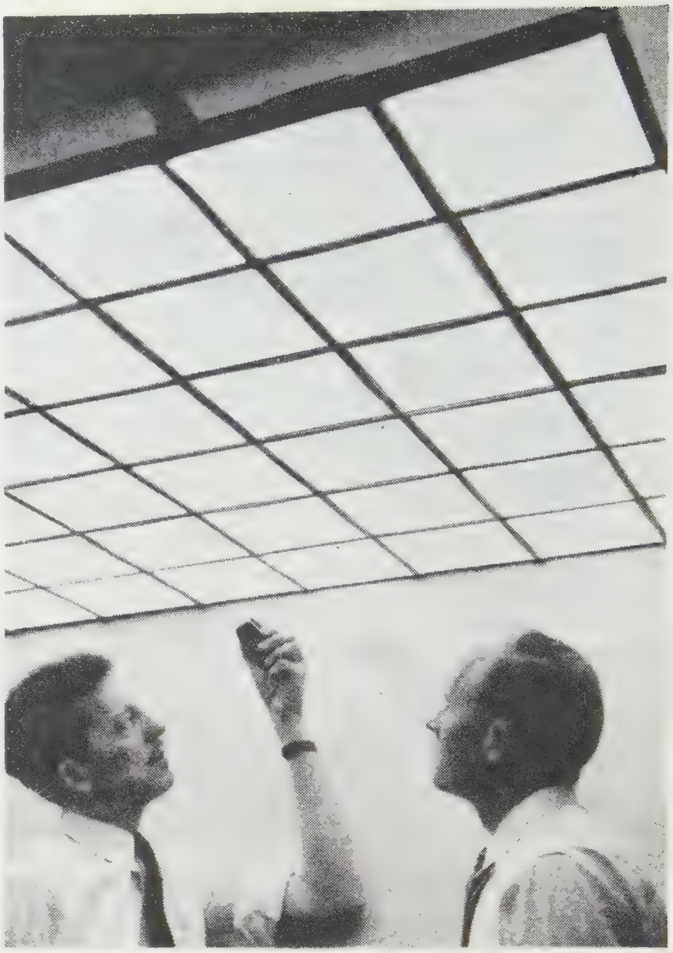
Certain of the manufacturers of flat glass established plants for making glass fibres. The combination of glass fibres and a plastic into a reenforced body with a tremendous ratio of strength to weight emerged from the experimental stage. Increasing production and widespread application of this new engineering material was expected. Numerous patents disclosing new methods of making and using glass fibres were issued during the year.

The extent of mechanization in the U.S. glass industry was emphasized by the fact that ware selling for $1,000,000,000 was produced in 1951 by 130,000 workers, earning $400,000,000.

Published studies of container-glass compositions showed that over a period of ten years the soda content diminished 0.5% to an average 15.5%, lime (including magnesia) rose as much to an average 10.5%, silica remained at about 72.5%. Among the minor constituents, fluorine appeared in place of some of the boron oxide.

Raw materials were in good supply, with the exception of selenium and cobalt oxide, both essential for making colourless glasses in tanks.

Corning Glass works celebrated its 100th anniversary by opening to the residents of Corning, N.Y., and to the public its Glass centre, a spacious building of modern design housing a museum, a library, an auditorium, recreation rooms and an actual factory, where visitors might sit to watch the blowing of fine glassware.



PHOSPHOR CEILING PANELS, a new form of lighting announced by Sylvania Electric Products Inc. in 1951. The panels consisted of sheets of glass coated with thin layers of phosphor and metal; they were plugged in like ordinary lamps and gave a dim but even glow

The International Commission on Glass met in Paris, Fr., in June, with members present representing technical societies of 11 nations, including the U.S. The societies were co-operating on testing methods, standards and definitions of terms. (*See* also CERAMIC PRODUCTS.) (S. R. S.)

Gliding. In the United States on Dec. 30, 1950, William S. Ivans, Jr., flying a 1–23 reached an absolute altitude record of 42,000 ft. and an altitude gained record of 32,000 ft. On March 5, 1951, Robert Symons and a passenger soared to an absolute altitude record for multiplace gliders of 38,305 ft., in a Pratt Read. On Aug. 5, 1951, Richard H. Johnson set a distance record of 535.169 mi. flying his RJ 5. In France on May 5, 1951, René Fonteillis flew a passenger in a Kranich at an average speed of 41 m.p.h. for a new record.

Three pilots earned the newest Fédération Aéronautique Internationale award, the Diamond C: John Robinson of the U.S., number 1; Gerard Pierre of France, number 2; and J. Shelly Charles of the U.S., number 3.

New British national records were made in England by A. W. Bedford on May 2, 1951, flying an Olympia. He flew 257 mi. to a predetermined destination to both a new distance and a new goal record. P. A. Wills set a goal and return record of 160 mi. on June 3, 1951, with his Wiehe. The British National Glider contest was held at Great Hucklow, July 21–29. There were 34 entries under two categories—24 of the entries were teams and 10 of the entries were individuals. The team championship was won by A. Goodhart and N. Goodhart flying a Meise and the individual championship was earned by R. C. Forbes in a Sky.

The French women's distance record was broken on May 11, 1951, when Mme. M. Choisnet-Gohard flew the Air 100 for 235 mi.

Western Germany was again given permission to fly gliders and held its first postwar glider meeting on Aug. 25 and 26 at the Wasserkuppe. An estimated 30,000 people attended the demonstration by 15 gliders, most of which were home built.

The 18th National Soaring contest of the Soaring Society of America was held at Elmira, N.Y., from July 4 to 12, 1951. Thirty-five pilots participated and flew 7,093 mi. The longest flight was 363 mi. by Richard H. Johnson, who earned the title of national soaring champion for the second consecutive time.

Ten pilots assembled at Odessa, Tex., for a soaring expedition. In the following five days the average distance per flight was 254.7 mi. Besides the international distance record already mentioned, W. Wiberg, on Aug. 5, 1951, flew his LK to a predetermined destination 332.903 mi. away for a new national record.

Several new gliders were designed and built. The Institute of Gliding in Poland created the I.S. 4 Jastrzab, an aerobatic glider with excellent stability characteristics, and the I.S. 6X Nietoperz, a tailless glider which was flown successfully. Fritz Raab of western Germany produced the Doppelraab, designed to serve as an inexpensive, simple intermediate two-place sailplane suitable for all aspects of glider training.

In the United States two new designs appeared—a sailplane by Kemp Trager with a pressurized cabin for high-altitude flight, and a modification of the RJ 5. (B. Sk.)

Gold.

The most notable gold development in 1951 was the reversal in international monetary gold movements. From July through Dec. 1951 the United States bought from foreign countries as a whole $1,000,000,000 worth of gold, as against net sales of $937,000,000 in the first half of the year and of $2.800,000,000 from Oct. 1949, after the world-wide currency readjustments, through June 1951. From the beginning of 1946 to the end of Sept. 1949 the United States had bought $5.400,000,000 worth of foreign-owned gold, despite large-scale U.S. financial aid (the British loan, Export-Import Bank of Washington loans, European Recovery program, etc.). These gold movements and their geographical distribution may be seen from Table I.

Table I.—*United States Gold Purchases from Other Countries*

(In millions of dollars; negative figures indicate net sales by the United States)

	Total	United Kingdom and overseas sterling area	Continental Europe*	Latin America	Asia and Oceania	All other countries†
1945	— 453	—	167	—472	—188	40
1946	721	94	82	171	14	361
1947	2,864	663	1,069	808	1	323
1948	1,510	1,233	192	82	— 4	7
1949	193	642	— 250	—148	— 52	2
1950	—1,730	—1,007	— 364	—172	— 39	—148
1951—January–June	— 937	— 467	— 217	—164	— 26	— 63
July–December	1,005	n.a.	n.a.	n.a.	n.a.	n.a.

*Almost entirely western European countries participating in the European Recovery program. †Including Canada. n.a.—not available.

Note: For more detailed and more recent data, see the *Federal Reserve Bulletin.*

The transactions in monetary gold between the United States and other countries are in turn reflected in changes in official monetary reserves; the latter also include that portion of current gold production which is neither absorbed by the arts and industry nor acquired by private hoarders. The monetary gold stock of the United States, which had declined from $24,700,000,000 in Sept. 1949 to $21,900,000,000 in June 1951, stood at $22,900,000,000 at the end of 1951. On the other hand, other countries as a whole (excluding the U.S.S.R.), whose official gold holdings increased from $9,000,000,000 in Sept. 1949 to $12,300,000,000 in June 1951, experienced a decline in the second half of 1951. The gold losses of the United Kingdom were particularly large and reflected the serious setback to the measure of internal stability and external viability that had been attained by early 1951. In Sept. 1951 total foreign official gold holdings amounted to $12,100,000,000, as against $12,300,000,000 three months earlier; they had stood at $13,700,000,000 at the end of 1945.

Together with the gold holdings of the International Monetary fund (approximately $1,500,000,000) and the Bank for International Settlements ($144,000,000), the world's monetary gold reserves (excluding the U.S.S.R.) in Sept. 1951 amounted to $36,000,000,000.

In Sept. 1951 the United States held 61% of the world monetary gold stock.

Instead of flowing almost entirely into official monetary reserves, as it had until mid-1950 and the outbreak of the Korean war, a considerable portion of current world gold production found its way in 1951 into private hoards. Some gold was also released for nonmonetary uses from official holdings. Largely because of the increased gold supply, and perhaps also because the hoarding demand for gold was less insistent at the close of 1951 than at its beginning, the premium prices apparently fell from $44 per fine ounce in Jan. 1951 to about $38.75 in December. However, at no time after the outbreak of the Korean war did the free-market gold price reach the high of $55 per ounce that had been reported in May 1949. By mid-1950 the price was approximately at $36, or very close to the United States treasury price. The gold premiums reflect political and financial uncertainties in those parts of the world where gold is traded on free and black markets.

In Sept. 1951 the International Monetary fund reaffirmed its belief that gold should be concentrated in official reserves and not allowed to leak away into private hoards. However, the fund found it impracticable to require all its member countries, in widely different situations, to apply uniform controls. Accordingly, while it urged the members to support the economic principles of its established gold policy, it left to its members—subject to the limitations imposed by the articles of agreement—the practical operating decisions to ensure that gold should be held to the maximum extent practicable in official reserves rather than be allowed to go into private hoards. (M. A. K.)

World Production.—So far as data were available at the close of 1951, Table II shows the outputs of the major producing countries, as reported by the U.S. bureau of mines. However, the world totals were uncertain, as only estimates could be used for the output of the U.S.S.R.

Table II.—*World Production of Gold (Refinery Production)*

(In thousands of fine ounces)

	1944	1945	1946	1947	1948	1949	1950
United States	1,022	929	1,462	2,165	2,025	1,922	2,289
Canada	2,923	2,697	2,833	3,070	3,530	4,124	4,431
Mexico	509	419	421	465	368	406	408
Central America	269	244	240	239	260	286	304
South America	1,370	1,276	1,194	982	943	1,100	1,060
India	188	168	132	172	180	161	197
Belgian Congo	364	341	331	301	300	334	339
Gold Coast	534	475	587	558	672	677	680?
Southern Rhodesia	593	568	545	520	514	528	511
South Africa	12,280	12,225	11,927	11,200	11,584	11,705	11,664
Australia	657	657	824	938	886	889	850
Total (est.)	26,200	26,100	27,600	28,900	29,800	30,800	31,600

United States.—While domestic mine output in 1950 reached its highest level since it was cut back by war restrictions, it still fell somewhat short of the halfway mark as compared with the 1940 high of 4,869,949 oz. The monthly figures for the first three quarters of 1951 were down to about the 1949 level, totalling 1,494,073 oz. for the nine months.

Canada.—Gold production increased from 4,123,518 oz. in 1949 to 4,448,396 oz. in 1950, of which 573,873 oz. came from base metal ores and 3,874,523 oz. from gold mines and placers.

South Africa.—The world's major gold producer dropped in output from 11,705,048 oz. in 1949 to 11,663,713 oz. in 1950 and 7,673,870 oz. in the first eight months of 1951. (*See* also EXCHANGE CONTROL AND EXCHANGE RATES; MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Gold Coast: *see* BRITISH WEST AFRICA.

Golf.

During 1951, Ben Hogan, winner of the 1948 and 1950 United States open championships, became one of the few men in history to take the championship three times. At Oakland Hills, Detroit, Mich., Hogan was trailing by 5 strokes at the end of 36 holes in the 72-hole test, but he finished with a 35–32–67, which he styled the best round of his career. His score was 287.

Only one other man, Clayton Heafner, who was runner-up with 289, was able to break 70 at Oakland Hills.

Dorothy Kirby, Atlanta, Ga., won the women's national amateur championship by defeating Claire Doran of Cleveland, O., 2 and 1, in the 36-hole final match in St. Paul, Minn. Miss Kirby had entered her first national at 13 years of age, and had twice finished as runner-up for the title.

Sam Snead of White Sulphur Springs, W.Va., scored his third victory in national professional championship play by running away from the field in the 1951 P.G.A. at Pittsburgh's (Pa.) Oakmont club.

Richard D. Chapman of Pinehurst, N.C., a relentless seeker after the British amateur championship for half of his 41 years, finally hit when he defeated his Walker cup compatriot, Charley Coe, in the final at Porthcawl, Wales.

Lloyd Mangrum, Niles, Ill., and Billy Maxwell, Odessa, Tex., also scored firsts. Maxwell won the national amateur championship in Bethlehem, Pa., and Mangrum, who had never attained either distinction before, led all professional money winners with $26,008, and also captured the Vardon scoring trophy with an average of 70.05 strokes per round for 104 rounds.

Aside from the competitive phase of the game, golf prospered in every section of the country, notably in the open championship at Detroit's Oakland Hills club, where a record attendance revenue of $70,000 was established. A gallery of 15,000, the largest single day audience in the 51-year history of the United States Golf association's classic, witnessed the final two rounds of the tournament. (C. Bt.)

United Kingdom and Europe.—M. Faulkner, who at Portrush, N.Ire., won the first British open championship to be played in Ireland, and the masters tournament at Wentworth, was the outstanding British golfer of 1951. His open victory would have been overwhelming but for a brave last round by A. Cerda. Of the other professionals J. Panton, who won the Vardon trophy, and C. H. Ward were the most consistent. The matchplay champion hit great distances and putted ruthlessly at Hoylake, Cheshire, in beating F. van Donck, T. H. Cotton, W. D. Smithers and, in the final, J. Adams, who won the Italian open a few days later. P. Thomson, a young Australian, returned a 62 at Oakdale and created a new record for major British tournaments.

The United States retained the Walker cup at Birkdale by 6–3. The match in which C. R. Coe was beaten by R. J. White was one of the greatest within memory. J. B. Carr defeated Frank Stranahan, and A. T. Kyle, with the aid of a stymie on the last green, beat W. P. Turnesa, the U.S. captain. In the Ryder cup match at Pinehurst, N.C., the British team was defeated by 9½–2½. A. Lees became the first British professional to win both his foursome, with Ward, and his single in the U.S. F. Daly halved his single and D. J. Rees was beaten only on the last green. Faulkner and Ward played against the greatest U.S. players, Sam Snead and Ben Hogan. The remainder were outclassed.

ROBERTO DE VICENZO of Argentina, winner of the Palm Beach round-robin tournament at New Rochelle, N.Y., shooting out of a sand bunker during the final round on June 10, 1951

The Amateur championship was played in Wales for the first time, at Porthcawl, Glamorgan. Most of the leading British players did not compete and although Carr again defeated Stranahan a U.S. victory was almost inevitable. R. D. Chapman in his third final overcame Coe by 5 and 4. For the last eight holes of the game he required only 26 strokes. G. P. Roberts won the English title at Hunstanton, Norfolk, defeating H. Bennett at the 39th. The women's championship was won by an Irish golfer, Mrs. P. G. MacCann, who beat F. Stephens by 4 and 3 at Broadstone. Later in the year Miss Stephens was a member of a British team which toured the Union of South Africa. In July six leading U.S. women professionals visited England and played in two events.

F. van Donck (Belgium) was the most successful European professional. In addition to the Silver King and North British tournaments he won the Dutch and Spanish opens and was runner-up to A. Pelissier (France) in the Belgian. Several U.S. Walker cup players appeared in the French amateur championship and R. W. Knowles (U.S.) defeated H. de Lamaze, the best European amateur, in the final.

The vicomtesse de Saint-Sauveur remained the most effective woman player in Europe.

During the summer representatives of the United States Golf association visited Great Britain to confer with the Rules of Golf committee of St. Andrews and uniformity of rules between the two countries was agreed upon. The most important changes, which became effective on Jan. 1, 1952, were the abolition of the stymie, revised definitions of putting surfaces and hazards, and reversion to the increased penalty of stroke and distance for out of bounds, lost and unplayable balls. In the autumn Francis Ouimet drove himself in at St. Andrews and became the first U.S. captain of the Royal and Ancient club. (P. A. W-T.)

Gonorrhoea: *see* VENEREAL DISEASES.

Government Departments and Bureaus, U. S.

The principal departments and bureaus of the U.S. government, and their chief executive officers as of Jan. 1, 1952, were:

Department or Bureau	Name	Post
Department of State	*Acheson, Dean G.	Secretary
	Webb, James E.	Under-Sec'y
	Bohlen, Charles E.	Counselor
	McFall, Jack K.	Asst. Sec'y
	Hickerson, John D.	Asst. Sec'y
	Miller, Edward G., Jr.	Asst. Sec'y
	Perkins, George W.	Asst. Sec'y
	Rusk, Dean	Asst. Sec'y
	McGhee, George C.	Asst. Sec'y
	Thorp, Willard L.	Asst. Sec'y
	Barrett, Edward W.	Asst. Sec'y
Department of the Treasury	*Snyder, John W.	Secretary
	Foley, Edward H., Jr.	Under-Sec'y
Office of the Comptroller of the Currency	Delano, Preston	Comptroller
Office of the Treasurer of the U.S.	Clark, Mrs. Georgia Neese	Treasurer
Bureau of Customs	Dow, Frank	Commissioner
Bureau of Internal Revenue	Dunlap, John B.	Commissioner
Bureau of Narcotics	Anslinger, Harry J.	Commissioner
Bureau of the Mint	Ross, Mrs. Nellie Tayloe	Director
U.S. Savings Bonds Division	Clark, Vernon L.	Nat'l Director
*U.S. Coast Guard	O'Niell, Merlin, Vice-Adm.	Commandant
Department of Defense	*Lovett, Robert A.	Secretary
Joint Chiefs of Staff	*Bradley, Omar N., Gen. of the Army	Chairman
	*Collins, J. Lawton, Gen.	
	*Fechteler, William M., Adm.	
	*Vandenberg, Hoyt S., Gen.	
Armed Forces Policy Council	*Lovett, Robert A.	Chairman
Munitions Board	Small, John D.	Chairman
Research and Development Board	Whitman, Walter G.	Chairman
Military Liaison Committee to the Atomic Energy Commission	LeBaron, Robert	Chairman
Department of the Army	*Pace, Frank, Jr.	Secretary
	Alexander, Archibald S.	Under-Sec'y
Chief of Staff	*Collins, J. Lawton, Gen.	Chief
Women's Army Corps	Hallaren, Mary A., Col.	Director
Department of the Navy	*Kimball, Dan A.	Secretary
	Whitehair, Francis P.	Under-Sec'y
Chief of Naval Operations	*Fechteler, William M., Adm.	Chief
Asst. Chief for Women, Bureau of Naval Personnel	Hancock, Joy B., Capt.	Asst. Chief for Women
*U.S. Marine Corps	Shepherd, Lemuel C., Jr., Gen.	Commandant
Women Marines	Towle, Katherine A., Col.	Director
Department of the Air Force	*Finletter, Thomas K.	Secretary
	Gilpatric, Roswell L.	Under-Sec'y
Chief of Staff	*Vandenberg, Hoyt S., Gen.	Chief
Women in the Air Force	Shelly, Mary Jo, Col.	Director
Department of Justice	*McGrath, J. Howard	Att'y-Gen.
Solicitor General	Perlman, Philip B.	Solic. Gen.
*Federal Bureau of Investigation	Hoover, J. Edgar	Director
Bureau of Prisons	Bennett, James V.	Director
Immigration and Naturalization Service	Mackey, Argyle R.	Commissioner
*Post Office Department	*Donaldson, Jesse M.	Postmaster Gen.
Department of the Interior	*Chapman, Oscar L.	Secretary
Bureau of Land Management	Clawson, Marion	Director
Bureau of Indian Affairs	Myer, Dillon S.	Commissioner
Geological Survey	Wrather, William E.	Director
Fish and Wildlife Service	Day, Albert M.	Director
Bureau of Reclamation	Straus, Michael W.	Commissioner
*National Park Service	Wirth, Conrad L.	Director
Bureau of Mines	Forbes, John J.	Director
Office of Territories	Davis, James P.	Director
Department of Agriculture	*Brannan, Charles F.	Secretary
*Agricultural Research Administration	Cardon, Philip V.	Administrator
Bureau of Agricultural and Industrial Chemistry	Hilbert, G. E.	Chief
Bureau of Animal Industry	Simms, Bennett T.	Chief
Bureau of Dairy Industry	Reed, O. E.	Chief
Bureau of Entomology and Plant Quarantine	Hoyt, Avery S.	Chief
Bureau of Human Nutrition and Home Economics	Stiebeling, Hazel K.	Chief
Bureau of Plant Industry, Soils and Agricultural Engineering	Moseman, A. H.	Chief
Office of Experiment Stations	Trullinger, R. W.	Chief
Bureau of Agricultural Economics	Wells, O. V.	Chief
Commodity Credit Corporation	Geissler, G. F.	President
Extension Service	Wilson, M. L.	Director
*Farm Credit Administration	Duggan, Ivy W.	Governor
*Farmers Home Administration	Lasseter, Dillard B.	Administrator
Federal Crop Insurance Corporation	Northrup, Fred B.	Acting Manager
Forest Service	Watts, Lyle F.	Chief
Foreign Agricultural Relations, Office of	Andrews, Stanley	Director
Production and Marketing Administration	Geissler, G. F.	Administrator
*Rural Electrification Administration	Wickard, Claude R.	Administrator
Soil Conservation Service	Salter, Robert M.	Chief
Department of Commerce	*Sawyer, Charles	Secretary
	Hollar, Philip A.	Acting Under-Sec'y
	(Vacancy)	Under-Sec'y
Bureau of the Census	Peel, Roy V.	Director
Bureau of Foreign and Domestic Commerce	(Vacancy)	Director
*National Bureau of Standards	Astin, A. V.	Acting Director
*Coast and Geodetic Survey	Studds, R. F. A., Rear Adm.	Director
Inland Waterways Corporation	Oliphant, William G.	Acting President
*Civil Aeronautics Administration	Horne, C. F.	Administrator
*Patent Office	Marzall, John A.	Commissioner
Weather Bureau	Reichelderfer, Francis W.	Chief
Bureau of Public Roads	MacDonald, Thomas H.	Commissioner
Federal Maritime Board	Cochrane, Edward L., Vice Adm.	Chairman
National Production Authority	Fleischmann, Manly	Administrator
Department of Labor	*Tobin, Maurice J.	Secretary
	Galvin, Michael J.	Under-Sec'y
Bureau of Labor Statistics	Clague, Ewan	Commissioner
Bureau of Apprenticeship	Patterson, William F.	Director
Women's Bureau	Miller, Frieda S.	Director
Bureau of Labor Standards	Connolly, William L.	Director
Wage and Hour and Public Contracts Divisions	McComb, William R.	Administrator
Bureau of Employment Security	Goodwin, Robert C.	Director
Bureau of Employees' Compensation	McCauley, William	Director
Independent Offices		
Atomic Energy Commission	Dean, Gordon E.	Chairman
Civil Aeronautics Board	Nyrop, Donald W.	Chairman
*Export-Import Bank of Washington	Gaston, Herbert E.	President
*Federal Communications Commission	Coy, Wayne	Chairman
*Federal Deposit Insurance Corporation	Harl, Maple T.	Chairman
Federal Mediation and Conciliation Service	Ching, Cyrus S.	Director
*Federal Power Commission	Buchanan, Thomas C.	Acting Chairman
*Federal Reserve System, Board of Governors of the	Martin, William McC., Jr.	Chairman
*Federal Security Agency	Ewing, Oscar R.	Administrator
U.S. Office of Education	McGrath, Earl J.	Commissioner
U.S. Public Health Service	Scheele, Leonard A.	Surgeon General
*Social Security Administration	Altmeyer, Arthur J.	Commissioner
Food and Drug Administration	Crawford, Charles W.	Commissioner
*Office of Vocational Rehabilitation	Switzer, Mary E.	Director
*Federal Trade Commission	Mead, James M.	Chairman
General Accounting Office	Warren, Lindsay C.	Comptroller General
General Services Administration	Larson, Jess	Administrator
Public Buildings Service	Reynolds, W. E.	Commissioner
National Archives and Records Service	Grover, Wayne C.	Archivist
Federal Supply Service	Mack, Clifton E.	Commissioner
Emergency Procurement Service	Walsh, A. J.	Commissioner
Government Printing Office	Deviny, John J.	Public Printer
Housing and Home Finance Agency	Foley, Raymond M.	Administrator
Federal National Mortgage Association	Baughman, J. Stanley	President
Home Loan Bank Board	Divers, William K.	Chairman
Federal Housing Administration	Richards, Franklin D.	Commissioner
Public Housing Administration	Egan, John Taylor	Commissioner
Community Facilities and Special Operations, Division of	Seward, Pere F.	Commissioner
Indian Claims Commission	Witt, Edgar E.	Chief Commissioner
*Interstate Commerce Commission	Rogers, John L.	Chairman
Library of Congress	Evans, Luther H.	Librarian
National Advisory Committee for Aeronautics	Hunsaker, Jerome C.	Chairman
National Capital Park and Planning Commission	Remon, John A.	Chairman
*National Labor Relations Board	Herzog, Paul M.	Chairman
National Mediation Board	Edwards, Leverett	Chairman
National Science Foundation	Waterman, Alan T.	Director
Railroad Retirement Board	Kennedy, William J.	Chairman
*Reconstruction Finance Corporation	W. Stuart Symington	Administrator
*Securities and Exchange Commission	McDonald, Harry A.	Chairman
*Selective Service System	Hershey, Lewis B., Maj. Gen.	Director
*Smithsonian Institution	Wetmore, Alexander	Secretary
Tax Court of the United States	Kern, John W.	Chief Judge
*Tennessee Valley Authority	Clapp, Gordon R.	Chairman
U.S. Civil Service Commission	Ramspeck, Robert	Chairman
Fair Employment Board	Houghteling, James L.	Chairman
Loyalty Review Board	Bingham, Hiram	Chairman
U.S. Tariff Commission	Ryder, Oscar B.	Chairman
*Veterans Administration	Gray, Carl R., Jr.	Administrator
War Claims Commission	Cleary, Daniel F.	Chairman
Executive Office of the President		
Bureau of the Budget	Lawton, Frederick J.	Director
Council of Economic Advisers	Keyserling, Leon H.	Acting Chairman
National Security Council	Lay, James S., Jr.	Executive Sec'y
Central Intelligence Agency	Smith, Walter B.	Director
National Security Resources Board	Gorrie, Jack	Chairman
*Office of Defense Mobilization	*Wilson, Charles E.	Director
Emergency Agencies		
Defense Materials Procurement Agency	Larson, Jess	Administrator
Defense Production Administration	Fleischmann, Manly	Administrator
Defense Transport Administration	Knudson, James K.	Administrator
Economic Cooperation Administration[1]	Bissell, Richard M. Jr.	Administrator
Economic Stabilization Agency	Putnam, Roger Lowell	Administrator
Price Stabilization, Office of	*DiSalle, Michael V.	Director
Rent Stabilization, Office of	Woods, Tighe E.	Director
Salary Stabilization Board	Miller, Justin B.	Chairman
Railroad and Airline Wage Board	Bortz, Nelson M.	Chairman
Wage Stabilization Board	Feinsinger, Nathan P.	Chairman
*Federal Civil Defense Administration	Caldwell, Millard	Administrator
Mutual Security Agency	*Harriman, W. Averell	Director
Small Defense Plants Administration	Taylor, Telford	Administrator

Department or Bureau	Name	Post
Quasi-Official Agencies		
*American National Red Cross . . .	Harriman, E. Roland	President
†National Academy of Sciences and National Research Council . . .	Bronk, Detlev W.	President, National Academy of Sciences
	Rubey, William W.	Chairman, National Research Council

*See separate article.
†See *Societies and Associations.*
[1] Abolished Dec. 30, 1951.

Grain: *see* BARLEY; CORN; OATS; RICE; RYE; WHEAT.
Grapefruit: *see* FRUIT.
Grapes: *see* FRUIT.
Great Books of the Western World: *see* BOOK PUBLISHING.

Great Britain & Northern Ireland, United Kingdom of.

An independent kingdom in northwestern Europe, the United Kingdom comprises the main island of Great Britain, with numerous smaller islands off the English and Scottish coasts, and the six northeastern counties of Ireland. It is a constitutional monarchy, with a king and parliament of two houses, the house of lords which on Nov. 13, 1951, consisted of 3 peers of the blood royal, 791 hereditary peers (21 dukes, 27 marquesses, 134 earls, 93 viscounts and 516 barons), 26 spiritual peers (2 archbishops and 24 bishops), 16 Scottish representative peers, a number of Irish representative peers (in 1951, 5; vacancies no longer filled) and 9 life peers who have held high judicial office; and the house of commons, numbering 625 members, elected by universal suffrage. Table I shows areas and populations of the component parts of the United Kingdom.

Language: English is almost universally spoken, but in Wales (according to the 1931 census) 3% of the population spoke Welsh only and 31% spoke both languages; in Scotland (1951 census) 2,652 spoke Gaelic only and 91,630 spoke both languages; in the Isle of Man 528 spoke English and Manx. Religion: Church of England (nominal membership 15,000,000, effective 5,500,000); Roman Catholic Church (England, Wales, Scotland and Northern Ireland: *c.* 3,500,000); Presbyterian Established Church in Scotland (1,600,000 in 1949); Church in Wales (est. 250,000); Methodists (1,500,000 in 1949); Jews (*c.* 400,000). King (1951): George VI (*q.v.*); prime ministers in 1951: Clement Attlee (*q.v.*) and (from Oct. 26) Winston Churchill (*q.v.*).

History.—*Political.*—The main event of 1951 was that the Labour government, returned to office in Feb. 1950 by a majority of only six, was replaced by a Conservative one in October with a majority of 17, thus indicating the continuance of the almost equal division of opinion among the electorate and a further period of political stalemate. Yet, ideas of what constitutes a working majority had to be revised in view of the experience of the two years 1950–51, which showed that a government could go on surviving by only a handful of votes in the house of commons, although the strain on its members was well-nigh intolerable. In debate, speeches on both sides were

Table I.—The United Kingdom

Division	Area (sq. mi.)	Population (1951 census)
England	50,327	41,147,938
Wales, including Monmouthshire	8,016	2,596,986
Scotland	30,411	5,095,969
Isle of Man	221	55,213
Channel Islands	75	102,770
Great Britain	89,050	48,998,876
Northern Ireland (*q.v.*).	5,451	1,370,709
United Kingdom	94,501	50,369,585

Table II.—Chief Towns of the United Kingdom
(With population over 50,000)

City	1951	1931
ENGLAND AND WALES		
Acton*	67,424	70,008
Barking* . .	78,197	51,270
Barnsley	75,625	73,877
Barrow-in-Furness . . .	67,473	66,202
Bath.	79,275	68,815
Battersea† . . .	117,130	159,552
Beckenham* . .	74,834	50,429
Bedford	53,065	42,606
Bermondsey† . .	60,661	111,542
Bethnal Green† .	58,374	108,194
Bexley*	88,767	32,652
Birkenhead . .	142,392	151,513
Birmingham . .	1,112,340	1,002,603
Blackburn . . .	111,217	122,791
Blackpool . . .	147,131	106,095
Bolton	167,162	177,250
Bootle	74,302	76,800
Bournemouth .	144,726	116,803
Bradford	292,394	298,692
Brentford & Chiswick* . .	59,354	63,217
Brighton	156,440	147,427
Bristol	442,281	403,948
Bromley*. . . .	64,178	47,698
Burnley	84,950	98,258
Bury.	58,829	58,345
Camberwell† . .	179,729	251,294
Cambridge . . .	81,463	70,169
Cardiff	243,627	226,937
Carlisle.	67,894	57,304
Carshalton*. . .	62,804	28,586
Chelsea†	50,912	59,031
Cheltenham . .	62,823	50,168
Chesterfield. . .	68,540	64,160
Chigwell*. . . .	51,775	16,338
Chislehurst & Sidcup* . . .	83,837	27,156
Colchester . . .	57,436	49,131
Coulsdon & Purley* . . .	63,770	39,795
Coventry . . .	258,211	178,126
Crewe	52,415	48.321
Crosby.	58,362	50,569
Croydon*. . . .	249,592	233,108
Dagenham*. . .	114,588	89,362
Darlington . . .	84,861	72,086
Deptford† . . .	75,694	106,891
Derby	141,264	142,520
Dewsbury . . .	53,476	54,302
Doncaster . . .	81,896	64,708
Dudley	62,536	59,583
Ealing*	187,306	116,771
Eastbourne . .	57,801	58,542
East Ham* . .	120,873	142,394
Edmonton* . .	104,244	77,658
Enfield*	110,458	67,752
Epsom & Ewell*.	68,049	35,231
Esher*	51,217	32,407
Exeter	75,479	67,607
Finchley*. . . .	69,990	59,113
Fulham†	122,047	150,928
Gateshead . . .	115,017	124,545
Gillingham . . .	68,099	61,651
Gloucester . . .	67,268	55,886
Gosport	58,246	38,443
Great Yarmouth	51,105	56,771
Greenwich†. . .	91,492	100,924
Grimsby	94,527	92,458
Hackney† . . .	171,337	215,333
Halifax.	98,376	98,115
Hammersmith† .	119,317	135,523
Hampstead† .	95,073	88,947
Harrow*	219,463	96,656
Harrowgate. . .	50,454	43,758
Hastings	65,506	66,191
Hayes & Harlington*. .	65,608	22,969
Hendon*	155,835	115,640
Heston & Isleworth* . .	106,636	76,254
Hornchurch. . .	104,128	39,389
Hornsey* . . .	98,134	95,416
Hove	69,435	54,993
Huddersfield . .	129,021	123,048
Huyton with Roby . . .	55,783	5,199
Ilford*	184,707	131,061
Ipswich	104,788	87,569
Islington† . . .	235,645	321,795
Keighley	56,938	56,537
Kensington† . .	168,054	180,677
Kingston upon Hull	299,068	313,649
Lambeth† . . .	230,105	296,147
Lancaster . . .	51,650	43,649
Leeds	504,954	482,827
Leicester	285,061	257,718
Lewisham† . . .	227,551	219,953
Leyton*	105,183	128,313
Lincoln	69,412	66,243
Liverpool. . . .	789,532	856,072
London‡	3,348,336	4,397,003
London, greater§	8,346,137	8,203,942
Luton	110,370	70,486
Maidstone . . .	54,026	44,877
ENGLAND AND WALES—Cont.:		
Manchester. . .	703,175	766,311
Mansfield. . . .	51,343	46,068
Merthyr Tydfil .	61,093	71,108
Merton & Morden* . . .	74,602	41,227
Middlesbrough .	147,336	138,960
Mitcham* . . .	67,273	56,872
Newcastle under Lyme	70,028	54,739
Newcastle upon Tyne	291,723	286,255
Newport	105,285	98,447
Northampton .	104,429	96,546
Norwich	121,226	126,236
Nottingham . .	306,008	276,189
Nuneaton . . .	54,408	46,521
Oldbury	53,895	36,642
Oldham	121,212	140,314
Orpington* . . .	63,344	25,858
Oxford	98,675	80,539
Paddington† . .	125,281	144,923
Peterborough . .	53,412	43,551
Plymouth . . .	208,985	213,038
Poole	82,958	60,196
Poplar†	73,544	155,089
Portsmouth. . .	233,464	252,421
Preston	119,243	119,665
Reading	114,176	97,149
Rhondda . . .	111,357	141,346
Rochdale . . .	87,734	95,527
Romford	87,991	37,840
Rotherham . .	82,334	75,223
Ruislip Northwood* .	68,274	16,035
St. Helens . . .	110,276	107,452
St. Marylebone†	75,764	97,627
St. Pancras† . .	138,364	198,133
Salford.	178,036	223,438
Scunthorpe . .	54,245	33,761
Sheffield	512,834	518,257
Slough	66,439	33,612
Smethwick . . .	76,397	84,406
Solihull	67,977	25,372
Southall* . . .	55,900	38,839
Southampton . .	178,326	176,007
Southend-on-Sea	151,830	129,783
Southgate* . . .	73,376	56,063
Southport . . .	84,057	78,925
South Shields . .	106,605	113,185
Southwark† . .	97,191	171,695
Stepney†	98,581	225,238
Stockport. . . .	141,660	126,362
Stockton-on-Tees	74,024	67,722
Stoke-on-Trent .	275,095	276,639
Stretford	61,532	56,817
Sunderland . . .	181,515	185,903
Surbiton*. . . .	60,675	30,178
Sutton & Cheam* . . .	80,664	48,363
Swansea	160,832	164,797
Swindon	68,932	62,414
Thurrock . . .	81,634	61,898
Torquay	53,216	46,352
Tottenham* . .	126,921	157,667
Twickenham* .	105,645	79,299
Tynemouth . .	66,544	65,919
Uxbridge* . . .	55,944	31,887
Wakefield . . .	60,380	59,305
Wallasey	101,331	98,361
Walsall.	114,514	103,059
Walthamstow* .	121,069	132,972
Wandsworth† .	330,328	353,110
Wanstead & Woodford* . .	61,620	43,129
Warrington . .	80,681	81,561
Watford	73,072	58,533
Wembly*. . . .	131,369	65,799
West Bromwich	87,985	81,303
West Ham*. . .	170,987	294,278
West Hartlepool.	72,597	69,450
Westminster† .	98,895	129,579
Wigan	84,546	85,357
Willesden* . . .	179,647	185,025
Wimbledon* . .	58,158	59,515
Wolverhampton	162,669	138,631
Wood Green* .	52,224	54,308
Woolwich† . . .	147,824	146,881
Worcester . . .	59,700	51,686
Worthing. . . .	69,375	46,552
York.	105,336	94,066
SCOTLAND		
Aberdeen . . .	182,714	167,259
Dundee	177,333	175,583
Edinburgh . . .	466,770	438,998
Glasgow	1,089,555	1,088,417
Greenock . . .	76,299	78,948
Motherwell & Wishaw . . .	68,137	64,708
Paisley	93,704	86,441
NORTHERN IRELAND		
Belfast	443,670	438,086
Londonderry . .	50,099	47,813

*Included in greater London.
†Metropolitan borough of London.
‡Administrative county of London—total of metropolitan boroughs.
§Includes London county and adjacent parts of Surrey, Kent, Middlesex, Hertfordshire and Essex.

obviously actuated by electoral considerations. There were many late sittings, and a number of all-night ones when the Conservatives resorted to the practice of challenging ministerial orders and regulations, but this tactic, although it kept Labour members on tenterhooks, did not bring defeat on any major issue, because in the last resort the Liberals—or some of them—could be counted on to save the government.

The Festival of Britain (May to October), designed to commemorate the great exhibition of 1851 and sponsored by Herbert Morrison, lord president of the council, seemed rather incongruous in the straitened circumstances of the time; but it did stimulate laudable effects of various kinds throughout the country, and if in London the South Bank exhibition was only moderately successful, the Battersea park pleasure gardens and fun fair made money and so pleased the large crowds that visited it that it was decided to continue it for five years. (*See* FAIRS AND EXHIBITIONS.)

The prime minister, Clement Attlee, took the unusual course of announcing in a broadcast on Sept. 19 that he had asked and obtained the consent of the king to a dissolution of parliament on Oct. 5, which would enable a general election to take place on Oct. 25. The king's illness, to which Attlee sympathetically referred in his broadcast, had taken a more serious turn. On Sept. 18 a bulletin issued by nine doctors stated that "structural changes" had developed in one of his lungs, and on Sept. 23 it was announced that he had undergone an operation for lung resection.

Public concern about the king's illness overclouded interest in the general election campaign, at any rate in its early stage. Actually there was a sense of unreality about the campaign. Foreign affairs, particularly the debacle in Iran, figured prominently in it at first, and the Conservatives complained of Labour insinuations that a Conservative government would be less likely to maintain peace either at home or abroad. Internally, the rising cost of living was the main issue. The Labour proposal for dealing with this was an overhaul of methods of food distribution, particularly fruit and vegetables, while the Conservatives promised economy in public expenditure. But neither side emphasized sufficiently the parlous economic condition of the country, doubtless because they thought that there were no votes to be got that way.

BRITISH HOUSEWIVES after the glum news that weekly meat rations had been cut to an all-time low of about 9½ cents worth per person. The cut in rations came early in 1951 after Argentine meat imports rose in price

The reasons which induced Attlee to decide upon an election can only be surmised, but some of them were fairly obvious. In its second term of office the government had been too much preoccupied with staving off defeat to do anything to retrieve its waning popularity. A shuffle of offices in January which transferred Aneurin Bevan from the ministry of health to that of labour and national service, and another in March which made Morrison foreign minister because of the failing health of Ernest Bevin, who held the sinecure office of lord privy seal until his death on April 14, did nothing to strengthen the government, and in foreign affairs seriously weakened it. On the home front the outlook was so grim that the government would have been courting a further decline in popularity had it chosen to struggle on. Rising prices, a shortage of coal, frequent cuts in electricity, traffic congestion on the railways were pointers to a winter of discontent; and beyond and above that there was a grave worsening of the country's economic position, a growing gap in sterling as well as in dollar payments. All things considered, it was thought that Attlee probably chose what was the least unfavourable moment for his party to go to the country. If the Labour party was not returned to office, its successors would be left to shoulder a pack of troubles and would have to take unpopular measures to readjust the burden. In the election, the votes recorded constituted 82% of the electorate.

Although the announcement of the election results did not have the dramatic fascination of 1950 when the issue swayed in the balance until the last moment, it did indicate early that the Conservatives would have only a narrow majority, and even for that they were indebted considerably to the Liberals, whose own representation in the new house of commons was reduced from nine to six. While their attitude to the new government was one of benevolent support, they declined to take part in it. Churchill's choice of ministers found many of them in unexpected positions. The cabinet contained a number of co-ordinators of departments, the prime minister himself taking on the ministry of defense, although it was understood that he intended to assume this double burden only for a limited period. There was a notable development in the Scottish office with the appointment of a minister of state, mainly resident in Scotland, to act as a deputy to the secretary of state. The change was part of the unionist proposals announced in Nov. 1949 to give Scotland closer administrative control of its own affairs. When the house met on Nov. 6 after hearing the king's speech delivered in the lords by the lord chancellor, Attlee said that the opposition would not indulge in factious criticism, but it was soon evident that many of his followers were not prepared to observe this ordinance.

Finance and Economics.—In large measure the economic history of the United Kingdom in 1951 was a commentary upon the extent to which an already taut economy was able to meet the growing demands upon it. As the year advanced, the signs of strain became increasingly pronounced and this was especially the case with the balance-of-payments position. In the first two quarters of the year there was a significant slowing down in the rate of increase in the gold and dollar reserves and in the third quarter a deficit was incurred of such a magnitude that it more than offset the gains during the previous six months.

The deterioration in the balance-of-payments position became especially marked in the autumn months. It was the immediate occasion of a confidential report prepared by the treasury during the period of the general election which pointed the way to the emergency measures taken by the new government in November. Churchill told the house of commons that the position which he had inherited was worse than he had expected, the deficit being higher than during the period immediately before the devaluation of sterling. In justifying the decision of the government to cut imports by £350,000,000, R. A. Butler, the chancellor of the exchequer, said: "If we do not find a means to correct the disparity between what we earn and what we buy we shall, in fact, be bankrupt."

In part the deterioration could be attributed to the movement of the terms of trade against Britain, particularly during the first half of the year. But the chief reason seemed to have been the failure to step up exports sufficiently to keep pace with the rising value of imports. Not only did the dollar gap widen, but the United Kingdom became the largest single debtor of the European Payments union.

Until the cuts in imports were announced, the man in the street was hardly affected by accumulating foreign exchange difficulties. His main concern was with inflation and rising prices at home. That inflation would increase in severity was common knowledge, and the budget proposals in April to limit purchasing power by increasing the income tax by sixpence and the tax on distributed profits from 30% to 50% as well as by requiring payments for certain parts of the national health service were designed to be anti-inflationary. Not only did the government's estimates of the deficit in the foreign trade account prove wide of the mark, however, but the budget provisions were inadequate to control inflation. It was largely as a result of growing discontent among the trade unions that in July Hugh Gaitskell, chancellor of the exchequer, announced the intention of the Labour government to introduce in the autumn measures to limit company dividends during the three-year rearmament period and to reimpose price controls over a wide range of goods.

Only in part could the rising prices be attributed to the higher cost of imports. As a report of the Economic Commission for Europe declared, cost inflation was rampant. The abandonment of the policy of restraint by the trade unions was accompanied by a spate of wage demands, and by the end of June wage rates had risen as much as the *Economic Survey* had expected them to rise during the whole of 1951. In the first nine months of the year about 9,230,500 workers were affected by increases in wages amounting to £3,983,900 a week, as compared with 3,278,500 workers and £603,000 in the corresponding period of 1950. (*See* also BUDGET, NATIONAL; EUROPEAN RECOVERY PROGRAM; INTERNATIONAL TRADE.)

Industrial.—The performance of British industry throughout the year also bore out the verdict that the British economy was suffering from severe strain. The rate of increase in production was appreciably lower than in 1950, and labour shortage became a major industrial problem. The aggregate loss of working days during the first nine months of the year as a result of industrial disputes, although comparatively low, was higher than in the corresponding period of 1950. The number engaged in civil employment, however, was the highest in the history of the country, and toward the end of the year the number of unemployed was only about half the number of vacancies. The defense industries, notably engineering, were affected by the shortage of skilled workers. By the end of July about 600,000 workers were engaged in making equipment and supplies for the forces, but it was estimated that this number would have to rise to more than 1,000,000 if the defense program was to be completed on schedule.

Other important issues in the industrial sphere sprang from the difficulties of the fuel and power industries. Although the British Electricity authority added to its generating plant at a higher rate than in the previous year, output of electricity fell considerably short of what was necessary to satisfy requirements. In its annual report the British Electricity authority was critical of the decision of the Labour government, in apportioning national capital investment, to reduce permitted expenditure on new generating plant.

The coal situation also continued to be unsatisfactory. Although output was at a slightly higher rate than in 1950, on Nov. 1 stocks were below the target of 17,000,000 tons and the new government was obliged to issue an order restricting deliveries to domestic consumers. The reduced amounts to be supplied could be ensured only by agreeing to draw upon stocks allotted for industrial use.

Throughout the year shortage of various raw materials, notably sulphur, threatened to have serious repercussions upon industry. On the whole these were successfully overcome. In June

WINSTON CHURCHILL addressing Londoners on the eve of the British general elections of Oct. 1951. The Conservative party won an 18-seat majority in the house of commons and Churchill became prime minister on Oct. 26

the government took the decision to set up a ministry of materials. In September a conference of commonwealth ministers was held in London to discuss raw-material questions. The agreements reached by the International Materials conference in Washington, D.C., on the allocation of sulphur and nonferrous metals were of assistance to Great Britain, though complaints continued about prices. The main difficulty centred on steel supplies. Output was at a somewhat lower level than in 1950, and this was accounted for largely by the decline in the imports of scrap from Germany. In November Butler put national requirements of finished steel at 1,500,000 tons above current production and imports. Toward the end of the year the shortage resulted in the emergence of black market selling of steel at prices as much as £45 above the controlled price. (*See* also Atomic Energy; Coal; Employment; Iron and Steel; Labour Unions; Strikes; Wages and Hours.)

Foreign Policy.—Nowhere had the drifting nature of the government been more apparent than in regard to foreign policy. This lack of direction was partly caused by the illness of Bevin which forced his resignation in March when he was succeeded by Morrison as foreign secretary. The delay in making the change was the result of the prime minister's personal regard for Bevin as well as of the difficulty of finding a successor.

Dissatisfaction grew with Morrison's handling of the Iranian oil crisis. (*See* Iran.) Morrison's policy of playing for time in the hope that the Mossadegh government would fall had proved a failure. In Egypt, where the government abrogated the Anglo-Egyptian treaty of 1936 in anticipation of a four-power proposal for defense of the Canal Zone, the British government stood firm. (*See* Egypt.)

Intensification of the "cold war" by the Soviet Union compelled the British government at the end of January to accelerate the rearmament program by selective call-up of class Z reservists for 15 days' training and other measures, and by increasing expenditure on armaments in 1951–52 to around £1,300,000,000 and a total of possibly £4,700,000,000 over three years. In March a supreme headquarters, Allied powers in Europe, (SHAPE) was set up near Paris with Gen. Dwight D. Eisenhower at its head and Field Marshal Viscount Montgomery as his deputy under the North Atlantic Treaty organization (NATO). But already a dispute had arisen with that organization over the proposal to appoint a U.S. admiral as supreme naval commander in the Atlantic. Churchill claimed that this command should be in British hands, and received substantial support on both sides of the house of commons. When the Atlantic council met in November the Churchill government maintained the point, but a matter of greater disappointment to the European countries concerned was the British refusal, expressed both at the Atlantic council meeting in Rome and at the meeting of the Council of Europe at Strasbourg, Fr., to contribute to the proposed European army as well as to take part in the Schuman plan, although Great Britain was prepared to be "associated" with them. The disappointment was all the keener because a European army had been originally Churchill's proposal. Under the Pleven plan there was the prospect of a working solution to the problem of the rearmament of Germany. A state of war with Germany had been formally ended on July 9, and after the signature of the Japanese treaty at San Francisco, Calif., in September the foreign ministers of the United Kingdom, United States and France, meeting in Washington, D.C., issued a declaration stating that they aimed at "the inclusion of a democratic Germany, on a basis of equality, in a Continental European community, which itself will form part of a constantly developing Atlantic community." But the antagonism of the Soviet Union to any such proposal remained ominous and threatening. (*See* also European Union; Japanese Peace Conference; Korean War; North Atlantic Treaty Organization; United Nations.)

Commonwealth of Nations.—British policy in relation to the commonwealth continued to be concerned with the development of closer economic relations and of mutual arrangements for defense in southeast Asia and the middle east. A commonwealth prime ministers' conference took place in London in January to review the international situation and declared that it would welcome co-operation with other nations, but India and Pakistan remained estranged by the Kashmir question and neither was inclined to take part in any defense arrangements that might give offense to the Soviet Union and China. When a conference of the commonwealth defense ministers met in London in June, India and Pakistan as well as Ceylon were unrepresented. In July Australia and New Zealand concluded a Pacific defense pact with the United States, from which Britain was left out, although it was explained that it would be kept informed about it. This was a clear indication that Australia and New Zealand looked mainly to the United States for their defensive as well as their economic requirements. The Union of South Africa, where the Daniel Malan government flirted with the idea of a contingent republicanism, showed keen interest in the defense of the Suez Canal Zone. (*See* also COMMONWEALTH OF NATIONS.) (J. M. WN.)

Education.—(March 1950) *England and Wales:* nursery schools and classes, pupils 82,491; primary schools 23,113, secondary schools 4,765, pupils combined 5,926,702; special schools (for physically or mentally handicapped children) 601, pupils 47,119; further education (mainly evening institutes) 11,546, pupils 54,046 full-time and 2,175,796 part-time; full-time teachers (all schools) 230,846. *Scotland:* nursery schools and classes, pupils 4,599; primary schools 2,084, pupils 364,529, teachers 11,534; special schools, pupils 10,439; secondary schools 913, pupils 417,416, teachers 17,592; further education 1,237, pupils 237,931. *Northern Ireland:* nursery schools 6, pupils 201; primary 1,632, pupils 185,712; special, pupils 660; secondary 89, pupils 32,317. *United Kingdom:* nursery, primary, special and secondary schools, pupils combined 6,989,694.

Universities (1950–51): *England:* 17, students (full- and part-time) 76,768, teaching staff 7,421; *Scotland:* 4, students 17,121, teaching staff 1,819; *University of Wales:* students 5,017, teaching staff 531; *University of Belfast:* students 2,686, teaching staff 233. *United Kingdom:* universities 23, students 101,592, teaching staff 10,004.

Finance and Banking.—Budget: (actual 1949–50) revenue £3,924,000,000, expenditure £3,356,600,000; (est. 1950–51) revenue £3,897,800,000, expenditure £3,455,100,000. National debt (Dec. 31, 1951) £26,569,000,000. Currency circulation (Dec. 31, 1951) £1,419,000,000. Gold and dollar reserves of the sterling area (Dec. 31, 1951) U.S. $2,335,000,000. Exchange rate since Sept. 18, 1949, £1=U.S. $2.80.

Foreign Trade.—Imports (1950) £2,608,200,000, (1951) £3,916,800,000; exports including re-exports (1950) £2,256,000,000, (1951) £2,707,100,000. Main sources of imports (1950): sterling area 38%, dollar area 18.4%, nonsterling countries in the Organization for European Economic Cooperation 25.2%. Main destinations of exports (1950): sterling area 48%, dollar area 13%, nonsterling O.E.E.C. countries 25.2%.

Transport and Communications.—Railways (1949): *Great Britain:* total first track (all gauges) 19,600 mi.; *Northern Ireland:* 1,035 mi. Passenger journeys originating (British railways, monthly average, 1950) 81,800,000. Freight traffic originating (weekly average, 1950) 5,400,000 tons, net ton-miles 425,000,000. Roads (1949): *Great Britain:* 183,793 mi. Motor vehicles licensed (Dec. 1950): 4,414,000, including 2,258,000 cars. Air transport (U.K. air lines, all services, monthly average, 1950): miles flown 4,019,000, passengers carried 96,300, passenger-miles 66,100,000, freight carried 2,045,000 short ton-mi., mail carried 1,130,000 short ton-mi. Shipping: merchant vessels on the U.K. register of 500 gross tons and over (Nov. 1951): nontankers 13,338, tankers 4,190; total tonnage (Dec. 31, 1949) 19,382,000 gross tons. Number of telephones, private stations (March 31, 1950): 5,171,491 (70% with automatic dial). Radio receiving sets licensed (Nov. 1949) 11,900,200; television licenses (Nov. 1951) 958,000.

Agriculture and Fisheries.—Production (long tons, 1951 est.): wheat 2,203,000; barley 1,805,000; oats 2,484,000; rye 43,000; mixed corn 761,000; potatoes 7,972,000; sugar beets 4,625,000. Livestock (June 1951): cattle 10,473,000; sheep 19,984,000; pigs 3,891,000; poultry 94,344,000. In 1947–49 the United Kingdom was importing a yearly average of 4,400,000 tons of wheat, 764,000 tons of wheat meal and flour and 451,000 tons of barley.

Fisheries: Total catch (1950): *England and Wales:* 629,900 long tons, worth £26,299,000; *Scotland:* 252,800 long tons worth £9,405,000. This excludes shellfish, but includes gray mullet and whitebait.

Industry.—The number of industrial establishments with more than ten employees (April 1948) was 51,040. The total working population in 1951 was 23,327,000, of whom 15,952,000 were men. There were 827,000 in the armed forces, of whom 804,000 were men. There were 188,000 registered unemployed.

Industrial production (1951): coal 222,130,000 long tons; gas 556,920,000,000 cu.ft.; electricity 59,555,000,000 kw.hr.; pig iron 9,656,000 long tons; crude steel 15,787,000 long tons; tractors 140,748; motor cars 477,543; commercial vehicles 257,428; steam locomotives 726; railway coaches 2,277; freight cars 41,455; aircraft (excluding military except for export) 549; shipbuilding (completed vessels of 100 gross tons and over) 1,293,000 gross tons; cotton woven cloth 2,199,000,000 yd.; woven wool fabrics (excluding blankets) 432,000,000 sq.yd.; rayon filament yarn 221,000,000 lb.; rayon staple fibre 171,000,000 lb.

During 1951 industrial production increased by only about 4.5%, half the rate of preceding years, mainly because of shortage of steel and of various imported raw materials. Steel production was slowed down, chiefly through shortage of imported scrap and iron ore, to about 3.2% below 1950. Lack of steel caused an 8.2% decline in the production of motorcars since the preceding year. Despite a 5.6% decline in shipbuilding, 42% of the world's new merchant shipping was being built in British yards. Although 6,000,000 tons more coal was produced than in 1950, there was a roughly equivalent increase in home consumption.

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FILMS OF 1951.—*A City Speaks, Family Portrait, This Is Britain: Radio, Trooping the Colour, West of England* (British Information Services); *The British Isles* (Coronet Films); *The Growth of London* (United World Films); *Traditional England* (Films of the Nations Distributors, Inc.). (K. SM.)

Great Lakes Traffic: *see* CANALS AND INLAND WATERWAYS.

Greece.

A kingdom in the southern part of the Balkan peninsula, Greece has an area of 51,182 sq.mi. including the Dodecanese Islands (1,035 sq.mi.); the mainland accounts for 41,328 sq.mi. and the islands, of which the largest is Crete (3,235 sq.mi.), for 9,854. Pop.: (1940 census without the Dodecanese) 7,344,860; (1951 census) 7,603,599. Language (1940 census): Greek 6,794,309 (93%); Turkish (Turks and Turkish-speaking Greeks from Anatolia) 222,968; Macedonian Slav 81,860; Vlach 57,263; Albanian 49,629; Bulgarian (Pomaks) 18,086, etc. Religion (1940 census): Greek Orthodox 7,090,192 (96.5%); Roman Catholic 29,136; Gregorian (Armenian) 16,350; Moslem 134,722; Jewish 53,095 (reduced to 9,000). Chief towns (1951 census, municipal area only): Athens (cap. 559,250); Piraeus (184,980); Salonika or Thessaloniki (1940, 226,147); Patras (1940, 79,570); Volos (1940, 54,919).

Ruler, King Paul I; prime ministers in 1951: Sophocles Venizelos and (from Oct. 27) Gen. Nicholas Plastiras.

History.—Except for an occasional small-scale raid on the Bulgarian frontier, there was no guerrilla activity in Greece throughout 1951. Rail communications between Greece and Yugoslavia were resumed on Feb. 12, and the Simplon Orient Express train service from Paris to Athens via Belgrade, which had been interrupted since 1940, restarted its scheduled run on March 17.

Foreign Affairs.—In the international field, the improvement of relations with Yugoslavia initiated in the previous year continued. A significant contribution in this direction was the repatriation by the Yugoslav government, in small groups, of a total of 385 of the Greek children abducted by the Communists during the civil war.

Diplomatic relations with Germany were resumed with the appointment early in the year of a German consul general, representing the Bonn government. On July 12 he was accredited as Germany's first ambassador to Greece since the end of World War II. A corresponding change was made in the status of the Greek representative on the Allied High commission, who was accredited ambassador to the German Federal Republic.

On the conclusion of its conference at Ottawa, Ont., Can., on Sept. 20, the North Atlantic Treaty council announced that it had agreed to recommend to its members that an invitation to accede to the treaty should be addressed to Greece and Turkey. The Greek contingent with the United Nations forces in Korea was maintained at a strength of about 1,000 men, together with a flight of Dakota aircraft of the royal Hellenic air force which was employed on supply and ambulance duties.

On Dec. 7 the U.N. general assembly in Paris approved, by 48 votes to 5 (with one abstention), the political committee's recommendation that the U.N. special committee on the Balkans, originally appointed in 1947 to mediate between Greece and its neighbours and watch the frontiers, should be dissolved within 60 days and replaced by a Balkan subcommission of the Peace Observation commission. Greece was a candidate for the Security council seat vacated by Yugoslavia, and after 19 ballots, in which the voting fluctuated between Greece and Byelorussia, Greece was elected by 36 votes to 20.

Politics and Elections.—The coalition government of Liberals and Democratic Socialists which took over on Nov. 3, 1950, was reshuffled on Feb. 2, the number of ministers being reduced to 15.

ROLLING MILL, built with U.S. aid, nearing completion at Piraeus, Gr., in 1951. The new plant was expected to lower finished costs of steel sheets and tinplate needed in the Greek plan for industrialization

On July 1 the Democratic Socialist leader, George Papandreou, resigned and withdrew from the government with his friends. The Liberal leader Sophocles Venizelos then formed a government consisting exclusively of members of his own party. The new government obtained a vote of confidence on July 6 after pledging itself to hold general elections as soon as the electoral reform bill had been passed. The elections were held on Sept. 9 under an amended system of proportional representation which favoured large parties or groups at the expense of small parties by a provision that no party could participate in the second distribution of seats unless it had obtained more than 17% of the total poll.

The outstanding political event of the year was the decision of Field Marshal Alexandros Papagos to relinquish the supreme command of the armed forces and enter politics as leader of a new party, the Greek Rally. This party drew its main support from the dissident Populists under Stefanos Stefanopoulos and the Unionists under Panayotis Kanellopoulos, who had already fused into the Populist-Unionist party (L.E.K.) in January.

A total number of 1,957 candidates, representing 17 parties, contested the 258 seats. The extreme left took the field under the name of Union of Democratic Left (E.D.A.), its principal candidates being internees or persons serving prison sentences for their support of the Greek Communist party during the Communist rebellion. No single party obtained an absolute majority. The Greek Rally topped the poll with 114 candidates elected, as compared with 74 for National Progressives (E.P. E.K.), 57 Liberals, 10 E.D.A., 2 Populists and 1 Agrarian.

After the announcement of the final results the king invited the three major parties to form a coalition government, but the leader of the Greek Rally refused to participate and advised the king that parliament should be immediately dissolved and fresh elections held, this time under the majority system. The king then entrusted the mandate to the E.P.E.K. leader, General Plastiras, who on Oct. 27 formed a coalition government with the Liberals, with himself as prime minister and the Liberal leader Venizelos as deputy premier and foreign minister.

On Dec. 8 the electoral court, which considered appeals against the election of the E.D.A. deputies, declared their election invalid on the grounds that, as persons serving sentences of imprisonment or internment, they were not entitled to vote according to the electoral law—a disability which under the provisions of the constitution disqualified them from standing for parliament. The court further decided that the ten seats thus vacated were to be filled by the next eligible E.D.A. candidates in the constituencies affected.

On Dec. 22 the chamber of deputies ratified the draft constitution drawn up by the all-party parliamentary committee set up in 1946 to amend the 1911 constitution. It was carried by 132 votes to 8, after the major opposition party, the Greek Rally, had withdrawn. The most important new provisions were: (1) The king could, with his ministers' approval, take emergency measures suspending the provisions of the constitution, to be ratified by parliament within ten days. (2) To settle landless peasants and others, estates could now be expropriated without previous compensation. (3) Strikes by civil servants were declared illegal. (*See* also UNITED NATIONS.) (A. A. P.)

Education.—Schools (1948–49): primary 9,986, pupils 1,218,000; secondary 507, pupils 169,836; universities 2, professors and lecturers 289, students 13,337; institutions of higher education 9. Illiteracy (1940), 27%.

Finance and Banking.—Budget (1950–51 actual): revenue dr. 4,631,000,000,000, expenditure dr. 6,192,000,000,000; (1951–52 est.) revenue dr. 5,879,000,000,000, expenditure dr. 7,459,000,000,000. Currency circulation (Aug. 1951): dr. 1,926,000,000,000. Bank deposits (Aug. 1951) dr. 2,567,000,000,000. Monetary unit: drachma with an exchange rate (Nov. 1951) of dr. 15,060 to the U.S. dollar.

Foreign Trade.—(1950) Imports dr. 2,141,000,000,000; exports dr. 452,000,000,000. Main sources of imports (1950): U.S. 32.3%; U.K. 12.3%; Germany 7.9%; Italy 6.0%. Main destinations of exports: U.K. 18.5%; U.S. 17.4%; Germany 16.4%; France 7.8%. Main exports (1950–51): tobacco 39.6%; currants 25.1%; turpentine colophony 3.5%; minerals 5.2%.

Transport and Communications.—Roads (1949): 4,189 mi. Licensed motor vehicles (Dec. 1950): cars 7,494, commercial 19,088. Railways (1949): 1,621 mi., of which state 826 mi.; number of railway locomotives 241. Shipping (merchant vessels of 100 gross tons and over, July 1950): 386; total tonnage 1,348,874. Telephone subscribers (1949): 65,078. Radio receiving sets (1949): 44.500.

Agriculture and Fisheries.—Main crops (metric tons, 1951 except where indicated): wheat 930,000; barley 230,000; oats 140,000; rye 48,000; maize (1950) 195,000; potatoes (1950) 348,000; rice 37,000; grapes 140,000; citrus fruit (1950) 119,000; tobacco (1950) 51,000; cotton 81,000; olive oil (1950) 54,000. Livestock (head, Dec. 1949): cattle 675,000; sheep 6,656,000; pigs 530,000; horses 232,000; mules 149,000; goats 3,438,000. Meat production (1950) 76,000 metric tons. Fisheries: total catch (1950) 48,000 metric tons.

Industry.—Fuel and power: lignite (1949) 131,500 metric tons; electricity (installed capacity, 1950) 245,000 kw. Raw materials (metric tons, 1950): bauxite 49,000; magnesite 25,000; iron pyrites 16,000; chromite 3,000. Index of industrial production (1950; 1948=100): 150.

FILMS OF 1951.—*Greek Children* (Encyclopædia Britannica Films Inc.).

Greenland. A large island (840,000 sq.mi., about 705,000 sq. mi. covered by an ice cap), Greenland is a Danish possession in the North Atlantic ocean, northwest of Iceland. Pop.: (1945 census) 21,412, distributed in settlements along west coast except for 1,372 on east coast; 580 Europeans (mostly Danes), the rest native Greenlanders (Eskimos); (1950 est.) 23,000. Language: Danish and Eskimo. Religion: Lutheran. Capital, Godthaab (second governor's seat, Godhavn). Governor general in 1951: Poul Hugo Lundsteen.

History.—An agreement between Denmark and the United States for the joint defense of Greenland, concluded within the framework of the North Atlantic Treaty organization (N.A.T.O.) and replacing the provisional agreement of April 9, 1941, was signed in Copenhagen, Den., on April 27, 1951, and approved by the Danish *rigsdag* early in June. Stressing Greenland's part in the N.A.T.O. defensive system, the agreement said: (1) The U.S. naval station at Grønnedal would be taken over by Denmark, but the United States and other N.A.T.O. countries would receive certain rights of access to the port. (2) As need arose, defense areas would be established for joint operation by Denmark and the United States, the nationality of the commander being decided upon periodically by agreement. (3) In the areas under U.S. command the United States would enjoy certain

GREENLAND'S ICE CAP, photographed during a flight across the north pole to acquaint airmen of Britain, Canada and New Zealand with the short-cut air route between hemispheres where a compass is useless

rights of use without impairing Danish sovereignty. (4) Denmark would be entitled to use such defense areas in co-operation with the United States, and Danish military personnel under a Danish officer would be attached to the staff of the U.S. commander. (5) Conversely, the U.S. military personnel might be sent to defense areas under Danish command. (6) All defense areas could be used by the ships, aircraft or armed forces of other N.A.T.O. countries. (7) U.S. troops would be exempt from customs duties and taxes and jurisdiction over them would be specially arranged with the Danish authorities. (8) U.S. forces in Greenland would respect Danish laws and administration concerning the indigenous population.

The modernizing of Greenland's political and social life went on during the year. In June elections for the country council took place for the first time, the polling amounting to 70%. Political parties had not yet been formed, but political tendencies were noticeable. For the first time in Greenland's history a woman was elected. From Dec. 1 all persons, both Greenlanders and Danes, were subject to the same 17 lower courts of justice with appeal to the country court of justice at Godthaab.

Education.—Schools (1948): infant and primary 175, pupils 4,200, teachers 237; postprimary 4, pupils 100, teachers 15; technical 1, pupils 50, teachers 2; institutions of higher education 2, students 45, lecturers 10.

Finance and Trade.—Budget (1950–51): expenditure 24,864,000 Kr.; revenue 16,525,000 Kr. Monetary unit: the Danish krone, with an exchange rate of 6.92 Kr. to the U.S. $1. Foreign trade (1950): imports from Denmark 23,300,000 Kr.; exports to Denmark 16,800,000 Kr.

(H. Ln.)

Green River Ordinances: *see* Law.
Grenada: *see* Windward Islands.

Gromyko, Andrei A. (1909–), soviet diplomat, was born on July 5 in Starye Gromyki, Byelorussia. He graduated from the Minsk Institute of Agricultural Economics in 1934. In 1938 he was taken into the commissariat for foreign affairs, and after a year's training was sent to Washington, D.C. In Aug. 1943 he succeeded Maxim Litvinov as soviet ambassador to the U.S. and to Cuba. He headed the soviet delegation to the Dumbarton Oaks conference in 1944, attended the United Nations organization conference at San Francisco, Calif., in 1945, and was appointed chief soviet representative to the U.N. On April 10, 1946, he was freed from his duties as ambassador to become permanent soviet delegate to the U.N. Security council. On Dec. 29, 1947, it was announced that he had been promoted to deputy foreign minister, and in July 1948 he was replaced on the Security council by Jacob Malik and returned to Moscow.

In 1951 Gromyko was again chief soviet spokesman in dealings with the west. On June 27 he clarified from Moscow the Malik proposal of June 23 for cease fire and armistice talks in Korea. He was soviet spokesman at the San Francisco conference to sign the Japanese peace treaty in September, and he sought repeatedly to upset the conference schedule, first by calling for the seating of Red China, then by opposing motions that limited debate and barred soviet efforts to amend the draft of the treaty. He was finally voted out of order and silenced. He subsequently charged that the U.S. had run the conference in an "arrogant" manner.

Guadeloupe. This former French colony situated in the Lesser Antilles, the status of which was changed in 1946 to that of an overseas *département,* consists of two islands. separated by a narrow channel, and five smaller islands. Total area: 686 sq.mi. Pop.: (1936 census) 304,239; (1946 census) 278,464; (1950 est.) 289,000. Chief towns (pop., 1946 census): Basse-Terre (cap., 10,086); Pointe-à-Pitre (41,323). The inhabitants are mainly Negro or mixed, speak a French patois and are Roman Catholic. Prefect, Maurice Philipson.

History.—During 1951 work went on toward bringing uniformity to the administration and establishing the social services. The *département* sent one Gaullist, one Socialist and one Communist deputy to the national assembly in Paris. Six Gaullists, six Communists, two Socialists, three Radicals and two Independents were elected to the local general council. The slump in rum drinking in France and the restriction of the quotas of sugar and rum to be admitted into that country, together with the high cost and resulting high prices that made sales abroad difficult, gave rise to economic anxiety. A landing field for four-engined aircraft was under construction. Work on new roads was begun.

Education.—Provision is made for all children of school age. There are two *lycées.*

Finance.—Currency: metropolitan franc. In Sept. 1951 U.S. $1 = 350 fr.

Foreign Trade.—(1950) Imports 7,422,000,000 fr.; exports 6,008,000,000 fr. Principal exports: sugar 3,304,000,000 fr., rum 1,071,000,000 fr., bananas 1,352,000,000 fr. Trade is almost wholly with the French union.

Transport and Communications.—Ships entered (1950), 617.

(Hu. De.)

Guam. Guam is the largest and southernmost island of the Marianas, lying in the Pacific at 13° 26′ N. lat. and 144° 39′ E. long., about 5,100 mi. W. of San Francisco, Calif., 3,340 mi. W. of Honolulu, T.H., and 1,500 mi. E. of Manila, Phil. Area: 206 sq.mi. Population, June 30, 1951, 28,170 Guamanians and about 30,000 non-Guamanians, of whom about half were U.S. military and civil service personnel. Agaña is the capital. Other important towns are Sinajana and Inarajan. The Guamanians are Chamorros, and their religion is predominantly Roman Catholic. Governor in 1951: Carlton Skinner; secretary, R. S. Herman.

History.—Guam is an unincorporated territory of the United States and an organized sovereignty, governed under the Organic Act of Guam, passed by the U.S. congress and approved by Pres. Harry S. Truman on Aug. 1, 1950. The island was administered by the U.S. navy until this legislation was approved, at which time the U.S. department of the interior took over the administration. Under this legislation, Guamanians became citizens of the U.S., with all rights and privileges thereof, replacing their former status as citizens of the territory and nationals of the U.S.

The legislature of Guam, which replaced the Guam congress under the new legislation, is a unicameral body with not more than 21 members, popularly elected for two years by all persons 21 years of age and over who are residents of Guam for at least two years. The legislature has the power to override the governor's veto by a two-thirds vote. The judiciary consists of the district court of Guam, whose judge is appointed by the president of the U.S. for four years. Appeals from this court are heard by the ninth circuit U.S. court of appeals. There is also an island court, justice court and police court, whose judges are appointed by the governor. Each of the island's 15 municipalities is headed by a popularly elected native commissioner who serves for a four-year term.

Education.—In 1951 there were 21 public elementary and junior high schools and 1 high school with a total of 9,225 pupils and 311 teachers. There were also 4 parochial schools with 1,164 elementary and secondary school students. Instruction was given in English. About 84% of the population were literate, according to the 1940 census.

Finance.—During the fiscal year ending June 30, 1951, Guam's expenditures amounted to $5,114,405, revenues amounted to $4,168,926 and U.S. grants amounted to $1,200,000.

Industry and Trade.—The important food crops were maize, sweet potatoes, taro and cassava. In 1951 Guam had about 10,000 hogs, 4,000 cattle and 1,200 goats. In the fiscal year ending June 30, 1951, imports totalled $10,672,132 and exports $2,212,416. The major imports were foodstuffs, building materials, textiles, tobacco and liquor. The major exports were scrap metal and salvage.

Transportation and Communications.—There were about 80 mi. of paved highways in Guam and about 60 mi. of improved secondary roads. There were no railways, but there were five military airfields. Guam was the relay station for the Commercial Pacific Cable company whose service was terminated in 1951 in view of the existence of radiotelegraph and radiotelephone facilities. Radio facilities existed through the U.S. armed forces radio network and the Andersen airfield radio station. Pan American World Airways and Philippine airlines provided air service for the island.

(S. Nr.)

Guatemala.

A Central American republic, Guatemala is bounded by Mexico, British Honduras, Honduras and El Salvador. Area: 45,452 sq.mi.; pop. (preliminary figures, 1950 census of the Americas): 2,787,030. Capital: Guatemala City (1946 est. pop., 225,000). Other urban centres (1940 census) are Antigua Guatemala (12,601), Chiquimula (10,868), Comalapa (10,461), Mazatenango (14,227), Puerto Barrios (15,784), Quezaltenango (33,538) and Zacapa (14,443). Language: Spanish; religion: predominantly Roman Catholic. Presidents in 1951: Juan José Arévalo, until March 15; thereafter, Lieut. Col. Jacobo Arbenz Guzmán.

History.—During 1951 labour unrest and mounting Communist influence occupied the attention of Guatemalans. Communist leader José Manuel Fortuny announced on Jan. 23 the formation of a new leftist coalition composed of the Popular Liberation Front, the National Revolutionary, the Workers' and the Communist parties, the over-all coalition being called the National Democratic Front. President-Elect Arbenz, who had won the election held Nov. 10–12, 1950, issued a statement on Feb. 15 pledging continued Guatemalan amity with the United States and attacking "malicious rumours" that he intended to expropriate foreign and domestic capital. On March 15 Arbenz was inaugurated president of Guatemala.

Labour disorders were the first major crisis facing the new administration. Unrest among the workers resulted in April in an 11-day (April 19–29) railroad strike which ended with unions still demanding that Arbenz press for revision of all contracts with foreign firms operating in Guatemala. An estimated 2,000 Guatemalans attended on June 22 a celebration at Guatemala City of the first anniversary of the founding of *Octubre*, a Communist weekly publication. Anti-Communist riots swept Guatemala City on July 11 and 12, as demonstrators called upon President Arbenz for assurances of his anti-Communist position. Branding the disorders as the result of a subversive plot "under the pretext of combating Communist activities," Arbenz on July 12 suspended constitutional guarantees for 30 days.

Four political parties supporting Arbenz announced on July 19 the formation of a Democratic Alliance to intensify the "revolutionary process" represented by the president and former President Arévalo. The announcement said that the alliance was neither pro-Communist nor anti-Catholic; but on Aug. 31 Communists seized control of the proadministration National Renovation party, one of the components of the coalition.

With the dispute with the United Kingdom over British Honduras (Belize) apparently tapering off, Guatemala on May 18 reopened its border, closed since 1948, with the contested area.

(G. I. B.)

Education.—In 1947–48 there were 3,626 primary schools with 9,554 teachers and 195,463 pupils in attendance and 62 secondary schools with 1,139 teachers and 9,000 pupils. University education was available at the University of Guatemala. Education was scheduled to receive 12% of the 1951–52 budget.

Finance.—The monetary unit is the quetzal, at par with the U.S. dollar. The 1951–52 budget was initially placed at $59,000,000, the largest on record (1950–51 revised budget, $48,675,781). Revenue in the fiscal year 1949–50 was provisionally reported as $42,413,000; expenditure, $47,358,200. On Dec. 31, 1950, the funded internal debt was $12,780,300; floating debt to banks $3,048,000; floating debt to private entities and persons (May 30, 1950) $12,075,700; external debt (June 30, 1949) $747,551. Currency in circulation (Oct. 31, 1951) was $37,200,000; gold reserves $27,200,000; (Aug. 31, 1951) demand deposits $27,600,000; time deposits $1,300,000; government deposits $2,100,000. The cost-of-living index stood at 138 on Aug. 31, 1951 (1946 = 100).

Trade and Communications.—Exports in 1950 totalled $67,605,000; imports, $71,221,000. Leading exports were coffee (78%), bananas (11%), essential oils (2%) and chicle (2%). Leading customers were the U.S. (89%), the Netherlands (3%) and Italy, Canada and Belgium (each 2%); leading suppliers, the U.S. (68%), Mexico (6%) and the United Kingdom, Canada and Germany (each 3%).

In 1950 there were 608 mi. of railroad on which 3,826,700 passengers were carried. Highway mileage (1949) was 4,800. In 1950 there were two scheduled and three nonscheduled international air carriers and one domestic air carrier.

Agriculture.—Production of coffee in the 1950–51 season was 1,050,000 bags of 132 lb. each, of which 818,244 bags were exported (1949–50 exports, 900,277 bags). Banana exports in 1950 amounted to 6,897,061 stems. Other crops (with 1950–51 production estimates) were corn 710,000,000 lb.; beans 130,000,000 lb.; abacá 8,700,000 lb.; rice 15,000,000 lb.; and lint cotton 2,900,000 lb. In 1950 there were about 800,000 cattle, 340,000 pigs and 610,000 sheep. Essential oil exports in 1950 included citronella 1,103,000 lb. and lemon grass 177,285 lb. Chicle exports were 1,058,000 lb.

Manufactures.—The most important industries, by value of production, were beverages, foodstuffs, textiles, clothing and tobacco. Production in 1950 included cement 46,000 short tons; cigarettes 1,534,182,000; and beer 2,528,000 gal.

Mineral Production.—Lead production increased to 597,000 lb. in 1950.

Films of 1951.—*Guatemala, Land of Looms* (Allen-Moore Productions).

(J. W. Mw.)

Guggenheim Memorial Foundation, John Simon: *see* Societies and Associations, U.S.

Guiana, British: *see* British Guiana.

Guiana, Dutch: *see* Surinam.

Guiana, French: *see* French Guiana.

Guided Missiles: *see* Jet Propulsion; Munitions of War.

Guinea: *see* French Union; Portuguese Colonial Empire; Spanish Colonial Empire.

Guinea, French: *see* French West Africa.

Gymnastics.

Combining the men's and women's senior championships to help celebrate the 250th birthday of the city of Detroit, Mich., the Amateur Athletic union of the United States attracted a record number of entries to the Michigan State Fair Ground coliseum on May 4–5, 1951.

William Roetzheim of Florida State university, Tallahassee, won the men's national all-around crown for the third straight season, but only after the closest kind of competition from his Olympic team-mate Edward Scrobe of the American Turners of New York. Roetzheim shared first place with Eugene Rabbitt of Syracuse university, N.Y., in the side horse test and tied with

Hal S. Lewis of the U.S. Naval academy on the horizontal bar to gain the top prize with 332.9 points. Scrobe finished with 331.4 points.

Other victors follow: calisthenics, Ara Hairabedian, University of Southern California, Los Angeles; flying rings, John Miles, Florida State university, Tallahassee; Indian clubs, Edward Hennig, Cleveland Y.M.C.A.; long horse, Edward Scrobe; parallel bars, Joseph Kotys, Kent State university, Ohio; rope climb, Sanford Werner, Los Angeles State; tumbling, Dick Browning, unattached, Dallas, Tex.

Clara M. Schroth of the Philadelphia, Pa., Turners, again proved the shining star of the women's division, scoring first in the balance beam, calisthenics and the flying rings as she kept her all-around title with 289.5 points. Marian T. Barone, also of the Philadelphia Turners, was runner-up with 283.5.

Other title winners were: Indian clubs, Roberta Bonniwell, Philadelphia Turners; parallel bars, Marian Barone; side horse, Marian Barone; tumbling, Joanne Slocum, Dallas, Tex., Athletic club; team drill, Lincoln Turners, Chicago, Ill.

Roetzheim added to his collection of trophies in the National Collegiate Athletic association's annual championship tournament when he captured honours on the horizontal bar and took the all-around crown in leading Florida State to the team laurels. Other N.C.A.A. champions were: flying rings, M. Stout, Michigan State college, East Lansing; long horse, Joseph Kotys, Kent State; parallel bars, Jack Beckner, University of Southern California; rope climb, Leo Minotti, Syracuse university; side horse, Joseph Kotys; trampoline, Edsel Buchanan, University of Michigan, Ann Arbor; tumbling, R. Sullivan, University of Illinois, Urbana.

Army captured the eastern intercollegiate team title tourney, the individual all-around award being annexed by Joel Baba of Syracuse university.

FILMS OF 1951.—*Gymnastics* (Paul Hoefler Productions); *Headsprings in the Gym* (Encyclopædia Britannica Films Inc.). (T. V. H.)

Gynaecology and Obstetrics.

In 1951 the maternal death rate in the United States was the lowest reported by any large country. One maternity service had delivered approximately 70,000 women consecutively without a single death from "childbed fever" (puerperal sepsis). Twenty years before, from 20 to 25 women in every 10,000 live births had died from this condition. Deaths from toxaemia and haemorrhage had also been reduced creditably. Such conditions as heart disease and embolism had become relatively major causes of maternal death because of the reductions in infections, haemorrhage and toxaemia.

Diarrhoeal states of the newborn and infections in general were well controlled in 1951. Premature births and anomalies of vital structure remained two major conditions to be conquered. Injury to the unborn foetus by rubella (German measles) and some other infectious agents continued to leave serious injuries. The danger in rubella is greatest in the first three or four months of pregnancy. Even at this time many babies escape without damage to the eyes, ears and brain.

Another wastage in human reproduction is caused by miscarriage (accidental abortion). It was estimated that one of every four pregnancies in 1951 ended disastrously. These losses are caused by abnormalities of the product of conception and are probably the result of the union of an abnormal spermatozoon or ovum.

Moderation in analgesia and anaesthesia was emphasized by a number of authorities in 1951 because of inadvertent abuses and unfortunate results. The pregnant patient could approach labour with confidence that she would have adequate and satisfactory relief if it became necessary, and that becoming a mother is a safe and normal process. Obstetricians' instructions and special classes by nurses for prospective mothers had allayed fear and corrected misunderstandings. In these classes many everyday questions were answered for anxious women. Fathers' classes were also extremely popular and in great demand during 1951.

Early ambulation, or getting up early, had become routine in both the obstetrical and gynaecological services by 1951. The patients retain their general physical strength and are much stronger when they return home (early ambulation, however, should not be used as a means solely to effect earlier discharge from the hospital). The general well-being from being out of bed early contributes to a more normal onset of lactation. Inactivity enhances poor circulation in varicose veins, and predisposes to clot formation. When clots form (thrombosis) they endanger the patient because if one breaks loose in the circulation it may be fatal.

Rooming-in was still in the experimental stage during 1951. It requires more nurses unless the mother keeps a constant vigil. There are emotional values but the system requires special architectural arrangements of the hospital or alterations that are extremely expensive.

The acute shortage of obstetrical beds continued to be strained by the increasing demands for more women to deliver in the hospital. In large cities, such as New York city and Chicago, Ill., practically all women have their babies in hospitals except those delivered by the home service units. For the entire country between seven and eight of every ten seek hospital service.

The scope of gynaecology continued to widen. Gynaecologic surgical practice in 1951 fell into two major classifications: (1) diagnostic steps such as curettement and biopsy and (2) major procedures. Surgical repair of the birth canal tended to be less common. Because of improved care during labour and delivery there were fewer relaxations of the vaginal walls and prolapse of the uterus. Most women with relaxation deferred repair until completion of the reproductive career. Repairs on the vaginal walls during the reproductive period may be broken down in a subsequent labour or contribute to difficult labour and delivery.

Pelvic infections were usually controlled by antibiotics before pronounced damage resulted. Gonorrhoeal infection was less common; if it did spread to the tubes, early administration and adequate therapy reduced appreciably the need for surgery.

Lower abdominal pain and backache might be caused by genital tract disease but more often were the result of intestinal disorder or conditions of the spine or sacroiliac joints. Malposition of the uterus may need surgical correction but this has been indicated usually when there was associated disease with the tubes and ovaries.

During 1951 the practice of avoiding surgery upon the fallopian tubes and ovaries except for positive indications was established. Preservation of ovarian function prevailed. The one exception applies in women over the age of 40 who must have the uterus removed for benign tumours (in malignancy there can be no compromise). It was urged that the removal of the ovaries would be advisable to avoid the formation of cysts and to combat prophylactically ovarian malignancy.

In cancer diagnosis cytological or smear tests of the genitalia had a continuation of evaluation. Blood tests had false readings in too high a percentage of cases. Cancer of the female genitalia occurred most often in the cervix; the rate was higher in gentile than in Jewish women. Cancer of the body of the uterus was second in order. The first symptoms of cancer in these two sites are ordinarily bleeding between the menstrual periods and excessive or irregular bleeding. Cervical cancer is more likely to occur in women of 35 years or more. Cancer of the body of the uterus is more likely in the fifth decade. Cancer of the ovary is relatively silent until further advanced. Cancer of the tubes and external genitalia was far less common.

Treatment of cancer of the cervix was by X-rays and radium. A few institutions used lymph gland removal after the completion of irradiation, while another group of workers was doing surgical removal with and without irradiation. Cancer of the body of the uterus was best treated by radium or X-ray treatment or both, followed by complete removal of the uterus, tubes and ovaries and the upper part of the vagina. Surgical removal gives the best results for cancer of the ovaries, tubes and external genitalia if the malignancy is removed while still confined to these organs.

Management of advanced cancer of the genital tract formerly had been based on symptomatic relief of pain by drugs or severance of the nerve paths. By 1951, extensive resections (removals) of all involved tissue had been attempted by a limited number of eminent gynaecologists. In some instances this meant the removal of the bladder and sometimes resection of a portion of the bowel. When the bladder is removed the ureters are transplanted into the bowel or a portion of bowel is used as a bladder with its external opening on the abdominal wall.

Removal of all involved tissue may mean the removal of all the pelvic structures, including the vagina. The cure rate was indeed small, but without such treatment all would have died. A fair number get great relief for a variable period of time. This operation requires unusually skilled operators, special treatment, many blood transfusions, extra nursing care and prolonged hospitalization.

Hormone (endocrine products) therapy had become better evaluated by 1951. Thyroid extract had proved effective in some sterility patients. It may be valuable in some adolescents with abnormal menstrual cycles. The natural and artificial estrogens had proved to be particularly valuable in the relief of menopausal symptoms. Estrogens may be used to treat infection of the vagina before puberty or after the menopause. Other hormones have value but must be used with caution. The male hormone (androgen) may be of value in retarding some advanced breast cancers. Excessive or prolonged androgen therapy may produce masculine features such as deeper voice or hair growth upon the face.

During 1950–51, two preparations were announced as near-specific agents for monilia (candida albicans) of the vagina. One is a mixture of two proprion salts and the acid. The other is composed of riconeolic acid and oxyquinoline. Moniliasis occurs usually in pregnancies and in uncontrolled diabetic and postmenopausal patients who have been on excessive estrogenic therapy. In 1951 these fungicides stood the test of time and were well established.

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(H. C. HES.)

Haiti. With an area of 10,748 sq.mi., roughly the western third of the island of Hispaniola, the Republic of Haiti has nearly 50% more population than its neighbour, the Dominican Republic, living on about 50% less territory. But the notable fertility and favourable climate of the western valleys easily support a greater density of population. The population (census of Aug. 7, 1950) was 3,111,973. Hardly 5% is of European origin, the rest Afro-American. The capital, Port-au-Prince, has a population of about 142,000, while the next three cities, Cap Haïtien, Gonaïves and Les Cayes have 25,000, 13,000 and 12,000, respectively. French is the official language. President in 1951: Paul E. Magloire.

HAITIAN WORKERS harvesting sisal crop in 1951

History.—World demand for sugar, coffee, sisal, vegetable oils, hardwoods and other products of Haiti lifted the trade balance to the best level in many years; sugar production rose to 65,000 tons, and with the prosecution of the Artibonite valley irrigation program, toward which the Export-Import bank of the United States advanced a loan of $10,000,000 in April, an expansion of sugar planting was assured.

By March the regime of President Magloire had paid off the deficit, and had a cash balance of 19,000,000 gourdes (gourde = 20 cents U.S.). By midyear, the government had reduced the public debt to less than 35,000,000 gourdes from the 43,000,000 of May 1950. But the government was also able to sustain a substantial program of road construction and irrigation projects.

Throughout 1951 agitation for an increase in the minimum legal wage limit (fixed at about 70 cents U.S. in 1948) led to no concrete step, but kept the matter in the forefront of major issues.

On Feb. 19 President Magloire had a formal meeting at the frontier with Pres. Rafael Leónidas Trujillo of the Dominican Republic, inaugurating an era of friendly co-operation between the two states after a long period of strained relations.

(C. ME.)

Education.—Haiti in 1949 had about 1,060 primary schools attended by 87,000 pupils and 6 national *lycées* and 15 private secondary schools attended by about 10,000 pupils. Higher education was available at the national law and medical schools, the Central School of Agriculture and the government-controlled University of Haiti. In the 1949–50 fiscal year 10% of government expenditures were for public education. The 13 motion picture theatres in 1951 had seating capacity of 5,150.

Finance.—The monetary unit is the gourde, valued in 1951 at 20 cents U.S. currency, official rate. Actual government expenditure in the fiscal year ended Sept. 30, 1950, was $21,382,172; revenue was $21,820,131. The ordinary budget for the fiscal year 1952 balanced expenditure and revenue at $24,884,750. The capital budget, to finance a five year plan of economic development, was placed at $40,000,000. The net public debt was $6,511,389 on Aug. 31, 1951; Haitian currency and coin in circulation amounted to 44,046,001 gourdes.

Trade and Communications.—Exports in the trade year 1950 (Oct. 1, 1949–Sept. 30, 1950) were $38,477,928; imports were $36,200,924. The chief exports were coffee (53%), sisal (24%), sugar (7%), bananas (4%) and cacao (2%); leading imports were cotton manufactures (25%), wheat flour (9%), iron and steel and products (8%) and machinery and apparatus (8%). Leading suppliers were the U.S. (77%), Canada (5%), the United Kingdom (4%) and the Netherlands Antilles (3%); leading customers, the U.S. (56%), Belgium (16%), Italy (12%) and the Netherlands (9%).

On Jan. 1, 1950, there were about 2,000 mi. of improved roads, of which only about 245 mi. were surfaced, 88 mi. of public railway and 75 mi. of industrial trackage. In 1951 there were 9 short-wave and 2 long-wave broadcasting stations, 3,683 licensed radio sets and at least as many more sets operating without license.

Agriculture.—Exports of coffee totalled 28,927 short tons in the trade year 1949–50. Other exports included sugar 34,481 short tons; sisal 36,844 short tons; cacao 2,054 short tons; and raw cotton 1,421 short tons. Exports of essential oils included vetiver 38,680 lb.; amyris 87,129 lb.; and oil of lemon 19,718 lb. Livestock (1945) included 200,250 cattle, 13,800 sheep and 1,010,000 goats.

Manufactures.—The only important sugar mill, operated by the Haitian-American Sugar Company near Port-au-Prince, produced 62,247 short tons of sugar and 3,072,625 gal. of molasses in 1951. (J. W. Mw.)

Hammer Throw: *see* TRACK AND FIELD SPORTS.

Handball. The annual National A.A.U. four-wall handball championships were held in 1951 at the Germantown, Pa., Y.M.C.A. New champions were crowned in both the singles and doubles events, with Robert Brady of the Olympic club, San Francisco, Calif., winning the singles title, and Brady, teamed with clubmate William Keays, capturing the doubles. Donald Farley of the Germantown Y.M.C.A. was runner-up in the singles, and Henry Herz and Frank Gluckler of New York second in the doubles. It should be noted that early in the year a schism was created when a large group of the leading players, including the reigning singles and doubles champions, automatically expelled themselves from A.A.U. competition by playing in an unauthorized tournament at the Town club, Chicago, Ill., during the same week that the A.A.U. championships were played. Walter Plekan of Buffalo, N.Y., won high honours in the singles. (FR. RO.)

Harbours: *see* RIVERS AND HARBOURS.
Harness Racing: *see* HORSE RACING.

Harriman, William Averell (1891–), U.S. government official, was born on Nov. 15 in New York city. He graduated from Yale university in 1913, two years later became a vice-president of the Union Pacific Railroad company and in 1932 was named chairman of that company's board of directors. During World War I he organized a shipbuilding and operating company, and in 1920 launched W. W. Harriman Co., investment bankers, a firm that became Brown Brothers Harriman & Co. in 1931. He served as administrative officer in the National Recovery administration, and during 1940 and 1941 served with the National Defense Advisory commission and its successor, the Office of Production Management. In 1941 Pres. Franklin D. Roosevelt named him lend-lease expediter to Great Britain and later to the U.S.S.R. He was U.S. ambassador to the U.S.S.R. from Oct. 1943 to Feb. 1946, and he attended every major Allied conference during World War II. On April 1, 1946, Pres. Harry S. Truman named him ambassador to Great Britain, and on Oct. 7, 1946, secretary of commerce. In April 1948 he was named special U.S. representative abroad to supervise the administration of the European Recovery program, and he later became special presidential adviser on foreign affairs. In July 1951 President Truman named him special envoy to Iran, to try to bring about new conferences between Iran and Britain looking toward the settlement of the crisis created by Iran's nationalization of its petroleum industry and seizure of the Abadan refinery, the largest in the world.

Hawaii. The territory of Hawaii consists of a group of eight large islands and numerous islets in the Pacific ocean between latitudes 18° 55′ and 22° 15′ N. and between 154° 50′ and 160° 30′ W. longitude. The total area of the group is 6,433 sq.mi. From southeast to northwest, the islands are Hawaii, Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai and Niihau. In addition, stretching northward beyond Niihau more than 1,100 mi. is an archipelago of rocks, reefs and shoals which includes Midway (longitude 177° 22′ W.). Likewise, 960 mi. S. of Honolulu and included as part of the city and county of Honolulu lies Palmyra, a coral atoll consisting of 55 islets, 5 mi. long and 2½ mi. wide. The largest island in the territory is Hawaii, with an area of 4,021 sq.mi. The capital of the territory is Honolulu, situated on the island of Oahu. Honolulu is a modern city with a population of 230,485, exclusive of military and naval personnel.

OREN E. LONG, appointed governor of Hawaii on April 20, 1951

The population of the territory increased from 423,330 in 1940 to 499,794 in 1950. The population of the territory is cosmopolitan, the Japanese and Caucasian groups being the largest. Other groups include native Hawaiians, Filipinos, Chinese, Puerto Ricans and Koreans.

Gov. Oren E. Long took office on May 8, 1951, succeeding Gov. Ingram M. Stainback. Governor Stainback served from Aug. 24, 1942, to May 8, 1951. Governor Long was appointed by Pres. Harry S. Truman for a term of four years. Joseph R. Farrington was in 1951 serving his sixth two-year term as Hawaii's delegate to the U.S. congress.

History.—Hawaii has been a territory of the United States since 1900. Since that date the territory has made repeated petitions to congress for statehood and in a plebiscite in 1940 its electors voted in favour of statehood by a majority of more than two to one. A statehood convention was held in April 1950, with delegates from all the islands attending. The constitution drafted at this convention was approved by the voters in the general election of 1950, following approval by the territorial legislature. In Dec. 1950 copies of the constitution were formally presented to President Truman and to both houses of congress by the governor of Hawaii. A statehood enabling bill was awaiting congressional action at the close of the year 1951.

Banking and Finance.—Bank clearings in 1950–51 amounted to $1,955,417,497.87. The volume of business transacted amounted to $1,311,598,130.29. The net bonded indebtedness was $32,582,000. The net assessed valuation of real property was $340,355,058. Internal revenue collections for the fiscal year totalled $97,630,825.78, an increase of $16,567,915.29.

Production.—Hawaii's principal crops are sugar, pineapple and coffee. Production during the fiscal year 1950–51 included a total of 960,961 tons of sugar valued at approximately $115,000,000; 26,071,427 cases of pineapple and juice valued at more than $80,000,000; and 6,500,000 lb. of green coffee valued at approximately $2,700,000. In addition to export crops, field crops and miscellaneous fruits, vegetables and nuts valued at $11,000,000 were marketed. Livestock and poultry products had a value of $20,685,000. The total catch of fish during the year amounted to 7,400 tons valued at $3,547,607.51. (O. E. L.)

Hawaii has little mineral production besides building materials. In 1949 the output included 8,404 short tons of lime ($226,926), 653,890 tons of stone ($718,705) and other nonmetallics valued at $42,896; total value $988,457. In 1950 lime production was 8,141 tons ($219,861) and stone 696,310 tons ($1,554,906).

Hay. The 1951 U.S. hay crop of 108,351,000 tons was the second largest on record (102,340,000 tons in 1950 and 101,644,000 tons average in 1940–49), but the abnormally rainy early season damaged the quality of part of the harvest. The yield of 1.45 tons per acre was a record as compared with 1.38 tons in 1950 and a 1940–49 average of 1.36 tons. Acreage harvested (74,608,000) was slightly more than in 1950 but slightly below average for the decade.

The alfalfa hay crop was a record of nearly 43,000,000 tons from 19,000,000 ac., more than half of it grown in the north central states as was the nearly 32,000,000 tons of clover-timothy. Wild hay of the great plains amounted to 12,563,000 tons from 14,663,000 ac. Lespedeza production was 7,500,000 tons.

Prices, firm in spite of the large crop, were estimated at an over-all average for the season of $22.50 per ton ($21.40 in 1950), or a total value for the crop of $2,432,894,000 as compared with $2,185,766,000 in 1950.

Hayseed.—The six major hayseed crops (alfalfa, red clover, alsike clover, sweet clover, lespedeza and timothy) gave a yield of 500,000,000 lb. in 1951—about average but about one-fourth smaller than 1950. All were smaller than the 1950 crops, and alsike clover, lespedeza and timothy were below the 1940–49 average as well. Alfalfa (2,055,000 bu.) was 5% smaller than the large 1950 crop, and red clover (1,789,900 bu.) was 36% below the record 1950 crop. Nevertheless, current supplies, though about 11% below those of 1950, were well above average, because of a heavy carryover from 1950. Prices were estimated to be considerably higher on alfalfa and lower on timothy and sweet clover. (*See* also Soybeans.) (J. K. R.)

Hay Fever: *see* Allergy.
Health, Industrial: *see* Industrial Health.

Hearing. In 1951 there were approximately 22,000,000 persons in the U.S. under 35 years of age with some form of hearing impairment; 3,000,000 were children with below-par hearing. It was variously estimated that there were approximately 100,000 people who were totally deaf. There were 73 public residential schools and 45 denominational and private schools caring for the deaf. There were 20 deaf teaching training centres and 109 speech and hearing clinics in the colleges and universities of the United States.

It had always been difficult to evaluate and diagnose deafness in children under two years of age and in young patients with psychogenic deafness. Two techniques of experimental psychology, however, had been employed to determine hearing functions by the application and observation of conditioned reflexes. The first method is primarily designed to determine if any hearing impairment exists in an infant. The basic idea is to associate the ringing of a bell with feeding. Eventually, the child with normal hearing will develop a conditioned reflex and start to suck and smack his lips when he hears the bell. The child with a hearing impairment will make no such sign, thus indicating that he cannot hear the bell.

The second method, developed by John E. Bordley and William G. Hardy, also employs the conditioned reflex but is a broader and more definitive technique. The investigators record the changes in skin resistance which follow a mild electric shock. A warning sound is produced four or five seconds before the electric shock is given. The young child may be conditioned quickly to develop skin resistance changes after the warning sound in anticipation of the coming shock. When the child begins to respond regularly to the warning signal alone, intensity of tone is gradually diminished until the threshold is reached. A child conditioned to one tone is thereafter conditioned to all tones audible to him. Therefore, it is believed that the testing of children within the age group of two who have not learned to talk can be accurately determined with the skin resistance technique.

Mothers are advised to seek medical and professional teachers' advice about early training of the prenursery or preschool deaf child (two to four years of age) so that the native intelligence of the child may not be unduly retarded. The child should be given special training in lip reading. This is preferred to "sign language," which is more or less a primitive form and can be used only by the initiated. The vocabulary is limited and not adequate for developing an educational and social program with people of normal hearing. Lip reading, on the other hand, affixes the child's attention to the natural accomplishment of speech—the movements of the mouth, teeth and tongue and the expression of the face.

Unfortunately, few training opportunities had been afforded the preschool deaf child by 1951, but there was an awakening to the importance of the problem. Several cities had introduced prenursery schools for children with hearing defects. Here parents with normal hearing were also being taught the fundamentals of lip reading so that they might assist in the teaching of the child after school hours. Two such schools were being supported by private funds—the John Tracy clinic in Los Angeles, Calif., and Friends of the Deaf in Philadelphia, Pa.

The hard of hearing can hope to be rehabilitated in one of three ways: the fenestration operation, the hearing aid and lip reading.

In light of the knowledge in 1951, no one could definitely predict the outcome of the fenestration operation as far as complete restoration of hearing was concerned. In some cases the patient's hearing had improved; in many, hearing had returned to the preoperative level; while in others, hearing retrogressed. The fenestration operation had rehabilitated great numbers of hard of hearing, but, no matter how successful, it did not re-establish normal hearing.

More than 90% of the hard of hearing had been benefited by the use of the hearing aid. Some individuals had become completely rehabilitated, while others had obtained partial improvement by means of this electronic device. The ear mould continued in vogue. Engineering innovations had made it possible for people with severe forms of deafness to become rehabilitated.

Many audiology clinics had been established in medical schools throughout the United States (Temple university, among others) to test suspected cases of deafness. A bilateral hearing loss of 30% to 35% (decibel units) had been declared a handicap loss. These patients were being tested with the various types of accredited hearing aids in an effort to select the hearing aid best suited for the individual's need. It is the audiologist's evaluation and the individual's psychological appraisal that counts most in the fitting of the hearing aid. It is essential that a perfect mould of the outer ear canal be prepared so that the sound which comes through the receiver of the hearing aid is properly transmitted. It is imperative also that a hearing aid possess a comfortable audible range of 35–45 decibels. When the instrument is set at the patient's control level, loud speech at close range must be tolerable and faint sounds at a distance should be audible without readjusting the instrument. The hearing aid, which had been more or less of a stigma in the past, was now as acceptable as eyeglasses.

Practically all accredited hearing aids in 1951 had a tonal range of 256–4,096 cycles. They weighed approximately four to five ounces and the cost varied from $75.00 to $225. The price differential may be attributed to the services rendered and other factors. The cost of a battery used on an eight- to ten-hour basis is approximately ten cents a day.

During 1951 the Committee on the Conservation of Hearing made considerable progress in the research project on noise in industry in order to prevent "occupational deafness." Many heavy industrial plants rotated their employees from noisy to quiet surroundings to prevent permanent injury to the organ of hearing. Much work had been done on new types of ear defenders both of the earplug type and of the ear muff or helmet type. (*See* also Ear, Nose and Throat, Diseases of.)

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(M. S. Er.)

Hearing Aids: *see* Hearing.

Heart and Heart Diseases.

Congenital heart disease continued to be the subject of intensive study during 1951 because of the increasing number of surgical procedures available for relief of certain types; as, for example, cutting the valve in cases of pulmonic stenosis.

A co-operative study under the auspices of the American Heart association and the National Heart institute was carried out in a selected group of clinics in the United States, England and Canada to define the usefulness and the dosage techniques in treating rheumatic fever and carditis with cortisone and ACTH. Statistically the incidence of acute rheumatic infection had been decreasing steadily in the United States for a period of about thirty years.

Research in the mechanisms of hypertension (high blood pressure) was world-wide. C. Heymans and G. van den Heuvel-Heymans suggested that decrease of resistance to stretch of the arterial wall, where the receptors of the sino-aortic nerves which moderate reflexly the general arterial pressure are situated, could be the primary mechanism of essential hypertension.

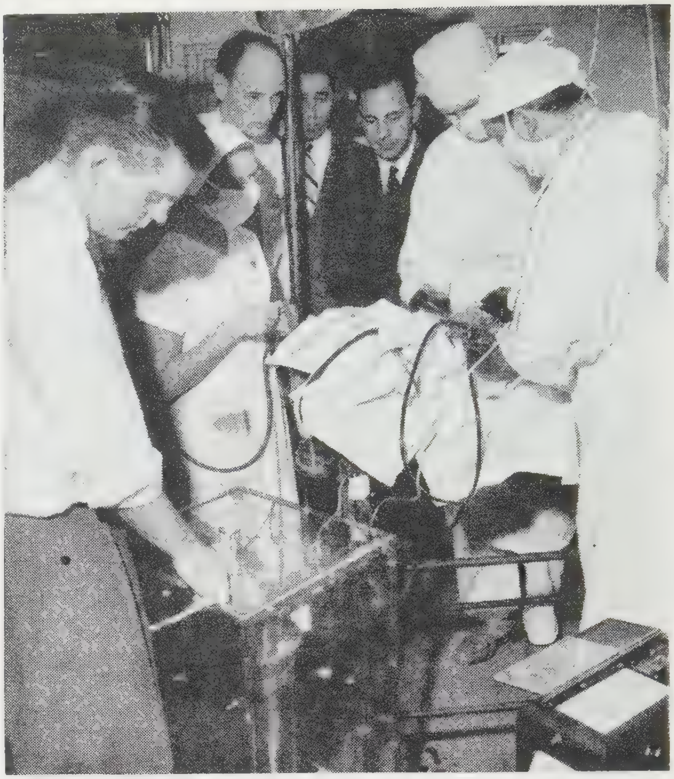
A committee of the Scientific council of the American Heart association, under the chairmanship of Carl J. Wiggers, reported its revised recommendations for human blood pressure determinations by sphygmomanometers. Among these was the contention that the disappearance point of auscultatory sounds be used as the level of diastolic pressure.

Therapeutic advances in the control of hypertension were concerned mainly with drugs, such as the veratrum alkaloids, the dehydrogenated ergot alkaloids, and other blocking or sympatholytic agents. However, John P. Merrill and his associates reported the removal of both adrenal glands in 12 patients with advanced hypertensive vascular disease.

Arteriosclerosis, and particularly coronary atherosclerosis, was subjected to wider laboratory and clinical investigation than in any previous year. The total chemical synthesis of cholesterol was accomplished for the first time. The great increase in excretion of cholesterol in the bile by hyperthyroid rats and converse reduction in hypothyroid animals was demonstrated. Observations were reported of the synthesis of cholesterol *in situ* by isolated arterial tissue and of the effect of heparin in altering the fat and protein molecules in human blood. The ultracentrifuge work of John W. Gofman was subjected to critical evaluation in several research centres. Dietary influences, protective drugs and food factors, hereditary components and hormonal relationships were some of the many areas of investigation.

The great importance of the coagulation mechanism in thrombosis was emphasized by Irving S. Wright. New anticoagulants were subjected to clinical trial in a search for a safer and more dependable agent.

The electrocardiograph became increasingly an instrument for three-dimensional analysis of the electrical activity of the heart through the growth of interest in vectorelectrocardiography. Cathode-ray instruments were used for recording the movement of the electrical vector during cardiac contraction, and high-speed motion pictures of the moving light beam were made to permit finer analysis of such motions. Another technique, developed by Stanford Goldman and his associates, used motion pictures of a multiscreen oscilloscope which measured, by the changing brightness of the screens, the course of the potential changes over the area of the exploring electrodes.



MECHANICAL HEART AND LUNG (foreground) doing the work of living organs for a dog undergoing surgery at the Hahnemann Medical college and hospital at Philadelphia, Pa., in 1951. The machine was developed by a team of engineers and surgeons

Ballistocardiography also developed in a two- and three-dimensional manner through the designing of instruments recording motions in axes other than the standard head to foot. The whole method of ballistocardiography, however, was shown to be subject to fundamental difficulties requiring further clarification before it could be applied readily to clinical research.

Surgery of the heart and blood vessels made rapid progress through its increased availability in many clinics of the world during 1951. Methods for the preservation of arterial grafts made it possible to have such material on hand when needed for such operations as coarctation (narrowing) of the aorta when the excised section was too long to permit approximation of the cut ends of the aorta.

Operations on the mitral valve, either by finger fracture or incision, increased, and considerably more than 500 such operations had been performed in the world by the middle of 1951. A method was devised by which, with the use of data derived from intracardiac catheterization, it was possible to determine before the operation the approximate size of the constricted mitral valve.

(*See* also Chemotherapy; Medicine.)

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Films of 1951.—*Guard Your Heart* (Bray Studios, Inc.).

(H. B. S.)

Helicopter: *see* Aircraft Manufacture; Civil Aeronautics Administration.

Highways: *see* Roads and Highways.
Hispaniola: *see* Dominican Republic; Haiti.

Hockey, Field. A two-month tour by a group of stars representing the Scottish Women's Hockey association featured the 1951 field hockey season, the visitors playing contests in thirteen states of the United States. Jean Torrance, captain of the Scots, and her teammates compiled a string of 21 consecutive victories before being held to a deadlock in their farewell appearance in the United States.

Competing against the American All-Stars in the concluding contest of the United States Field Hockey association's 26th annual tournament held at Wellesley, Mass., Nov. 22–25, the visitors were tied at 1–1. Each team scored its goal in the first half of the game played before 2,000 persons at Wellesley college. Louise Kerr counted for the Scots in the first three minutes of play, then, near the end of the session, Barbara Newlin of Philadelphia, Pa., tallied to knot the score.

In men's competition, the Westchester team of Rye, N.Y., carried off the top honours by halting the Mount Washington club of Baltimore, Md., 4–1, in the United States championship final on Norris field at Baltimore. (T. V. H.)

Hockey, Ice Although finishing second behind the Detroit Red Wings in the regular race of the 1951 National Hockey league, the Toronto Maple Leafs came back to capture the playoffs for the Stanley cup, symbolic of world supremacy in the sport.

The Leafs got away fast in the final series with a 3–2 victory over Montreal's Canadiens when Sid Smith tallied in 5 min. 51 sec. of the sudden-death overtime period at Toronto, Ont., Can. However, Montreal reversed the score in the second game, winning by 3–2 when Maurice Richard counted at 2 min. 55 sec. of extra play. At Montreal for a third meeting, the Leafs won, 2–1, as Ted Kennedy tallied in 4 min. 47 sec. of overtime. Two nights later, Toronto took a 3–1 lead in games by triumphing, 3–2, when Harry Watson hit the nets on a play set up by Max Bentley after 5 min. 15 sec. of the extra period. Shifting back to Toronto on April 21, the sextets continued their overtime struggling, but the Leafs clinched the cup with a 3–2 triumph. Bill Barliko scored on a 20-foot shot on an assist from Harry Meeker after 2 min. 53 sec. of extra play.

Detroit's Red Wings, after winning the National league title for the third straight season with the record total of 101 points, were eliminated by Montreal in the semifinals of the cup playoffs. The Canadiens took the first two contests, 3–2, 1–0, and Detroit won the next pair, 2–0, 4–1. Montreal then gained its place in the final round with triumphs by 5–2, 3–2. Toronto eliminated the Boston Bruins to reach the cup round after Boston had taken its opening semifinal by 2–0. The second contest ended in a 1–1 overtime tie, the game being halted by the curfew law, and then Toronto registered four successive victories, 3–0, 3–1, 4–1 and 6–0.

Gordon Howe of the Red Wings took league scoring laurels and the Art Ross trophy for the regular season with 43 goals and 43 assists for 86 points, a record high for a single season. Maurice Richard of the Canadiens was runner-up with 66. Milt Schmidt of Boston won the Hart trophy as the most valuable player and Leonard (Red) Kelly of Detroit was recipient of the Lady Byng Memorial trophy given to the player adjudged most outstanding for his playing ability combined with good sportsmanship.

The Vezina award was won by Al Rollins, Toronto's rookie goalie.

The Cleveland Barons annexed American league honours and the Omaha Knights triumphed in the United States circuit. Other major team champions were as follows: Victoria Cougars, Pacific coast; Toledo (O.) Mercurys, Amateur Hockey association, senior open; Crookston (Minn.) Pirates, Amateur Hockey association, senior; Johnstown (Pa.) Jets, Eastern league; Toledo Mercurys, International league; Canada, world amateur; Manhattan Arrows, Metropolitan (N.Y.) league; New York Metropolitans, Atlantic league.

PUCK sliding toward the Boston Bruins' net during the final game of a National Hockey league series played at Boston, Mass., in April 1951. The Toronto (Ont.) Maple Leafs defeated the Bruins 6 to 0 and won the series

Brown university's six won the Pentagonal league championship for the second straight time, but was routed by Michigan, the Big Ten leader, 7–1, in the final round of the National Collegiate Athletic association title tournament. (T. V. H.)

Hoffman, Paul Gray (1891–), president of the Ford foundation, was born on April 26 in Chicago, Ill., and studied at The University of Chicago. In 1911 he became a salesman for a Studebaker dealer in Los Angeles, Calif., and later was sales manager and then district branch manager for Studebaker in that city. After serving in World War I he purchased the Studebaker retail branch in Los Angeles, and in 1925 he went to South Bend, Ind., as vice-president of the Studebaker company. In 1933 he and Harold Vance, another vice-president, as receivers successfully reorganized the company and Hoffman served as Studebaker president from 1935 to 1948. He was an organizer of the Committee for Economic Development and chairman of its board of trustees from 1942 to 1948. On April 5, 1948, Pres. Harry S. Truman appointed Hoffman administrator of the Economic Cooperation administration. He supervised the European Recovery program (ERP) until his resignation on Sept. 30, 1950. His book, *Peace Can Be Won,* inspired by his experience as ECA administrator and the success of the recovery program, expressed his conviction that the U.S. could defeat communism by waging the peace on the military, economic, political and informational fronts.

The appointment of Hoffman as president of the Ford foundation, the largest public trust in the world, was announced on Nov. 6, 1950, and became effective on Jan. 1, 1951. He was enabled to continue his efforts for peace in his new post, since the foundation planned to concentrate initially on activities directed toward its primary objective, world peace.

Hogs: *see* Livestock.
Holland: *see* Netherlands.
Home Building, Federal: *see* Housing.

Home Economics.

Membership in the American Home Economics association in 1951 included 19,590 professional memberships, 433 college clubs, 63 homemaker groups and 5 foreign associations. Permanent headquarters of the association were established in a building acquired at 1600 20th street, N.W., Washington, D.C.

Taking note of the national emergency, the association established a committee on consumers in the defense economy. As a member of the Youth Conservation Clearing House, the association co-operated in preparing legislative work sheets. The association worked for the adoption of rayon standards and requested the American Standards association to establish standards on beverage makers, pressure cookers and saucepans. The association granted three fellowships for graduate study and seven fellowships and scholarships to assist students from abroad to study home economics at United States colleges and universities.

Interest in evaluating home economics programs continued. A series of six workshops for home economics staff members was held to introduce new tools for evaluation and to assist with a critical review of the college program.

The association inaugurated a special American Home Economics association project in family life education supported by funds from the Grant foundation.

Bureau of Human Nutrition and Home Economics.—Comprehensive tables showing amounts of folic acid contained in familiar foods were prepared, based on assays for this B vitamin by the bureau and other research organizations.

To help supervisors of school lunch programs to evaluate their management practices, the bureau provided a schedule and check list of points for comparing local results with those in schools where practices had been appraised.

To aid consumer educators, the bureau began a series of semitechnical bulletins on individual foods, providing facts on such topics as nutritive value, food value for money spent in comparison with other foods and selection and use of different varieties, grades and forms.

Home Economics Extension Service.—More than 1,500,000 women reported that they had improved their families' diets by better selection, preparation and preservation of food through participation in the home demonstration program of their counties.

In addition, 11,150 schools were assisted in establishing and maintaining hot lunch programs. About 300,000 families received help on housing improvements. About 285,000 women and 36,000 men participated in child development and family relations programs. Through 4-H club programs, the service reached 1,000,000 girls. Approximately 3,400 white and 400 Negro home economists directed these county and community programs, with help from 600,000 volunteer local leaders.

Experiment Stations.—Research in home economics in the land-grant colleges is largely conducted as part of the research programs of the agricultural experiment stations established in connection with the colleges. These researches are supported in part by state and special funds and in part by federal grants administered through the office of experiment stations of the U.S. department of agriculture. During 1951 investigations were continued in the fields of family economics, family relationships, foods and nutrition, housing, home management, textiles and clothing and certain aspects of marketing.

Some of these investigations were fundamental in character; others were applied. Certain researches concerned with farm housing problems and with food consumption and nutritional status of selected population groups were conducted on the regional co-operative basis made possible through provisions of the Research and Marketing act of 1946.

Public Schools and Colleges.—Enrolment in home economics in junior and senior high schools was about 1,750,000, with some increase in the number of boys. The number of adults in federally reimbursed classes increased about 10%, raising the total to 782,000.

Membership in the Future Homemakers of America and New Homemakers of America, national organizations of high school home economics students, increased about 15% to a total of more than 354,000. Their programs emphasized improving leadership qualities.

Many home economics representatives of schools and colleges, including youth members from Future Homemakers and New Homemakers organizations, participated in the Midcentury White House Conference on Children and Youth and in a follow-up conference for home economics representatives held by the American Home Economics association and the home economics education service of the office of education.

There was a slight increase in the number of undergraduate students enrolled in home economics at the college level. A total of 646 master's degrees and 33 doctor's degrees in home economics and home economics education were granted.

Land Grant Colleges.—The home economics division in the Association of Land Grant Colleges and Universities directed its efforts during 1951 to the co-ordination of programs of resident instruction, extension and research. The resident instruction section was concerned with problems of enrolment, quality of instruction at the college level and counselling students in personal and professional development.

The extension section directed its efforts to the need of sensitizing farm women to their obligations as producers of food for the world. The research section was interested in promoting research that would improve the family and family life, in staking out areas of research in which home economics should assume leadership and in preparing these analyses in printed form.

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FILMS OF 1951.—*Care of Hair and Nails, Color Keying in Art and Living* (Encyclopædia Britannica Films Inc.); *Clean Look* (Association Films, Inc. or Modern Talking Picture Service, Inc.); *Designs for a Homemaker* (Modern Talking Picture Service, Inc.); *Food that Builds Good Health, Good Eating Habits, Good Table Manners* (Coronet Films); *Sewing: Fitting a Pattern* (Young America Films, Inc.). (K. GR.)

Honduras.

A republic of Central America, Honduras is bounded by Guatemala, El Salvador and Nicaragua.

Area: 59,160 sq.mi. Pop. (preliminary figures, 1950 census of the Americas): 1,533,625, including approximately 35,000 tribal Indians. Capital: Tegucigalpa (pop. 62,263 in 1949). Other principal cities are San Pedro Sula (24,425), Comayaguela (16,907), La Ceiba (13,456), Tela (11,544) and Puerto Cortés (8,837). Language: Spanish. Religion: predominantly Roman Catholic. President in 1951: Juan Manuel Gálvez.

History.—John D. Erwin was appointed U.S. ambassador to Honduras in Jan. 1951, succeeding Herbert S. Bursley. In August the Honduran government contracted with the Tela railroad for the construction of a new dock at Puerto Cortés and the expansion of railroad facilities serving the port to alleviate congestion there. The contract provided that the work was to begin as soon as the government made the construction supplies available, and that the task would be completed within 18 months. The Tela railroad would then have the railway rights to the new dock at Puerto Cortés. (G. I. B.)

Education.—In 1951 there were 2,061 primary schools with 106,438 pupils enrolled, 21 secondary schools with 1,107 students, 24 normal schools with 1,746 students and 14 commercial schools with 2,386 students. The National university at Tegucigalpa had 796 students in 5 faculties. The 1951–52 budget allocated 3,545,695 lempiras for education.

Finance.—The monetary unit is the lempira, officially valued at 49.5 cents U.S. currency, in 1951. Governmental expenditures in the fiscal year 1949–50 totalled 32,108,374 lempiras; net revenue was 32,580,169 lempiras. The 1951–52 budget balanced revenue and expenditure at 28,904,130 lempiras. The internal debt amounted to 8,892,822 lempiras on June 30, 1950, of which 7,802,709 lempiras represented the floating debt. The external debt was 1,123,875 lempiras. Currency in circulation on Sept. 30, 1951, included 19,970,000 lempiras and $5,460,000 in U.S. coin. The cost-of-living index (Tegucigalpa) stood at 408 on Sept. 30, 1951 (1938–39=100).

Trade and Communications.—Exports during the fiscal year 1949–50 amounted to 43,486,315 lempiras, which figure was unadjusted for banana under-valuation estimated at 32,340,000 lempiras by the International Monetary fund. Imports were valued at 68,334,659 lempiras. Chief exports were bananas (31%), coffee (15%) and silver (13%). Leading customers were the U.S. (69%), El Salvador (14%) and Cuba (4%); leading suppliers, the U.S. (78%), El Salvador (5%) and the Netherlands Antilles (4%).

In 1947 there were 922 mi. of railroad, confined to the northern banana area, 1,201 mi. of highway and 63 airfields. Motor vehicles on Jan. 1, 1951, included 1,733 cars and 1,583 trucks. There were 6 broadcasting stations and about 16,500 radio sets in 1950. On June 30, 1950, 142 vessels (100 tons and over) aggregating 522,624 gross tons were registered under the Honduran flag.

Agriculture.—Coffee production in the 1950–51 season totalled about 27,000,000 lb. Banana exports in the 1949–50 fiscal year totalled 13,801,374 stems, of which 11,695,192 stems went to the U.S., 1,927,000 to Canada and 179,182 to the Netherlands. Other exports in 1949–50 were coffee 15,233,479 lb. and coconuts 7,856,128 nuts. Forest exports included 2,279,036 bd.ft. of mahogany lumber and logs and 28,901,277 bd.ft. of pine.

Minerals.—In the fiscal year 1949–50, 30,895 troy ounces of gold and 4,550,145 oz. of silver were exported. (J. W. Mw.)

Honduras, British: *see* BRITISH HONDURAS.
Honey: *see* SUGAR.

Hong Kong.

This British colony on the coast of China consists of Hong Kong Island and the ceded territory of Kowloon and Stonecutter's Island. The New Territories (the remainder of the Kowloon peninsula and numerous islands) were leased from China in 1898 for 99 years. Area: colony 36.5 sq.mi., New Territories 355 sq.mi. Pop.: (1951 est.) 2,030,000. Language: Chinese (Cantonese); about 5% speak English. Capital: Victoria. Governor in 1951: Sir Alexander Grantham.

History.—Hong Kong had an uneasy year in 1951. Trade and industry suffered principally from the decision of the United States in Dec. 1950 to cut off trade with China and to ban the loading of goods for any other country when it was believed they might be destined for China. In March the government announced its intention to proceed with a five-year development scheme in spite of the scarcities likely to result from western rearmament. To control trade with China, Hong Kong was transformed in June from a free port into one with a highly controlled trade system. Steps were taken to stop smuggling and there were some large seizures of gold. In May it was estimated that trade with China (20% of Hong Kong's total in 1949 and 30% in 1950) would probably fall to 10%. By September industry had suffered from the shortage of such materials as cotton yarn and there was a falling off in production with consequent unemployment. Some alternative sources of supply were found.

Hearings continued on the claim by the Chinese Communists to the aircraft of the Chinese National Airways corporation impounded at Kaitak airport.

Hong Kong university, which had opened the first school of architecture in the far east in 1950, received in March a gift of £250,000 from Great Britain. In September it also received £1,000,000 from former Japanese assets as a scholarship endowment fund. Plans for a reservoir in the New Territories holding 1,150,000,000 gal. and costing £1,500,000 were announced in August.

Education.—Registered schools (1950): 880, with 160,000 pupils (an increase of 30,000 over 1949).

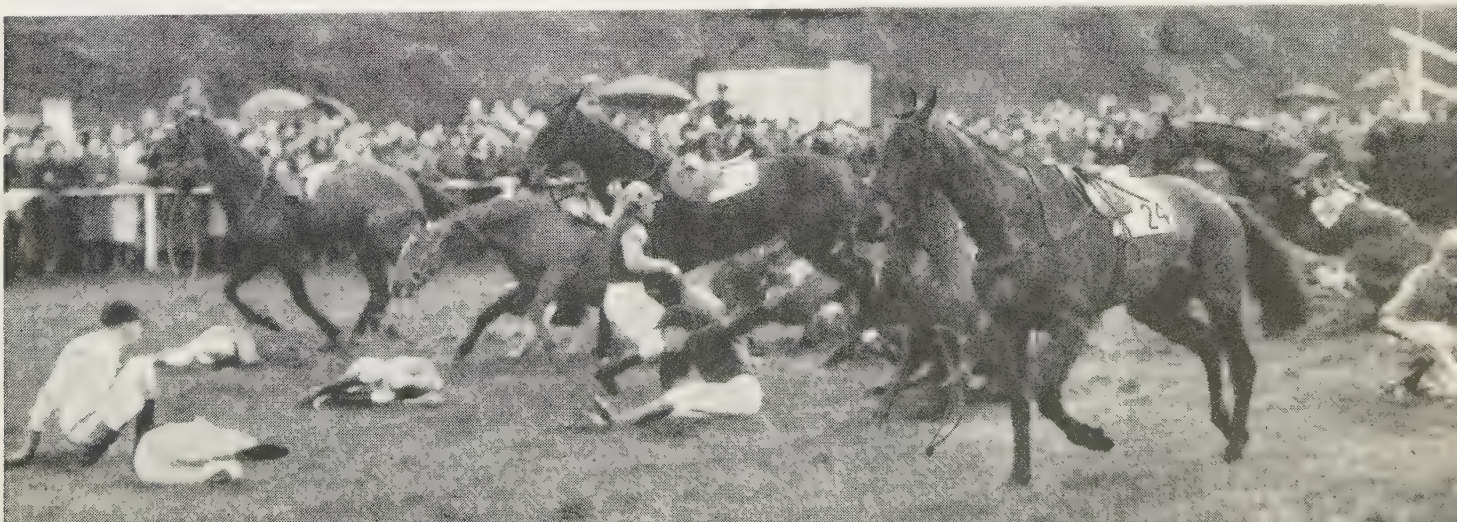
Finance and Trade.—Currency: Hong Kong dollar, valued in 1951 at 17.5 cents U.S. Budget (in Hong Kong dollars, 1950): revenue $ 274,240,876, expenditure $ 250,448,999; (1951 est.): revenue $ 247,799,850, expenditure $ 234,669,050. Foreign trade (in Hong Kong dollars, 1950): imports $ 3,787,600,000, including from China $ 857,900,000, Macao $ 104,400,000; exports $ 3,715,500,000, including to China $ 1,461,100,000, Macao $ 208,300,000.

FILMS OF 1951.—*Hong Kong* (British Information Services).
(W. H. Is.)

Hormones: *see* ENDOCRINOLOGY.

Horse Racing.

Limited to two races the year before because of an injury, Counterpoint came back to gain three-year-old laurels and recognition as the outstanding U.S. horse of 1951. The chestnut son of Count Fleet, bred and raced by C. V. Whitney, also was forced out of action by a bruised hind foot in July, but closed the campaign strongly to triumph in four successive stake races and lead in money


MASS SPILL after the first jump in the 1951 Grand National Steeplechase at Aintree, Eng. Out of a starting field of 36 horses only 3 finished the course

earnings with $250,525 for 15 starts.

Counterpoint ran with his more highly rated stablemate Mameluke in the Kentucky Derby at Louisville, Ky., on May 5 and was a disappointing 11th, with Mameluke last in the field of 20. Honours in that event, which grossed $126,100 (richest in the history of the race), went to Count Turf, who ran coupled with four rivals in the mutuel field. The winner, owned by Jack Amiel of New York, was ridden by Con McCreary and captured a record purse of $98,050. The surprise triumph returned a payoff of $31.20. A crowd of 100,000 saw Royal Mustang run second, four lengths back, with Ruhe a close third.

Eddie Arcaro scored his fourth victory in the rich Preakness at Pimlico in Baltimore, Md., on May 19 with Brookmeade stable's Bold. Arcaro got his mount in front early to win by seven lengths and this time Counterpoint ran second, with Alerted third. Bold paid his backers $10.20 and earned $83,110 first prize for his owner.

Counterpoint found himself in the Peter Pan Handicap at Belmont park on June 9 when he broke the New York track's record in defeating the heavily favoured Battlefield by two and three-quarter lengths. The Whitney entry, with Dave Gorman riding, was timed in 1 min. 47.8 sec. for a mile and an eighth and returned $33.50. Greentree's Hall of Fame, who with Battlefield was among the leading three-year-olds of the year, ran third. One week later, Counterpoint won the richest running of the Belmont Stakes, defeating Battlefield by four lengths and returning $12.30. The race grossed $118,100, of which $82,000 went to the victor.

Among Counterpoint's achievements later in the season were victories over C. T. Chenery's Hill Prince in major stake runs. On Oct. 13, Counterpoint won the Jockey Club Gold Cup at Belmont by a head to add $35,600 to his earnings. Then, on Oct. 20 at Jamaica, he led home Hill Prince by a length and a quarter in the Empire City Gold Cup race.

With Hill Prince gaining honours among colts in the handicap division, Alfred Vanderbilt's Bed o'Roses was best of the fillies and mares in that group. Walter M. Jeffords' Kiss Me Kate, winner of the Delaware Oaks, Acorn, Gazelle and Alabama stakes, was champion of the three-year-old fillies. The Maine Chance farm's Rose Jet stood out as a two-year-old filly and Greentree stable's Tom Fool was tops among the two-year-old colts although beaten by Vanderbilt's star, Cousin, in the Hopeful at Saratoga, N.Y.

Oedipus, owned by Ogden Phipps, captured honours among the steeplechasers. Greentree was the number one stable in money won, while R. H. McDaniel was leading trainer with the most winners saddled. Charley Burr took the jockey title by coming home in front with 312 mounts.

Citation became the greatest money winner of all time when he captured the Hollywood Gold Cup Handicap at Inglewood, Calif., July 14. The Calumet farm champion drew a purse of $100,000, bringing his all-time winnings to $1,085,760. Shortly after defeating his stablemate, Bewitch, Citation was retired to stud. By annexing the place at Hollywood, Bewitch set a new mark for mares, bringing her earnings up to $462,605.

A survey by the Associated Press showed that $1,629,239,777 was bet at the nation's tracks, with 24 states deriving a record revenue of $99,927,423 from the turf. Attendance gained 6.01% to 24,302,020. New York led in attendance with 4,386,315 and also in wagering, with $345,292,092.

Harness racing also enjoyed a bright season, with Pronto Don being voted outstanding horse of the year. The six-year-old trotting gelding from the Hayes Fair Acres stable in Illinois was leading money winner with earnings of $80,850, bringing his total to $170,797, an all-time high for geldings. Trained by Fay Fitzpatrick and driven by Benny Schue, Pronto Don bettered a number of world and U.S. standards. He took the $50,000 Roosevelt two-mile trot at Roosevelt raceway, Westbury, L.I., N.Y., for the second straight season, clipping six and one-fifth off the world record by covering the distance in 4 min. 10.8 sec. Among his other sparkling performances were winning races at Saratoga raceway and in the Golden West Trot at Hollywood park, Calif.

Mainliner, a brown colt owned by Ralph K. Kroening of Milwaukee and driven by the veteran Guy Crippen, took two straight heats to annex the Hambletonian at Goshen, N.Y., on Aug. 9. A field of 21, the largest in the blue-ribbon classic of harness racing, started, making for a record gross of $95,263.93. Mainliner's share, also a new high, was $51,347.26. The Hayes Fair Acres stables' Spennib took second money and Scotch Rhythm, trotting for the Two Gaits farms, gained third.

(T. V. H.)

Canada.—Pari-mutuel betting on races for running horses was in 1951 the highest on record. The 1951 statistics (with 1950 in parentheses) were: 359 (356) days of racing at the tracks of 30 (31) racing associations which held 2,764 (2,761) races, at which $60,384,287 ($53,469,032) was wagered, with $3,153,450 ($3,003,905) paid out in prize money. A scandal involving the fixing of races was laid bare in Ontario when the Ontario racing commission probed back into ten-year-old records, and handed out severe sentences, including life suspension for ten jockeys and fines for as many others. (C. Cy.)

Great Britain.—In National Hunt racing, the Cheltenham Gold Cup was won by the 12-year-old gelding Silver Fame, the oldest horse to win this race. The Grand National produced an extraordinary race. The going was apparently perfect, the field numbered only 36 as opposed to the record of 66 and yet at halfway, after one 2¼-mi. circuit, only 5 horses were left. After another mile only 2 remained, the mare Nickel Coin and the Irish gelding Royal Tan, and they finished in that order, followed at a considerable distance by Derrinstown who had been remounted after falling.

In flat racing, the first of the classic races, the Two Thousand Guineas and the One Thousand Guineas, were won by Ki Ming and Belle of All respectively. The French Two Thousand Guineas was won by Sicambre who was to prove the best of his age in France. Arctic Prince was one of the easiest winners of the Derby for many years. Belle of All finished third in the Oaks to Neasham Belle and the Grand Prix de Paris was won by Sicambre.

The King George VI and Queen Elizabeth Festival of Britain Stakes which, with its first prize of £25,322 10 s., was the most valuable race ever staged in Britain, was run at Ascot on July 21. Three-year-olds and upward were eligible and the distance was one and one-half miles. The winner was an English bred and trained three-year-old, Supreme Court, ridden by E. C. Elliott. He was sent to the stud after this race, as was Arctic Prince who broke down in running and finished lame. The last two classics, the St. Leger at Doncaster and the French equivalent, were both won for Marcel Boussac. At Doncaster the winner was Talma II and at Longchamp the same jockey, W. Johnstone, won on Stymphale.

The Prix de l'Arc de Triomphe, which had become the most valuable race in Europe, was fittingly won by Tantième, a four-year-old whose performances in France during 1950 and 1951 seemed to have established him as the best horse over one and one-half miles in Europe. He had won the same race in 1950 and did all that was asked of him in France afterward, though he had shown himself to be a poor traveller and in one of three races in England had been beaten: this was in the Festival of Britain Stakes when he could only finish third to Supreme Court.

The Ascot Gold Cup and the Goodwood Cup were won by a

French four-year-old, Pan II. Gordon Richards was the champion jockey in England once again. In France W. Johnstone and P. Blanc were among the most successful. (M. A. Md.)

Horses: *see* Livestock.
Horse Shows: *see* Shows.

Horticulture.

Unprecedented construction of new suburban and country homes in the U.S. during 1951 brought prosperity to nurseries through heavy buying of trees, shrubs and other planting stock. Seedsmen also profited by this trend. Grass seed sales were the highest since World War II. Merion grass seed, developed at the Beltsville, Md., agricultural station, was sold in limited quantities at high prices but gave promise of better lawns in sections where grass was hard to maintain. Increasing requests in funeral notices to "Please omit flowers" caused florists to collect a large fund with which to combat this tendency.

Floods in Missouri and near-by states caused heavy losses to fruit and vegetable growers. The middle west had the coolest summer on record. In some north central states the ground froze before bulbs and late vegetables had been dug.

Thousands of elm trees in New England were removed in an effort to check the spread of the Dutch elm disease. The disastrous oak wilt disease spread into North Carolina and Tennessee, and by the close of the year was found in 15 states. The European earwig was found to be spreading rapidly on both the east and west coasts. Chlordane offered the best control. The mistaken use of DDT on evergreens was partly responsible for wide-spread infestations of red spider mites by killing their parasites. New remedies for the control of this pest were offered after millions of dollars had been spent in research, but their value was not fully proved.

Progress was made in the feeding of plants through their leaves, with quicker results and with the use of less material.

The shipment of Christmas trees from Canada to the U.S. was estimated at 5,000,000, with prices higher than in previous years. The total cut for both countries was set at 25,000,000.

Increasing numbers of shipments of lily bulbs were received from Japan. There were large imports of tulips, narcissi and other bulbs from the Netherlands and France. The year's domestic narcissus crop was ample, but dry weather reduced the size of the bulbs. A new plan in the Netherlands by which inspection of the bulbs took place in the fields and in the packing sheds proved very satisfactory.

An International Plant Quarantine conference in Rome, It., in September was attended by delegates from 24 nations. The purpose was to perfect rules governing plant shipments for mutual protection. A Spanish unit of the European branch of the Florist Telegraph Delivery was formed.

Great Britain's 3,210,000-ac. project in East Africa for the production of crops to produce vegetable oil was abandoned, at least for a time, because the original plan could not be carried out. The Union of South Africa agreed to send several million cases of fruit, jams and juices to England to relieve the food shortage there. This was a sacrifice, for South Africa itself was short of food. In spite of severe restrictions in Great Britain, florists were permitted to import a limited number of glasshouse plants from Denmark to May 31, 1952. Regulations on the movements of cut flowers and foliage were eased. Healthy growth of the florist business in Germany was reported. A flower show at the Kiel industrial exhibit was visited by 90,000 persons. King George VI of Great Britain donated a large number of trees, shrubs and seedling plants to stock a typical English garden in Berlin.

High labour costs and civil disturbances reduced Indonesia's exports of pepper to less than one-tenth of prewar shipments, which were 70% of the world's total. Southern Australia suffered severely from drought. Compulsory spraying was ordered in Western Australia to combat the fruit fly. The country's pack of dried vine fruits was less than expected, but exports of quick-frozen pineapples, bananas and other tropical fruits to the United Kingdom were encouraging. There was an increased demand for canned bananas. A ban was placed on the shipment of grapes into New Zealand unless they were certified.

FIRST PRIZE display of camellias at the 1951 International Flower show held at Grand Central palace, New York city, in March 1951

Great swarms of locusts along the Persian gulf threatened the loss of all Iran's crops, but planes and pilots from the U.S., provided with ten tons of the new insecticide Aldrin, sprayed the fields, killed the locusts and saved the crops.

Labour troubles, believed to be Communist-inspired, together with heavy storm losses, led the United Fruit Company to consider the abandonment of its immense banana plantations in Guatemala. In the meantime, a new use for bananas was discovered. Corn for the feeding of cattle being scarce, feeding of bananas, including the skins, was tried with much success.

A world-wide shortage of insecticides and fungicides began to appear, mostly because much of the raw material was used for ammunition. A scarcity of metal containers for shipping pesticides was also threatened. At the same time scientists began to suspect that insects were developing some degree of immunity to DDT and other insecticides. (*See* also Fruit; Vegetables.)
(E. I. F.)

Hospitalization Insurance: *see* Insurance.

Hospitals.

In 1951 under the direction of an independent commission composed of representatives of agriculture, education, industry, labour and religion, as well as medical and hospital representatives, a two-year program was launched by the American Hospital association to study the best means of providing high quality hospital care at the lowest possible cost to the public. The study first sought to answer basic questions on how hospital care was being used and how it was paid for.

Competing with industry and with the armed forces, hospitals faced, in 1951, a personnel shortage similar to that felt during World War II. The need for nursing personnel was particularly acute, and hospitals in co-operation with other interested organizations concentrated on a nation-wide student nurse recruitment campaign.

Despite curtailed U.S. federal expenditures for nondefense needs, the Hill-Burton hospital survey and construction program proceeded without cutbacks. The program provided for carefully planned hospital expansion throughout the nation. Hospital construction grants as of Aug. 31, 1951, totalled 1,611 projects with preliminary or final approval, comparing favourably with the 1,476 projects on the books on that same date in 1950. Of the 1951 projects, 490 were in operation and the remainder under construction or approved. Completed, these hospitals would provide 77,940 hospital beds, in addition to 248 health centres.

Construction figures from a report of the hospital facilities division of the public health service were indicative of some of the 1951 trends in hospitalization. Most of the approved project applications were for general hospitals, and about three-fifths of all approved projects were for completely new facilities. The new hospitals that were built were relatively small in bed capacity, 50% having fewer than 50 beds. Most of the new projects—58%—were in communities of less than 5,000 population.

Operating costs were on the rise, and patient income lagged further behind the cost of patient care. For the general hospital, the average cost of care per patient day was $15.62, an increase of $1.29 over the previous year. Of this, patients paid $13.11, or $1.09 more than they paid the previous year.

During 1950 general hospitals needed $2.51 per patient day, or more than $341,000,000, to make up the difference between operating expenses and patient income.

More people in the United States received hospital care in 1951 than ever before. Admissions totalled 18,483,185. This meant that an average of 51,000 people passed through U.S. hospital admitting offices every day of the year. The percentage of occupancy, however, continued to be smaller than in the two previous years. The average day found 86.1% of all hospital beds occupied. Since the number of admissions increased but the per cent of hospital beds occupied did not, it was apparent that patients, on the average, did not stay in hospitals as long. The average length of patient stay in all U.S. hospitals in 1950 was 8.1 days. (*See* also VETERANS ADMINISTRATION, U.S.)

In Canada operating expenditures for hospitals increased substantially during 1951. Greater industrial activity, partly caused by defense spending, and the expansion of the armed services intensified the competition for personnel and materials. To a limited degree, the cost per unit of care was offset by the continuing high utilization of hospital accommodation.

The widening in Canada of the federal hospital construction grants program during 1951, to give financial assistance for the building of nurses' residences, outpatient departments and laboratory services, encouraged another aspect of the building program. The year was marked by a large number of hospital projects completed. Since the inception of the federal aid program, grants had been approved for 34,000 additional beds in 350 projects.

Another important development was the formation of the trans-Canada medical services which, when effected, would permit an interchange of prepaid medical care benefits between all provinces; thus a nation-wide prepaid hospital and medical care "package" would become possible under voluntary auspices.

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International.—The second post-World War II congress of the International Hospital federation was held in Brussels, Belg., from July 15 to July 21 under the presidency of René Sand. It was attended by 520 persons representing 25 countries. The main theme for the congress was "The Care of the Chronic Sick and the Aged." The draft constitution of the federation, prepared by the provisional executive committee, was approved by the general assembly of members on July 17, and 21 members were elected to the council of management to hold office for four years. It was also proposed that a study tour should be held in Italy, in 1952, with the Italian Hospital federation as host, and that the next congress should be held in Great Britain in 1953. A bulletin, issued four times a year, was to contain items of interest to members of the federation; the headquarters were situated at the offices of King Edward's Hospital Fund for London.

Great Britain.—It seemed probable in 1951 that the cost of the hospital service could be stabilized somewhere near the figure of £270,000,000 (the amount estimated in 1950); in fact, the sum voted in March 1951 was £285,000,000. In January Aneurin Bevan ceased to be minister of health; he was succeeded by Hilary Marquand, and the functions of the ministry of health were revised to retain hospitals and other strictly medical matters under the ministry of health, while many other functions were transferred to the ministry of local government and planning. A further change occurred in the autumn when a Conservative government came into power and H. F. C. Crookshank became minister of health. Improvements of 1950 were carried further and numbers and grading of medical appointments throughout the service were reviewed. Although few complete new hospitals were proceeded with, many old hospitals made progress with upgrading old accommodation for use as acute general hospitals, by provision of additional theatres, expansion of X-ray, physiotherapy and other departmental facilities and modernization of systems for registration of patients and keeping of medical records.

A staff college for hospital administration was opened in London in April by King Edward's Hospital Fund for London. The college undertook the systematic provision of refresher courses for hospital administrators; by the end of 1951 about 80 administrators had participated in the courses. The college also invited applications from those employed within the hospital service for a two-year training course, to begin in April 1952.

FILMS OF 1951.—*A Life in Her Hands* (British Information Services). (A. G. L. I.)

Hotels.

The U.S. hotel industry in 1951 increased its room sales between 8% and 9% over the previous year, while food and beverage sales were up 5% to 6%. Despite these rises, however, the average hotel's net income before taxes dropped between 5% and 10%, largely because of increased costs of labour and materials. Average room occupancy was off about 2% for the year, but an 8% to 9% increase in the average daily rate per occupied room yielded an almost proportionate rise in total room sales.

Probably the most significant long-term trend in the hotel industry was the progressive lengthening of the seasons at resort hotels. Many resorts which previously had remained open only for 2 months in the winter or summer were able in 1951 to maintain occupancy above the break-even point for the full 12 months of the year. This trend benefited vacationists as well as hotels, since it had the effect of increasing the physical facilities available at resorts, and also made possible significant economies in off-season vacationing. An important factor in this trend was the improvement which many resort hotels made in their bad-weather recreational facilities, as well as the improvement in their plants through the installation of air-conditioning equipment and more effective insulation.

Another trend of importance to the hotel industry was the

CHILDREN'S HOTEL in London, Eng., in its third year of operation in 1951 with accommodations for 40 children ranging from infancy to eight years of age. Bookings for guests ranged from one night to three years

continuing increase in volume of group business.

As a result of their $2,000,000,000 post-World War II modernization program, hotels had greatly improved their facilities and services for motor travellers and travelling family groups, both of which comprised increasingly greater proportions of the average hotel's guests. The improved facilities for motorists included motor entrances and special motor lobbies, attached storage garages or adjacent parking lots and travel information desks which supplied not only road maps and route information but up-to-the-minute weather reports. Special hotel services for family groups included baby-sitting services and nurseries, in some hotels, and sections of dining rooms set aside for groups which included children.

While hotels increased their rates somewhat to compensate for higher costs of labour and materials, the rate increases had not kept abreast of the cost increases. The principal reason for this was that shrinking occupancy had made competition a greater factor in the fixing of hotel rates. Most hotels depended largely on more efficient operating methods to help compensate for increased costs. (C. A. Hh.)

Great Britain and Europe.—The chief influences affecting hotels, restaurants and inns in Europe became more pronounced in 1951. These were the rising costs of operation, which, in turn, necessitated an increase in charges to the public by many establishments, and the high level of taxation in most countries, particularly in Great Britain, which reduced the spending power of the public.

The vigorous efforts, by government, public bodies and the trades directly concerned, to develop the tourist traffic continued and propaganda in this field reached a new high level by means of attractive and informative leaflets and posters in colour. In Great Britain, for the first six months of 1951, the Festival year, the latest figures issued by the British Travel and Holidays association showed an increase in the number of tourists of 8% over 1950; it was estimated that a total of 281,952 visitors arrived from overseas during that period. In the latter part of 1951, the association submitted a memorandum to the government suggesting reform of the licensing laws, insofar as they directly affected the public—in particular, visitors from overseas.

The advantages of operating establishments in continental Europe, as compared with Great Britain, became more obvious during 1951, and in the competition for tourists British managements continued to be severely handicapped at a time when the tourist trade, as a dollar-earning invisible export, was of considerable importance. Establishments were still subject to strict food rationing, and there remained the heavy purchase tax on essential articles of equipment and furnishings. Also, complications and anomalies resulting from the orders under the Catering Wages act continued to hamper establishments by their rigid application to businesses varied in character, size and appeal and offering a wide range of personal services.

A feature in all countries, particularly as regards hotels in the more important towns, was the substantial business arising from the increase in meetings and conferences of all kinds, national and local, brought about by the exigencies of modern life, on political, economic, social and practical day-to-day problems in industries and trades. In all countries, too, there was an increase in the number of persons who took advantage of improved travel facilities; air travel developed considerably. These were important factors in maintaining receipts in establishments in most parts of the world. (H. C. Ce.)

Housing.

During the first 11 months of 1951, 1,022,600 new permanent dwelling units were started in nonfarm areas of the United States, a drop of more than 20% from the comparable period of the previous year. The total number of dwellings started during the year, estimated at approximately 1,100,000 nonfarm units, was, however, one of the greatest in the history of the nation, second only to the all-time high of 1,396,000 starts in 1950. The volume of home construction was considerably in excess of expectations. It was anticipated that the curtailment of credit for the financing of housing through regulation X of the board of governors of the federal reserve system, instituted in Aug. 1950, would have a sharply restricting effect upon the ability of families to purchase homes and would result in a severe reduction in the volume of new construction. The uncertainties accompanying the outbreak of the Korean War, however, stimulated housing demand, increased inflationary pressures gave rise to expectations of further increases in costs and prices, and renewed prospects of housing shortages served to buttress demand for new construction.

Defense Housing.—In March 1951 a procedure for designating critical defense areas in which special action might be taken to assure the provision of housing and other facilities needed for military personnel or defense workers was announced by the Defense Production administration following recommendations made by Raymond M. Foley, administrator of the Housing and Home Finance agency. The procedure stipulated that relaxation of existing residential credit restrictions could be considered for localities which were designated as critical defense housing areas, in order to facilitate the construction of housing needed for military personnel or defense workers coming into the area. The first areas to benefit from this arrangement were Aiken, S.C., and Paducah, Ky., where atomic energy plants were under construction.

As the year developed, it was found that mere relaxation of regulation X was insufficient to provide for the needs of defense housing. In September congress enacted the Defense Housing and Community Facilities Services Act of 1951 (public law 139), which made provisions for special Federal Housing administration (FHA) mortgage insurance aids, federally financed defense housing, assistance to localities in the provision of community facilities and services, and acquisition and site development in connection with defense installations in isolated areas. The provisions of the act applied only to critical defense housing areas which the president might designate if all the following conditions existed: (1) expansion of defense activity either by the construction of a new defense plant or installation, reactivation of an existing plant or substantial increase in defense operations; (2) substantial in-migration to carry out the activities of such defense plants or installations; and (3) shortage of housing impeded or threatened to hamper the defense activities in the area, or community facilities or services in the area were not available or were insufficient. As in the housing program of World War II, private industry was afforded full opportunity to provide the needed defense housing wherever possible. In addition to provisions requiring publication in the *Federal Register* of information relating to the number, types, rentals and general location of the permanent dwelling units required in defense areas, residential credit restrictions were suspended on housing renting for $85 per unit per month or to be sold for $12,000 or less. The act also added new title IX to the National Housing act, making available liberal FHA mortgage insurance aids for housing which was considered to be an "acceptable risk in view of the needs of national defense."

Under section 903 of title IX, the FHA could insure mortgages on one- and two-family houses which were to be rented to defense workers or military personnel. The maximum amount of the mortgage could not exceed 90% of value and was limited to $8,100 for single-family houses or $15,000 for two-family units. Additional amounts were permitted in high-cost areas and for the third and fourth bedroom in each dwelling unit. The maximum mortgage term could not exceed 30 years and the interest rate was limited to 4½%. Section 908 provided for mortgage insurance on multifamily rental projects. The mortgage could not exceed $5,000,000 and was limited to 90% of estimated value or the actual costs of the completed physical improvements on the property. This stipulation in effect limited the builder's profit to 10% of estimated value or 11% of costs. The interest rate on section 908 mortgages was limited to 4% on the unpaid balance.

The direct provision of defense housing by the federal government could be undertaken only if private enterprise was unable to provide for the need or if the requirement was of temporary duration. The act provided that federally financed permanent housing should consist of one- to four-family structures which might be sold separately to private owners. Temporary dwellings must be of mobile or portable character so that they might be reused elsewhere to serve other temporary needs. The act authorized an appropriation of $50,000,000 for federally financed defense housing and an additional $60,000,000 for loans or grants for the provision of necessary community facilities and services needed in connection with the construction of defense housing in critical areas.

As of Dec. 29, 1951, credit restrictions had been suspended and housing programmed for private construction in 112 critical defense housing areas, involving a total of 65,295 units of which 45,770 were rental units and 19,525 were dwellings available for sale. Temporary housing to be provided with federal funds, programmed as of Dec. 27, 1951, in 22 critical defense areas, amounted to 4,575 units consisting of 2,850 trailers and 1,725 temporary portable dwelling units. All the temporary units were assigned to military bases: 1,350 to army posts, 1,790 to the air force and 1,435 to various naval establishments. Title IX did not become operative until late in November because of delays in budget authorizations and complications involved in preparing the operating rules and regulations.

An interesting aspect of the Defense Housing act was that it modified by legislation the regulations of an administrative agency. Under the act, regulation X was changed in nondefense areas to allow veterans to purchase a home costing $7,000 or less with a down payment of only 4% while nonveterans were required to place a 10% down payment. In addition, the mortgage amortization period for homes priced at $12,000 or less was extended from 20 to 25 years.

Final Liquidation of the HOLC.—The Home Owners' Loan corporation, established in 1933 for the purpose of salvaging home ownership at a time when foreclosures were taking place at the rate of 1,000 a day, liquidated its entire operation successfully in 1951. In the course of its existence the corporation refinanced more than 1,000,000 defaulted home loans, estimated to be equivalent to one out of five mortgages on owner-occupied homes in nonfarm areas at the time. In addition to aiding home owners, the HOLC provided an important prop to the entire home finance system by the purchase of $2,750,000,000 in frozen mortgages from financial institutions and individual lenders. Local cities and towns also benefited through the payment of $490,000,000 in delinquent taxes and current assessments on properties acquired by the corporation. In all, the corporation's financial commitments amounted to $3,500,000,000. According to various estimates made at the early stages of HOLC operation, a loss of $1,000,000,000 to $2,000,000,000 was anticipated. Rising incomes, responsible borrowers and efficient operations made it possible, however, for the corporation to avoid all losses and return a surplus of $14,000,000 to the U.S. treasury.

Tax Concession on Exchange Transactions.—The sharp increases in house prices in recent years had placed many families at a tax disadvantage when they sold their home to purchase a new place of residence. If their original home had been held for a period of time, it usually could be sold for an amount in excess of the purchase price. The excess was then subject to a capital gains tax regardless of whether the family purchased a new home or used the proceeds for other purposes. If a new house was acquired at an amount equal to the sale price of the old house, the house owner in effect had to pay an additional amount to the government in the form of a capital gains tax.

The Revenue Act of 1951 partially relieved the hardships which frequently resulted from these circumstances. The act exempted from taxation the excess of the sale price on the cost of the original dwelling, when the taxpayer purchased a substitute house one year prior or subsequent to the sale of the original dwelling. If the taxpayer built a new home, the benefit period was extended by 6 months to an 18-month period commencing at the date of the sale of the old dwelling. Capital gains tax was still levied, however, on the amount to which the sale price of the old residence exceeded the cost of the new purchase.

Housing Census of 1950.—The second complete census of U.S. housing was taken in April 1950, as part of the regular decennial census, and some of the more important summary data were first released in 1951.

In April 1950 there were 45,875,000 dwelling units in the United States, of which 39,390,000 were located in nonfarm areas and 6,485,000 were farm dwellings. The dwelling places included in this enumeration were of all types, ranging from luxurious penthouse apartments to shacks.

By and large, the single-family detached dwelling was shown to be the favoured residence of the U.S. family. In nonfarm areas the freestanding home accounted for 56% of all dwelling units, while only 13% of U.S. households were located in structures containing five or more apartments.

In the decade of the 1940s there was a net gain of 8,550,000 units, or 23% of the total housing stock in 1940—the greatest numerical growth in the history of the nation. This was particularly striking in light of the fact that the production of new housing was sharply restricted during the war years, almost half the decade. Nonfarm dwellings increased by approximately 10,000,000 units, an amount in excess of the total increase in stock. Only 5,700,000 of the added units were constructed between 1940 and 1950. The remainder were units created by the conversion of nonresidential properties into housing accommodations, the subdivision of large houses or apartments into smaller units or by the reclassification by the census of dwellings from the farm to nonfarm category.

Farm dwellings, on the other hand, declined in number from 7,642,000 in 1940 to 6,485,000 in 1950, a reduction of 15%, because of abandonment, the conversion of farm houses to nonfarm uses and the supersession of farms by other uses, as well as through reclassification.

Tenure.—Perhaps the most important change in the characteristics of the U.S. housing supply was manifested by the sharp increase in the proportion of dwelling units that were owned by their occupants. Mid-century found the highest proportion of owner occupancy, at least since 1890, the first year of record. In April 1950, 19,528,000, or 53.3% of all occupied nonfarm dwelling units were owner-occupied, a gain of 71% in the course of a decade. Conversely, the proportion of tenant-occupied dwellings declined from 58.9% to 46.7% of total occupied units. Although the rise in home ownership was accompanied by a sharp increase in the number of mortgaged owner-occupied structures, the proportion of homes that were encumbered by debt declined from 45.3% in 1940 to 43.6% in 1950. This meant that 56.4% of all one- to four-family owner-occupied structures in the U.S. were held free and clear of debt. (*See* also ARCHITECTURE; BUILDING AND CONSTRUCTION INDUSTRY; BUSINESS REVIEW; MUNICIPAL GOVERNMENT; TOWN AND REGIONAL PLANNING.) (CH. RA.)

Canada.—Anxiety on the part of the federal government to hold inflation in check, and the inflationary pressures of a full-scale housing program, created a strange situation during 1951. On the one hand the government admitted the great need for more houses in Canada; on the other hand the government took steps to make it increasingly difficult during most of 1951 for the average Canadian to build a house. The basis of the government's action was the feeling that it would be better to have a continuing housing shortage than to have runaway inflation because housebuilders bid too actively among themselves, and against the expanding defense program, for scarce building materials and for skilled and semiskilled labour.

Thus, in February the government withdrew the additional one-sixth loan formerly available through the Central Mortgage and Housing corporation. This had the effect of raising the down payments about $1,000 on five-room houses and $1,500 on six-room houses, and consequently of putting a brake on construction. The brake was pulled tighter when lending institutions raised their mortgage interest rates.

In June the government introduced amendments to the National Housing act which increased the mortgage interest rates on housing loans, in an effort to keep private lending institutions interested in operating under the National Housing act. But this move was not enough to keep building starts from falling. By the end of August starts on new homes declined by 16% over the similar eight-month period of 1950, while completions were 2% lower.

Disturbed by the size of the cutback in construction, and encouraged by an improvement in the supplies of various building materials, the government in October announced concessions of (1) lower mortgage down payments (10% of the ceiling price for defense workers, 20% for nondefense workers) and (2) return of the former rental insurance scheme (providing builders with 85% loans for projects that would have defense workers as tenants and 80% loans for those with nondefense workers as tenants).

MODEL of the De Soto-Carr housing project for replacing slum dwellings in St. Louis, Mo., designed by architects of the city's housing authority. Work on the first units was scheduled to begin in 1952

Slightly earlier in the year the federal government established a plan to co-operate with provinces and municipalities to build rental homes in centres with populations of 5,000 and more. The cost was to be borne 75% by the federal government, 17.5% by the province and 7.5% by the municipality. As an initial effort, 5,000 houses were scheduled for Ontario. (C. CY.)

Great Britain.—By Sept. 30, 1951, 1,456,721 new houses, flats and other units of accommodation had been provided in the United Kingdom since the end of World War II. In addition to the temporary house program, which resulted in 156,611 dwellings, 961,484 new permanent houses and flats had been built.

In the quarter ended Sept. 30, 1951, 43,902 homes were provided in England and Wales and 5,142 in Scotland, bringing the total number of new houses up to the yearly average of 200,000 houses. This was the avowed aim of the Labour government, in whose view no greater number of houses could be built without making serious inroads on the building program for factories, hospitals and schools.

At the general election the Conservative party was bound by the conference decision at Blackpool in 1950, when the delegates, in spite of advice from their leaders, insisted on naming 300,000 houses a year as the minimum target for the party. After the general election, Harold Macmillan became minister of housing and local government in succession to Hugh Dalton. He immediately announced the suspension of all new building

BRITISH DWELLING UNITS typical of the housing for which miners were given priority in 1951 in order to attract new miners to the dwindling force working the British coal mines

for three months, presumably in order to allow him to prepare a program for the disposition of building labour and materials. Shortly afterward he issued a circular permitting a ratio—which under the previous government had been one house for sale as against four to let—of one house for sale to one house to let. In the house of commons during the first important debate on the subject, the minister explained that this was not an instruction to local authorities, but that it merely increased the area of their discretion. He hoped that, if 200,000 houses were built in 1952, about 50,000 of these might be for sale.

The chief criticism of the government's policy came from the executive of the Town and Country Planning association which welcomed the intention to speed up housing but reiterated its fundamental belief that the new houses should be of the right kind and in the right places.

It was obvious that the Labour government could have achieved a greater production than 200,000 houses a year had it not adopted high standards of housing. The average prewar house had a superficial floor area of 750 sq.ft. to 850 sq.ft. The postwar house had a superficial floor space of more than 1,000 sq.ft. To revert to the prewar standards would permit of a substantial increase in the number of houses built each year. In the meantime, flats continued to be built in London providing inadequate living space of only 650-sq.ft. floor area, subsidized to the extent of £2,900 as compared with the normal subsidy of £600 on the 1,000-sq.ft. house.

Norway.—In 1950 Norway needed 123,000 additional houses to provide every family with a separate dwelling. In 1950, 22,400 homes were completed. For the year 1951 a lower target was set because of the needs of the defense program, and in the first six months 7,800 new houses were completed as compared with 10,000 in the same period of 1950.

Sweden.—At the end of World War II, Sweden aimed at producing 60,000 housing units a year of which 45,000 were to be in the cities and 15,000 in the rural areas. In 1950, 43,937 units were completed, 12,803 as houses and the rest as apartment dwellings. Loans were available to potential houseowners up to a maximum of 90% of construction cost. Community-owned blocks of flats might borrow up to 100% of the capital value. A subsidy was given to families of two or more children under 16 years of age and coming within a specified but relatively high income limit. The subsidy amounted to $36 or £9 each year for each child under 16.

France.—In France, from the end of the war up to June 1951, there had been built 174,900 houses (of which 110,245 were new houses and the rest reconditioned houses), in addition to 119,260 temporary houses.

The Netherlands.—In 1950 the Netherlands built 47,300 houses. By Aug. 31, 1951, an additional 36,324 houses had been completed and 43,109 houses were under construction.

U.S.S.R.—According to L. P. Beria in his report at the meeting of the Moscow soviet, held on Nov. 6, 1951, to celebrate the 34th anniversary of the October Revolution, during the year 270,000,000 sq.ft. of family living space (presumably 300,000 to 400,000 apartment dwellings) had been provided in cities and in industrial settlements, and 400,000 new houses were being built by collective farmers in the rural areas. (G. McA.)

Human Nutrition and Home Economics, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION; HOME ECONOMICS.

Human Rights, Covenant of: *see* INTERNATIONAL LAW; UNITED NATIONS.

Humour of 1951.

The most notable contribution to humour in the United States during 1951 was made by the nation's television performers. Not only did most of the established radio and movie comedians appear on television, but also a number of new performers were introduced.

Television being primarily a visual type of entertainment, it is natural that TV comedy leans more heavily on action than on words. Broadly speaking, television humour in 1951 was divided into five categories.

Television.—*Slapstick Humour.*—This type of comedy depends mainly on eccentricity of action. As a rule the comedian wears ludicrous costumes and takes part in sketches which require the use of such devices as comic falls, custard pies in the face, blacked-out teeth, fright wigs, wild facial contortions and destruction of scenery. The foremost exponents of slapstick in 1951 were Dean Martin and Jerry Lewis, Milton Berle, Red Skelton, Jimmy Durante and Jackie Gleason.

Situation Comedy.—In this type of TV humour, performers pretend to be characters in a story. The comedy is a combination of funny lines and amusing action resulting from the unfolding of the plot. Outstanding examples of situation comedy in 1951 television were George Burns and Gracie Allen and Amos and Andy.

Master of Ceremonies Comedian.—This type of comedian is generally the master of ceremonies for a variety program. He acts as host and gives humorous introductions to various performers who present their specialty acts. The master of ceremonies often enters into some of the sketches. Included in this category in 1951 were such performers as Arthur Godfrey, Ken Murray, Dave Garroway and Robert Q. Lewis.

Straight Humorous Commentary.—This is primarily a carry-over of radio technique and is not often used on television. It is mostly talk with little action. The performer usually wears regular business clothes, stands before the audience and recites stories and jokes. In 1951 television, Herb Shriner and Sam

Levenson used this technique.

Satire.—This type of comedy consists of broadly overexaggerated imitations of people, customs and institutions that are familiar to the audience. Nearly all television comedians included some satire in their programs during the year; the team of Sid Caesar and Imogene Coca used satirical sketches almost exclusively on their show, lampooning movies, books, dancers, singers and the noble institution of marriage.

Radio.—Few innovations were discernible in radio humour during the year. Popular comedians continued to attract large audiences with the same type of material they had used for years. The most notable new radio comic was Tallulah Bankhead, who acted as mistress of ceremonies for a variety program. Her humour technique consisted principally of exchanging insults with members of the cast.

Stage.—There were a number of humorous shows presented on the legitimate stage in 1951. *Guys and Dolls* was a musical comedy based on Broadway characters created by Damon Runyon. *Two on the Aisle* was a musical revue featuring Bert Lahr in a number of satirical sketches. *A Tree Grows in Brooklyn* was a musical adaptation of the best-selling novel of that title. Other successes were *The Moon Is Blue, Where's Charley?* and a revival of the Ben Hecht-Charles MacArthur play *Twentieth Century.*

Books.—Among the outstanding humorous books published in 1950 and 1951 were the following: *I'm a Lucky Guy,* an autobiography by Frank Gilbreth; *How to Get from January to December,* by Will Cuppy; *People Named Smith,* by H. Allen Smith; *Parents Keep Out,* humorous poetry by Ogden Nash; and *Laughter Incorporated,* a collection of jokes edited by Bennett Cerf.

Lay Humour.—American humour in 1951 was concerned mainly with making fun of people in the news and laughing at current manners, politics, fashions and eccentricities. The fighting in Korea was too new and too painful to inspire military jokes such as were heard during World War II, and humour was concentrated more on happenings at home.

There was laughter at television in its struggle to develop. The high cost of living and the rise of taxes were hard to take but there were still jokes about them. The struggle between the Yankees and the Giants for the world series baseball pennant made a good subject for jokes. The difficulty of obtaining tickets to *South Pacific* was considered funny. The usual jokes were heard about politicians, and about the singing career of the president's daughter.

After the first shock of the collegiate football and basketball scandals wore off, these too became the subjects of jokes. Sen. Estes Kefauver and his senate crime investigating committee, while greatly admired and respected, nevertheless were used as the basis for humorous remarks.

Humour in 1951 showed two general trends: a revival of rowdy old-fashioned slapstick brought back from the early days of vaudeville and burlesque, and a new kind of good-natured, gentle spoofing of present-day customs and foibles. (D. C. G.)

Hungary.

A people's republic of southeastern Europe, Hungary is bounded west by Austria, north by Czechoslovakia, east by Rumania and south by Yugoslavia. Area: 35,912 sq.mi. Pop.: (1950 est.) 9,313,000. Language: (1947 est.) Hungarian 92.9%, German 5.1%. Religion: (1947 est.) Roman Catholic 65.6%, Greek Catholic 2.5%, Calvinist 20.8%, Lutheran 6%. Chief towns: (1941 census) Budapest (cap., 1,164,963; 1948, 1,058,288); Szeged (136,752); Debrecen (125,933); Miskolc (109,433); Kecskemét (87,269); Pécs (78,512). Chairman of the presidium of the national assembly in 1951: Sándor Rónai; prime minister: István Dobi.

History.—The Hungarian five-year plan was revised in 1951. Much higher output targets were set and the pace was to be much quicker than originally intended. Official spokesmen maintained that the increase was made possible by the unexpected successes already achieved, by the toiling enthusiasm of the masses and by the exceptionally generous help of the Soviet Union and the people's democracies with which Hungary's trade was rapidly developing. Other official speeches however stressed the need to develop a heavy industry as a foundation for national defense, threatened by the western imperialists. The total value of investments under the five-year plan period was increased from 51,000,000,000 forints to 85,000,000,000 forints. The proportion allotted to industry, which was to have been 41% under the original plan, was raised to 52%. In comparison with the original plan the targets for chemical and electric power production was almost doubled, those for machine production trebled. The increase in the industrial labour force over the plan period was to be not 480,000 but 650,000.

During 1951 the only important change in leading political personnel was the replacement in April of Sándor Zold as minister of interior by Arpád Házi.

The industrial project which received most publicity was the construction of the new Danube iron works at Dunapentele on the Danube. At least some sections of this works were due to begin operating in June. In 1949 Dunapentele was only a village. By Nov. 1951 its population was 35,000 and it was a model of people's democratic town planning. On Nov. 7, the 34th anniversary of the Great October Socialist revolution, a signal honour was bestowed on Dunapentele. As the iron works, which would greatly increase the potentialities of Hungary's war industry, was "the biggest peace project of the five-year plan," it was decided to rename the new city after "the leader of the peace movement of all mankind." The city's new name was to be Sztálinváros, and the Danube works were to become the Stalin works.

Hungary suffered from labour problems: 62,000 new workers were to have been brought into industry by the end of June, but this target was far from fulfilled. The police were empowered to stop citizens in the streets and question them on their employment. One of the causes of the labour difficulties was the fact that many factory workers owned small plots of land and were more interested in cultivating them than in doing permanent jobs in industry. Government spokesmen attached great importance to increasing the number of women in industry. A government decree of June laid down that 50% of new recruits into industry as a whole, and 80% in transport, commerce and public services, should be women. The number of women in universities, technical and economic institutes must be increased. All factories employing more than 250 women must provide day nurseries. The official monthly organ of the Workers' (Communist) party, *Társadalmi Szemle,* in June welcomed the fact that women were now employed in the coal mines, electric energy production, the timber industry and printing. In building 13% of the workers were women.

Pressure on peasants to join collective farms continued. In March a ban on the formation of new collectives was imposed, but this was removed in July. At the end of October it was announced that 15% of Hungary's arable land was held by collectives—slightly more than twice as much as at the beginning of the year.

In July a new State Secrets law was introduced. It was so phrased as to make almost any conversation with a foreigner or unauthorized person capable of being interpreted as espionage. During May and June considerable numbers of persons were deported from Budapest. A ministry of interior statement declared that 918 families had been so deported and claimed that they were former aristocrats, landowners, politicians, businessmen, army and police officers. At the end of June Archbishop Josef Groesz of Kálocsa, who had signed on behalf of the Catholic episcopate the agreement of Aug. 1950 with the government, was tried for treasonable conspiracy and currency offenses and sentenced to 15 years' imprisonment. (H. S.-W.)

Education.—Schools (1950–51): elementary 6,185, pupils 1,229,957, teachers 36,819; secondary 405, pupils 95,930; universities and institutions of higher education 21, students 32,790, professors and lecturers 7,113. Illiteracy (1941) 6%.

Finance and Banking.—Budget: (1950 est.) revenue 17,537,000,000 forints, expenditure 17,454,000,000 forints; (1951 est.) revenue 29,623,000,000 forints, expenditure 29,516,000,000 forints. Currency circulation (Feb. 1950): 2,805,000,000 forints. Bank deposits (Feb. 1950): 6,914,000,000 forints. Monetary unit: forint with an official exchange rate (Nov. 1951) of 11.74 forints to the U.S. dollar.

Foreign Trade.—(1948): imports 1,975,000,000 forints; exports 2,965,000,000 forints.

Transport and Communications.—Roads (1951): 15,976 mi. Licensed motor vehicles (Dec. 1950): cars 16,000, commercial 15,500. Railways (1951): 7,100 mi.; passenger-miles (1948) 2,983,000,000; goods ton-miles (1948) 2,036,000,000. Air transport (1948): flights 4,447; miles flown 625,800 mi.; passengers carried 36,111; goods carried (metric tons) 356,000. Danube shipping (Dec. 1947): merchant vessels 514; gross tonnage 118,717. Telephones (1948): subscribers 106,768. Radio receiving set licences (1949): 525,000.

Agriculture.—Main crops (metric tons, 1948): wheat 1,583,000; maize 2,862,000; barley 692,000; oats 334,000; rye 786,000; rice 37,000; sugar, raw value (1950) 255,000; potatoes (1950) 1,224,000; tobacco 27,000; linseed (1949) 10,000; dry beans (1950) 41,000; dry peas (1949) 32,000; grapes (1949) 770,000. Livestock (Feb. 1949): cattle 1,441,000; sheep 650,000; pigs 3,250,000; horses 569,000; chickens (1950) 15,000,000. Livestock products: meat exports (1950) 3,600,000 lb.; eggs (1948) 750,000,000; milk (1948–49) 1,100,000 metric tons. Wine production (1949): 3,173,000 hl.

Industry.—Manufacturing establishments (1947): 4,342; persons employed 349,500. Fuel and power: coal and lignite (1949) 11,500,000 metric tons; electricity (1949) 2,200,000,000 kw.hr.; crude oil (1950) 500,000 metric tons; natural gas (1947) 100,700,000 cu.m. Raw materials (metric tons): iron ore, iron content (1947) 61,000; pig iron (1949) 404,000; crude steel (1949) 874,000; bauxite (1948) 374,000; gold (kilograms, 1947) 62. Manufactured goods: cement (1947) 281,000 metric tons; cotton piece goods (1947) 148,000,000 m.; woollen piece goods (1947) 13,000,000 m.; cigarettes (1949) 6,323,000,000.

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Hunting: *see* WILDLIFE CONSERVATION.
Hurdling: *see* TRACK AND FIELD SPORTS.

Hutchins, Robert Maynard (1899–), U.S. educator, was born on Jan. 17 in Brooklyn, N.Y. He left Oberlin college, Oberlin, O., in 1917 to enlist in the U.S. ambulance corps. Entering Yale university, New Haven, Conn., in 1919, he received his A.B. in 1921 and his LL.B. (*magna cum laude*) in 1925. In 1923 he was appointed secretary of Yale university and in 1927 dean of its law school. In 1929, at the age of 30, he became the fifth president (and, in 1945, the first chancellor) of The University of Chicago.

Hutchins resigned in 1950 as chancellor of the university and as a member of its board of trustees to join the Ford foundation as an associate director. His resignation became effective at the end of the university's academic year, June 30, 1951, but he was granted a leave of absence from Jan. 1, 1951, to participate in the formulation of the foundation's policies. Lawrence A. Kimpton (*q.v.*) was appointed his successor at the university. Hutchins continued as chairman of the board of editors of Encyclopædia Britannica, Inc.

He had served as the administrative head of the university for almost 22 years, a period longer than that of any of his predecessors. He was also senior in point of service among the contemporary heads of the principal U.S. universities and colleges.

Hutchins' time was devoted during the year to planning, with the other officers, the policies and programs of the Ford foundation. He made two trips to Europe late in the year, going to Berlin, Ger., in August to give the convocation address at the Free University of Berlin in connection with a foundation grant to that institution and to Sweden late in September to give the Gottesman lectures at the University of Uppsala.

Hydrogen Bomb: *see* ATOMIC ENERGY.
ICC: *see* INTERSTATE COMMERCE COMMISSION.
Ice Cream: *see* DAIRY PRODUCTS.
Ice Hockey: *see* HOCKEY, ICE.

Iceland. An island republic of the north Atlantic, Iceland has an area of 39,768 sq.mi., and a population (census 1940) of 121,474 (est. 1950) 143,000. Capital: Reykjavik, the only large town (est. pop. 1949: 54,707). Religion: Lutheran Christian.

President in 1951: Sveinn Björnsson; prime minister from March 14, 1950, Steingrimur Steinthorsson.

History.—In 1951 Iceland faced again the fact that it could not live a life apart. On May 7 Brig. Gen. Edward J. McGraw led an air-transported contingent of 200 U.S. soldiers to Reykjavik and the Keflavik air base. They would presumably make preparations for more troops and radar installations to improve the defenses of this strategic northern island. This was done in accord with the North Atlantic treaty, which Iceland had signed, and with a special agreement between Iceland and the United States. The latter provided that the United States would assume the defense of Iceland, but that Iceland would determine the number of troops to be installed, and the time, and would itself control commercial operations. Prior to the May 7 landing, all the non-Communist members of the *althing* were consulted, and agreed unanimously that the time had arrived for the move.

The military establishment in Iceland was necessitated by Iceland's lack of an army, and was undertaken by the United States as part of the mutual co-operation of the two governments in the North Atlantic Treaty organization. Installations in Iceland were to be co-ordinated with those in Greenland.

The Communists, including their nine representatives in the *althing*, of course howled protests. The university students held a mass meeting but their protest had more than a negative note; the students stated the need for conscious emphasis upon Icelandic language and cultural values in order that the little

U.S. TROOPS off duty in their quonset barracks in Iceland, where a defense station was reactivated in 1951 to co-operate with Iceland in carrying out provisions of the North Atlantic treaty nation should not be swamped by the influx of foreign soldiers.

The local Communist paper complained that from Iceland bombers could strike at the industrial centres of the U.S.S.R.; an indication, thought others, that the native Communists were altogether too solicitous for the Soviet Union. The Russians on their part suddenly took an interest in Icelandic fishing grounds; a mother ship of 10,000 tons and some smaller boats were caught salting herring inside Iceland's three-mile limit and near Keflavik, although in the Baltic the Russians were preventing fishermen from coming within 12 miles of their shores. One of the Soviet ships was warned and one was fined by an Icelandic court.

The Icelanders increased their dollar exports of frozen fish and fish oil in the fiscal year of 1950–51 to $6,000,000 (from $2,500,000 in the previous year). But they still faced a serious adverse balance of trade and increasing inflation. The Economic Cooperation administration only partly met the difficulty with a total aid up to Aug. 1951 of $21,700,000. Most of the E.C.A. funds went toward the building of power plants and a fertilizer plant. Reforestation was continued vigorously; large rural areas were planted and about 500,000 small trees were sold for planting in private yards and parks. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.) (F. D. S.)

Education.—Schools (1950–51): Elementary 214, pupils 16,218, teachers 690; secondary 58, pupils 4,721, teachers 298; grammar schools 2, pupils 769, teachers 48. University of Iceland, students 620, professors and lecturers 57.

Finance and Banking.—Budget (1950 actual): Revenue 306,200,000 krónur, expenditure 265,100,000 krónur; (1951 est.) revenue 298,000,000 krónur, expenditure 261,100,000 krónur. National debt (Dec. 1950): internal 218,100,000 krónur, external 107,000,000 krónur. Note circulation (Sept. 1951) 202,000,000 krónur. Deposit money (Sept. 1951) 197,000,000 krónur. Monetary unit: króna (pl. kronur) with an exchange rate (1951) of U.S. $1 = 16.32 Kr.

Foreign Trade.—(1950) Imports 543,300,000 krónur, exports 421,100,000 krónur. Main sources of imports: U.K. 22.3%, U.S. 19.7%, the Netherlands, 13.8%, Denmark 7.5%, Poland 6.1%, Italy 5.4%. Main destinations of exports: U.K. 11.9%, U.S. 13.2%, Italy 7.6%, Sweden 7.05%, Denmark 4.2%, Germany 6.8%.

Transport and Communication.—Roads (1950): 6,215 km. Motor vehicles licensed (Jan. 1951): cars 6,327, trucks 4,389. Shipping (Jan. 1951): vessels of 100 gross tons and over 130; tonnage 74,262; other registered vessels 534, tonnage 17,058. Telephones (Jan. 1951): 17,258. Radio receiving sets (Jan. 1951): 35,000.

Livestock and Fisheries.—Livestock (Jan. 1950): sheep 401,688, cattle 42,412, horses 41,735, poultry 122,725. Fisheries: total catch (1950) 323,027 metric tons.

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Ice Shows: *see* SHOWS.

Ice Skating. Spinning away with the top prizes in every meet for which he was eligible Richard Button of Harvard university continued his domination in figure skating. The Englewood (N.J.) youth captured the United States senior crown for the sixth straight season at the national meet in Seattle, Wash., with James Grogan of Colorado Springs, Colo., the runner-up. Sonya Klopfer, 16-year-old star from Brooklyn, N.Y., won the women's laurels for the first time when she defeated Tenley Albright of Boston, Mass. Karol and Peter Kennedy of Colorado Springs retained the senior pairs laurels.

Other victors at Seattle were Dudley S. Richards, Boston, junior; Frances Dorsey, Seattle, junior women; Noel Ledin, Chicago, Ill., novice; Carol Heiss, New York, novice women; Mr. and Mrs. Edward Bodel, Berkeley, Calif., gold dance; Caryl Johns and Jack B. Jost, Baltimore, Md., silver dance; Caryl Johns and Jack Jost, junior pairs.

Near the end of February, Button travelled to Milan, It., where he was credited with the record total of 183.7 points as he annexed the world championship for the fourth successive season.

Button and Miss Klopfer added to their laurels late in March at Calgary, Alberta, when the former took North American honours for the third year in a row and the Brooklyn miss gained the women's title for the first time. Other winners in the North American meet were Karol and Peter Kennedy, pairs; Mr. and Mrs. Bodel, dance.

HJALMAR ANDERSEN, winner of the world speed skating title at Davos, Switz., Feb. 11, 1951

Miss Klopfer and Grogan finished first in their respective divisions in the United States Olympic trials at Indianapolis, Ind., Dec. 21–22. Button automatically qualified for a place on the team.

Although he failed to win a single event, Ken Bartholomew of Minneapolis, Minn., scored enough points to win honours for the sixth time in the national outdoor speed skating championships at St. Paul, Minn., in January. Bartholomew gained second places in the mile and 220-yard races and third place in the 880 on the seven-event program to finish with 80 points. Barbara Marchetti of Wyandotte, Mich., and Gwen DuBois of Newburgh, N.Y., shared the women's senior championship by finishing with 100 points each.

Other national winners were Dick Pelner, West Allis, Wis., junior boys; Thomas Fina, Saranac Lake, N.Y., intermediate boys; Dave Mars, Jr., St. Louis, Mo., juvenile boys; Pat Gibson, Madison, Wis., intermediate girls; Judy Kaufman, St. Paul, junior girls; Karen Smith, Minneapolis, juvenile girls. (T. V. H.)

Idaho. A state located in the northwest, one of those carved from the old Oregon territory, Idaho was admitted as a territory by Pres. Abraham Lincoln in 1863 and became a state on July 3, 1890. Idaho has 83,557 sq.mi. and is known as the "Gem state." Pop. (1950 census) 588,637, showing a gain of 12.1% over the 1940 census. Boise, the capital city, with a population of 34,393 is the largest city in the state, followed by Pocatello with 26,131; Idaho Falls 19,218; Twin Falls 17,600; Nampa 16,185; Lewiston 12,985; Coeur d'Alene 12,198; and Caldwell 10,487.

History.—In 1951 all the principal elective officers were Republicans except the secretary of state, Ira Masters, who was a Democrat. Len Jordan was governor; Edson Deal, lieutenant-governor; Robert E. Smylie, attorney general; N. P. Nielson, auditor; Lela D. Painter, treasurer. The state senate was composed of 31 Republicans and 13 Democrats. The house of representatives included 36 Republicans and 23 Democrats.

During the year the department of higher education was consolidated by the closing of the Northern Idaho College of Education at Lewiston and the Southern Idaho College of Education at Albion. The legislature refused to appropriate funds for their operation. This still left seven schools offering teacher training, including the University of Idaho at Moscow, and the College of Idaho at Pocatello. The legislature created a highway commission of three men, also enacted a ton-mile formula for licensing and taxing trucks. A lien law was passed permitting the state to place a lien against property held by recipients of public assistance. With certain exemptions, the state would recover, upon the death of the recipient, the amount of assistance granted.

Important economic developments included the installation by the Monsanto Chemical company of the electric furnace plant at Soda Springs for the manufacture of elemental phosphorus, at a cost of $12,000,000. Potlatch Forests, Inc., opened a $15,000,000 pulp and paper plant at Lewiston, the first in the state. The Idaho Power company would be producing an additional 90,000 kw. at the new C. J. Strike dam, south of Mountain Home. The cost, including transmission lines, was approximately $23,000,000.

Education.—Idaho is served by the state university and agricultural college located at Moscow and the Idaho State college at Pocatello. Junior colleges maintained by junior college districts are located at Boise and Coeur d'Alene. Private colleges are College of Idaho at Caldwell, Ricks college at Rexburg and the Northwest Nazarene college at Nampa. Public school enrolment for 1951–52 was 128,192, an increase of 8,575 in three years; 4,812 teachers were employed in them. The superintendent of public instruction in 1951 was Alton Jones.

Banking and Finance.—As of Dec. 31, 1951, there were 38 state banks and branches with deposits of $116,357,000; 59 national banks with deposits of $338,054,000. There were 11 savings and loan associations.

The state budget appropriation for the biennium 1951–52 was $38,921,000 from the general fund. Of this amount 41.80% was to go for humanitarian purposes, 46.40% for education and 11.80% for administration and all other expenses.

Idaho is one of the few states that is debt free. On Dec. 15, 1951, the last obligation of $4,000 was retired.

Communications.—Idaho had in 1951 a total of 39,742 mi. of highway with 4,827 mi. under the state highway system. The state was served by four transcontinental railroads with a mileage of 2,738. Water transportation to Lewiston was being expanded on the Columbia and Snake rivers. United and Western Air Lines maintained schedules east-west and north-south, while Empire Air Lines served southern and northern Idaho.

Agriculture.—Idaho is known for the famous Russet potatoes, which are one of the major crops. Together with hay, wheat, sugar beets, beans and fruit the income grossed $188,300,000 for 1950. Indications were that this figure would show a substantial increase for 1951.

Manufacturing.—In 1941 a little less than 10,000 employers were paying unemployment compensation taxes for slightly less than 78,000 employees on an annual pay roll of $85,600,000. In 1950, 13,000 employers had 93,500 employees and an annual pay roll of $266,585,000.

Social Insurance and Assistance, Public Welfare and Related Programs.—Idaho has two institutions for the mentally ill—one at Orofino and one at Blackfoot; a home for the feeble-minded at Nampa; a school for the deaf and blind at Gooding; an industrial school at St. Anthony; a tuberculosis hospital at Gooding; and a recreational centre at Lava Hot Springs. The state penitentiary erected a new administration building and increased its facilities by the addition of a new cell block, which allowed for 670 inmates. As of Dec. 1, 1951, there were 462 inmates. (L. B. J.)

Mineral Production.—Table II shows the tonnage and value of those minerals produced in the state in 1949 whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Idaho ranks first among the states as a producer of silver and zinc, second in lead and third in phosphate rock.

Table I.—*Principal Crops of Idaho*

Crop	1951	1950	Average 1940–49
Wheat, bu. (all)	37,968,000	37,087,000	31,154,000
Corn, bu.	1,962,000	1,680,000	1,620,000
Oats, bu.	8,022,000	9,768,000	7,377,000
Barley, bu.	10,432,000	14,840,000	11,305,000
Sugar beets, short tons	1,253,000	1,508,000	1,045,000
Dry beans, cwt.	2,502,000	2,489,000	2,213,000
All hay, tons	2,281,000	2,326,000	2,419,000
Potatoes, bu.	37,520,000	49,200,000	37,379,000
Apples, bu.	1,701,000	1,360,000	1,782,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Idaho, 1949–1950*

(Short tons, except as noted)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Antimony ore	4,838	$1,053,177	6,868	$ —
Copper	1,438	566,572	2,107	876,512
Gold (oz.)	77,829	2,724,015	79,652	2,787,820
Lead	79,299	25,058,484	100,025	27,006,750
Pumice and pumicite	71,373	105,360	93,990	121,044
Sand and gravel	3,271,362	2,286,609	4,281,908	3,043,905
Silver (oz.)	10,049,257	9,095,085	16,095,019	14,566,805
Stone	1,440,680	1,878,801	644,020	861,290
Zinc	76,555	18,985,640	87,890	24,960,760
Other minerals		2,538,517		—
Total		64,292,260		—

Idris I

(Mohammed Idris el-Mahdi es-Senussi) (1890–), first king of the United Kingdom of Libya, was the grandson of Mohammed ben Ali ben es-Senussi (1791?–1859), an Algerian from Mostaganem who from 1843 onward lived in Cyrenaica and founded a powerful Moslem fraternity known as Senussiya, and the son of Senussi el-Mahdi (1845–1902). Since Idris was a minor at the time of his father's death the chieftainship passed to his cousin Ahmed esh-Sherif who fought against Italy in the Italian-Turkish war of 1911–12 and in World War I. In 1917 Idris secured an agreement with the British and Italian governments, was recognized by the Senussi chiefs as Grand Senussi and in Nov. 1920 acknowledged Italian suzerainty over Cyrenaica. He was given the hereditary title of amir with jurisdiction over the oases of Kufra, Jaghbub, Jalo, Aujila and Jedabia. On the rise of fascism in Italy he withdrew in Jan. 1923 to Egypt with his family, while his lieutenants continued to rule in the oases. In 1940, under an agreement with the British government, he organized an auxiliary military force which fought with the British 8th army. In Nov. 1947 he returned to Cyrenaica and the following year was installed in the palace of the former Italian governor at Benghazi. On June 1, 1949, he was recognized by Great Britain as ruler of Cyrenaica. In Dec. 1950 he was chosen by the national assembly representing Cyrenaica, Tripolitania and the Fezzan to be king of Libya when that state came into being. On Dec. 24, 1951, Great Britain and France relinquished their administrative authority and Idris proclaimed the independence of the new state. (K. Sm.)

Illinois.

A north central state of the United States, admitted to the union in 1818, nicknamed the "Sucker state," Illinois is sometimes called the "Prairie state." Total area: 56,400 sq.mi., of which 55,935 sq.mi. are land. Pop. (1950 census): 8,712,176. The population increased 10.3% or 814,935 over 1940, when the official census showed 3,957,149 males and 3,940,092 females; 7,504,202 white, 393,039 nonwhite.

Population classed as urban in 1950 was 6,759,271 or 77.6%; rural was 1,952,905 or 22.4%.

Chicago (pop., 1950, 3,620,962) is the largest Illinois city followed by Peoria (111,856); Rockford (92,927); East St. Louis (82,295) and Springfield (81,628).

History.—The Illinois legislature, in its 67th biennial session which convened in Jan. 1951 and adjourned June 30, passed 1,040 bills of which 899 were approved and 141 vetoed.

Perhaps of greatest importance were two bills to finance a state-wide highway rebuilding program. One increased the state gasoline tax from three to four cents per gallon effective Aug. 1, 1951, the rate to advance automatically to five cents Jan. 1, 1953. The other bill increased truck and bus licence fees by an estimated $20,000,000 annually, effective in 1952. The schedule of fees would advance an additional $8,000,000 annually in 1954 under the terms of this measure. However, the constitutionality of the truck fee act was attacked in the courts and a decision of the circuit court of Sangamon county in November holding the law invalid was immediately appealed by the state to the Illinois supreme court.

Other major legislative enactments of the 1951 session included: an enabling law authorizing Illinois cities (except Chicago) to adopt through referendum the city-manager form of municipal government; creation of a commission to recommend improvements in municipal government financing; an increase of $26,700,000 (to $151,000,000) in state financial aid to the public schools; a series of 78 bills to reorganize the state government along lines recommended by the "Little Hoover commission"; stiffer penalties for violation of the narcotics laws and the submission to a 1952 referendum of the question of amending the revenue article of the state constitution to allow modernization and equalization of the state and local governmental tax structure.

The principal state officers in 1951 were: Adlai E. Stevenson, governor; Sherwood Dixon, lieutenant governor; Edward J. Barrett, secretary of state; William G. Stratton, treasurer; Ivan A. Elliott, attorney general; Benjamin O. Cooper, auditor of public accounts; Vernon L. Nickell, superintendent of public instruction.

Education.—Public and private elementary and high schools enrolled approximately 1,581,482 for the fall term of 1951, an increase of about 96,000 over 1950. State aid to the schools for the biennium starting July 1, 1951, was increased to $151,038,000, almost double the level of 1947–49. Under a new law effective July 1, 1952, teachers in the public schools must be paid minimum annual salaries, ranging from $1,800 for those having less than 60 semester hours of teacher training to $2,600 a year for 150 or more semester hours and the master's degree.

Social Insurance and Assistance, Public Welfare and Related Programs.—The legislature appropriated $291,556,830 for old-age pensions, aid to dependent children, blind assistance and general relief and disability assistance for the 1951–53 biennium. As of Sept. 1951 the Illinois public aid commission reported 4,154 blind receiving an average monthly grant of $52.17. There were 116,704 receiving an average monthly old-age pension of $47.96; 82,114 dependent children receiving an average of $30.66 and 58,009 persons receiving general assistance averaging $35.63 monthly. Under a new program of assistance to the permanently disabled begun July 1, 1,896 persons averaged $51.19 in monthly grants.

Public assistance rolls continued to decline during 1950. The total of 263,135 persons receiving aid under the various programs in Sept. 1951 was 12% below the level of Sept. 1950. Expenditures for Sept. 1951 amounted to $10,500,524, a drop of 1.8% below the same month in 1950. The sharpest decline took place in the general assistance program, where the number of recipients in September was 31% below the same month in 1950.

A rapid increase in employment brought unemployment compensation claims to the lowest level since World War II. This low point was reached Nov. 3, 1951, when there were 66,046 claimants on the rolls, as compared with 72,541 during the week ended Nov. 4, 1950.

Communications.—The state division of highways awarded during 1951 the largest volume of highway contracts in the state's history, $42,500,000 for construction and $20,300,000 for maintenance. This included state and federal funds. The average annual expenditure for state highways between 1945 and 1950 was about $30,000,000; it was expected to average more than $75,000,000 per year in 1951–53.

The Illinois highway system consisted of 125,000 mi. of all types of roads. There were 12,204 mi. of railroad (steam and electric) serving about 80% of the communities of the state. There were 158 commercial airports and more than 400 private-use airports certified by the state aeronautics department. The state was served by 14 scheduled air lines.

Banking and Finance.—Banking facilities were provided in Illinois by 891 banks, having on June 30, 1951, total deposits of $12,810,059,000 and total resources of $13,744,650,000. Of these, 384 were national banks and 507 were state banks.

The budget voted by the legislature to operate the state government in the biennium ending June 30, 1953, was $1,464,401,033. The governor vetoed $41,000,000 of additional appropriation bills, a new veto record. In the first 11 months of 1951 the 2% sales tax produced $172,176,063, a gain of $11,948,954 over the same period of 1950. Motor fuel taxes were up $9,351,734 and motor vehicle licences increased by $5,370,109. The cigarette tax was up $212,993. The state government closed the fiscal year 1951 with a cash balance of $279,256,929 in state funds and $471,972,951 in trust funds. As of Aug. 31, the total bonded indebtedness of the state was $390,300,900 of which $332,100,000 consisted of veterans' compensation (bonus) bonds.

Agriculture.—The production of the leading crops in Illinois for 1951, 1950 and the average for the ten-year period 1940–49 are shown in Table I.

Manufacturing.—The value added by manufacture to products in Illinois in 1949 was $6,898,990,000, and the number of employees was 1,103,973, of whom 860,475 were production workers. Total salaries and wages were $3,697,953,000, wages $2,557,792,000, number of establishments 15,988.

Table I.—*Principal Crops of Illinois*

Crop	1951	1950	Average, 1940–49
Corn, bu.	491,865,000	422,331,000	429,440,000
Soybeans, bu.	94,562,000	95,736,000	68,424,000
Oats, bu.	133,600,000	155,636,000	143,533,000
Wheat, bu.	33,383,000	27,632,000	28,879,000
Hay, tons	4,705,000	4,548,000	3,987,000
Red clover seed, bu.	135,000	382,000	218,200
Popcorn, lb.	33,490,000	43,050,000	28,023,000
Rye, bu.	611,000	675,000	689,000
Barley, bu.	868,000	1,176,000	1,973,000
Broomcorn, tons	1,100	1,100	3,780
Potatoes, bu.	825,000	800,000	1,981,000
Sweet potatoes, bu.	132,000	158,000	249,000
Apples, bu.	3,740,000	2,852,000	3,117,000
Peaches, bu.	182,000	1,113,000	1,570,000
Pears, bu.	306,000	244,000	379,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Illinois*

(Short tons, except as noted)

	1949		1950	
	Quantity	Value	Quantity	Value
Cement (bbl.)	7,976,972	$16,645,730	7,857,969	$16,920,234
Clays	1,956,639	2,706,777	2,302,330	3,242,577
Coal	47,207,959	190,863,252	56,290,291	228,137,929
Coke*	3,195,645	52,258,356	3,590,502	58,141,266
Fluorspar	120,881	4,621,733	154,623	6,111,765
Iron, pig*	4,904,281	204,467,609	6,038,572	258,242,109
Lead	3,824	1,208,384	2,729	736,830
Lime	276,161	3,197,890	367,485	4,465,413
Natural gas (000 cu.ft.)	12,391,000	1,398,000	11,000,000	1,210,000
Natural gasoline (gal.)	38,003,000	3,533,000	41,255,000	2,880,000
Petroleum (bbl.)	64,501,000	178,670,000	61,922,000	171,520,000
Petroleum gases (gal.)	97,144,000	4,941,000	88,446,000	4,183,000
Sand and gravel	17,128,144	14,780,487	18,695,433	16,531,797
Sandstone (ground)	217,577	1,887,144	263,122	2,278,237
Stone	17,054,110	20,682,162	17,911,480	21,970,537
Sulphuric acid*	71,700	1,093,921	118,434	1,715,434
Zinc	18,157	4,502,936	26,982	7,662,888
Other minerals		254,561		?
Total		449,893,056		?

*Values for processed materials are not included in the totals.

Principal industries and values added by manufacture (1947) were meat packing $187,695,000; blast furnaces and steel mills $205,187,000; petroleum refining $101,871,000; tractors $168,844,000. (A. E. St.)

Mineral Production.—Table II shows the tonnage and value of those items of mineral production of the state in 1949 whose value exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Illinois ranks seventh among the states in value of mineral output, the bulk of which is in the fuels group.

Illiteracy.

In 1951 it was estimated that one-half to two-thirds of the world's population could not read, write and figure well enough to satisfy their daily needs. Only about one-third of the world's children were being benefited by effective compulsory school attendance beyond four years of schooling. As a result of this, a vast new generation of illiterates was growing up.

Three principal obstacles must be overcome to solve the illiteracy problem on a large scale: the lack of trained teachers, of suitable books and of money to finance adult education programs. After experimenting in more than 238 languages over a period of 25 years, Frank C. Laubach had worked out a method by which the first two difficulties could be met. The process used to teach adult illiterates to read and write their own language must be easy and pleasant to learn; the method must be very simple to teach, so that with a minimum number of trained supervisors the "Each One Teach One" principle can be applied. The Laubach approach, tested during 1951 in the colloquial Arabic, Burmese, Persian, Pushtu, Malayan and Indonesian languages, was a judicious combination of the phonetic and sentence methods, enabling beginners to start reading simple stories right after the first lesson.

A beginning was made in the production of suitable "ladder" literature which permitted newly literate adults to progress by easy steps to permanent reading skill. The Committee on World Literacy and Christian Literature in New York city, jointly with the University of Syracuse, New York, organized a special two-year graduate journalism program for the training of writers for new literates. To meet the demand for such training abroad a parallel training program was to be organized in India during 1952–53 at the University of Nagpur.

The United Nations Educational, Scientific and Cultural organization started a regional fundamental education centre in Patzcuaro, Mex., to train adult education leaders from the Latin American republics, and to produce graded literature from the primer stage through advanced reading. Plans were made for five such centres to be established in strategic regions of the world.

By the end of the year, some encouraging progress was reported. More than 25,000 illiterates in five Arab refugee camps in the middle east had begun to read. Through the efforts of the British administration and U.N. collaboration, a colloquial Arabic primer was prepared for the use of the Libyan government. The South African Institute of Race Relations in Johannesburg was conducting literacy and adult education classes for a number of African groups in their own languages, and in English and Afrikaans.

The Republic of Liberia was working on two fronts: to establish literacy in English, the national language, and to help the vernacular-speaking tribes to gain literacy in their spoken idiom, so that they could pass more easily to the learning of English.

The government of Afghanistan initiated its first literacy program in the two important languages of the country—Persian and Pushtu. With the aid of health, agricultural and engineering experts, useful information was collected about each one of the fields in the country in which national and foreign experts were working. This material was then rewritten in simplified but interesting manner as a second-stage reader for new literates. The title of this reader was *Akbar the Wise Man.* An adaptation of this reader was being printed in Burma under the title *U Sein the Wise Man.* It contained simple lessons about rinderpest, malaria, tuberculosis, home gardens, infant care, venereal diseases, how to cultivate the mind and body, etc.

With the help of U.N.E.S.C.O., the Indian government was promoting literacy campaigns in the Hindi-speaking rural areas near Delhi. Specially equipped motor caravans conveyed trained teachers and audio-visual equipment to the villages. When the caravan moved on to another community, it left behind a team of 15 to 20 teachers. Adult students usually learned to read specially prepared newspapers and books after a month of training. When the visiting instructors departed, the local school teacher continued to supervise the education of the men and women who had learned to read. (F. J. R.)

I.L.O.: *see* INTERNATIONAL LABOUR ORGANIZATION.

Immigration and Emigration.

More than 95,000,000 aliens and citizens entered into the United States at 468 land, air and seaports during the fiscal year ending June 30, 1951. Of these entries 97% were alien and citizen border crossers who may have made numerous entries across the Canadian and Mexican borders. The others were crewmen, immigrants and aliens admitted as visitors, students, government officials and others for temporary periods.

U.S. Immigrants.—Since World War II there had been a rising trend in immigration, largely the result of the migration of war brides, political *émigrés* and displaced persons. This acceleration was sufficient to raise the number of immigrants admitted to 249,187 in the year ended June 30, 1950. In 1951 there were 205,717 immigrant admissions. The decrease was due to a 22% reduction in the number of displaced persons admitted and to a less marked decline in the number of immigrants of other classes.

Superimposed upon the qualitative restrictions to immigration are certain other restrictions applicable to immigrants. Quotas limit immigration from countries other than the independent countries of the western hemisphere. Nonquota immigrants, other than those from the western hemisphere, are exempt from quota restrictions either by reason of professional occupation of minister or teacher, or by reason of close relationship to a United States citizen.

There were 95,920 displaced persons charged to quotas, and 595 nonquota displaced persons (chiefly orphans) who were admitted to the United States in the fiscal year 1951. Other quota immigrants numbered 60,627. Thus, quota immigration in the fiscal year 1951 exceeded the annual quotas by 2,270. As a result of the provision in the Displaced Persons act authorizing the mortgaging of 50% of future quotas, more than four times as many quota immigrants came from southern and eastern Europe as were authorized under the quota of 24,719 for that region. Several countries, such as Estonia, Latvia and Lithuania, with small quotas, used up half of their quotas for many years into the future.

Table I.—*Immigrant Aliens Admitted to the United States by Classes and Principal Countries of Birth, Year Ended June 30, 1951*

Country or region of birth	Number admitted	Quota	Husbands, wives and children of U.S. citizens	Natives of non-quota countries, their wives and children	Ministers, professors, their wives and children	Other classes
All countries	205,717	156,547	11,462	35,274	1,190	1,244
Europe	161,177	150,267	8,912	494	836	668
Germany	26,369	23,871	2,178	13	58	249
Great Britain	11,651	11,233	158	200	47	13
Italy	7,348	4,592	2,460	149	58	89
Latvia	10,588	10,532	20	2	10	24
Lithuania	4,028	3,968	32	2	15	11
Poland	37,484	36,951	275	16	162	80
U.S.S.R..	11,953	11,823	79	7	30	14
Yugoslavia	8,254	7,843	342	4	15	50
Other Europe	43,502	39,454	3,368	101	441	138
Asia	4,406	2,755	1,405	16	229	1
Canada	20,809	5	36	20,421	61	286
Mexico	6,372	2	8	6,331	6	25
West Indies	5,553	2,208	171	3,142	16	16
Central America	1,970	75	13	1,877	1	4
South America	2,724	111	9	2,593	4	7
Other countries	2,706	1,124	908	400	37	237

Source: U.S. Department of Justice Immigration and Naturalization Service.

The 48,575 nonquota immigrants (except displaced persons) were chiefly wives of United States citizens and natives of the independent countries of the western hemisphere.

The principal countries of birth of immigrants and their class of admission under immigration laws are reported in Table I.

Nonimmigrants.—Nonimmigrants are aliens who enter the United States for temporary periods, or resident aliens of the United States returning from a temporary stay abroad. The figures in Table II do not include such special groups as agricultural labourers, border crossers and crewmen.

Emigrants and Nonemigrants.—Emigrants are, by definition, aliens who depart from the United States after residence of a year or more in the United States, with the intention of remaining abroad. During the fiscal year 1951, there were 26,174 emigrants, including 11,477 who returned to Europe, 1,902 to Asia, 3,202 to Canada, 2,897 to the West Indies and 2,817 to South America.

Nonemigrants are temporary visitors leaving the U.S. after a stay of less than a year or resident aliens leaving for a temporary visit abroad.

During the year ended June 30, 1951, 446,727 nonemigrants departed from the United States. Included were 45,444 alien residents who intended to return to the United States after temporary residence abroad; three treaty traders had return permits. The remainder, 401,280 had entered as tourists, transits, government officials and others who were leaving the United States after stays varying from a few days to a year. United States citizens leaving a domicile in the United States for periods of a year or longer abroad totalled 57,923 in the fiscal year 1951; 46,325 of these persons were native-born citizens and 11,598 were naturalized citizens. (*See* also ALIENS; CENSUS DATA, U.S.; REFUGEES.) (A. R. MY.)

Great Britain.—Influx into Great Britain was relatively small

Table II.—*Nonimmigrants Admitted to the United States, Years Ended June 30, 1949-51*

	1951	1950	1949
Total nonimmigrants admitted	465,106	426,837	447,272
Government officials	20,881	13,975	13,722
Members of international organizations. . . .	5,526	5,010	4,723
Temporary visitors for business	83,995	67,984	73,338
Temporary visitors for pleasure	230,210	219,810	225,745
In transit	72,027	68,640	81,615
Returning residents	44,212	40,903	36,984
Students	7,355	9,744	10,481
Treaty traders.	850	766	632
Other nonimmigrants	50	5	32

Source: U.S. Department of Justice Immigration and Naturalization Service.

THE 100,000th displaced person to emigrate to Canada (second left) being congratulated by an official of the International Refugee organization as he and his family prepared to sail from Bremerhaven, Ger., in 1951

during the year: about 2,000 displaced persons of various nationalities were received. The outflow was, as normally, far in excess of inflow, mainly to Australia and Canada, smaller numbers to the United States, South Africa and New Zealand.

Canada.—Canada received 1,000 to 1,500 applications for entry daily, and planned to receive about 120,000 "new citizens" yearly for the next ten years. Of the ceiling set, about 80,000 arrived during the first six months of the year, consisting of persons of 40 different nationalities.

Australia.—The Australian federal government reduced the immigration ceiling from 200,000 to 150,000 of whom it was hoped 85,000 would be settlers from the home country. Food producers, rural workers and the men and women required to build up Australia's secondary industries, especially those relating to defense, were sought. About 10,000 Italians were expected during the year.

Germany.—Of the 37,000 displaced persons accepted into the economy of western Germany in 1950, about 6,500 emigrated during 1951 to the United States and more than 1,500 to Canada. The influx of about 20,000 persons a month from eastern Germany and Czechoslovakia into western Germany created great difficulties for the federal government and the *Länder*. Emigration from Germany was still difficult for several reasons, though statistics showed that unemployment, lack of housing and social conditions generally were driving many Germans to try to emigrate. During the first three months of the year there were 32,549 requests registered.

Israel.—The government of Israel decided in March 1951 to step up immigration to 25,000 persons a month. Of the first 100,000 entries 70,000 were from Iraq, 20,000 from eastern Europe, 4,000 from Persia and 6,000 from north Africa. By arrangement with the International Refugee organization Israel agreed to accept 5,200 sick, elderly and infirm Jewish refugees. (*See* also INTERNATIONAL LABOUR ORGANIZATION; REFUGEES.)

(B. L. B.)

Imports: *see* INTERNATIONAL TRADE; TARIFFS. *See* also under various countries.

Income, Distribution of: *see* WEALTH AND INCOME, DISTRIBUTION OF.

Income and Product, U.S.

According to preliminary estimates, the U.S. national income in 1951 amounted to $276,000,000,000 and the gross national product to $327,000,000,000. Both of these comprehensive measures of the value of the nation's output were 15% above their previous highs established in 1950.

Higher prices and increased volume each accounted for roughly half of the 1950–51 rise in gross national product. The sizable (approximately 8%) increase in real output enabled the nation not only to add significantly to its military strength and to broaden productive capacity, but also to maintain the flow of consumer products at the high 1950 level. The volume of goods and services produced in the United States in 1951 was larger than in any other year.

Expanded production, employment and earnings in 1951 substantially raised the level of personal incomes. As indicated by preliminary data, personal incomes aggregated $251,000,000,000 for the year, 12% more than in 1950.

The rapid advance of national income and product during 1950—accelerated by developments following the outbreak of the Korean conflict—extended into the first quarter of 1951. It levelled off with a material slowing of the general price rise, and the economy entered a period of relative stability in overall production and prices. The annual rates of national income and gross national product in the final quarter of 1951 were only slightly higher than the totals for the calendar year.

Meaning of Income and Product Measures.—National income, as measured by the U.S. department of commerce, is the sum of the net earnings of labour and property arising from the current production of goods and services by the nation's economy. It measures, therefore, the total factor cost of the goods and services produced by the economy. It includes income in kind as well as money income, but such receipts as relief, unemployment benefits and capital gains are excluded since they do not represent earnings derived from current productive activity. The national income consists of compensation of employees, the net income of unincorporated businesses, corporate profits, net interest and the rental income of persons.

Personal income is the current income received by persons from all sources, including transfers from government and business but excluding transfers among persons. Not only individuals (including owners of unincorporated enterprises) but non-profit institutions and private trust and welfare funds are classified as persons. Personal income differs from national income by the inclusion of transfers (such as relief, veterans' pensions and government interest disbursements) which are not in return for current productive services, and by the exclusion of earnings (social insurance contributions, undistributed corporate income and corporate income taxes) which are not actually received by persons in the current period.

Gross national product or expenditure is the market value of goods and services produced by the nation's economy, before deduction of depreciation charges and other allowances for business and institutional consumption of durable capital goods. Other business products used up by business in the accounting period are excluded. The gross national product consists of consumers' purchases of goods and services; the gross output of capital goods retained by private business, including the change in inventories; net foreign investment; and the goods and services purchased by governmental entities.

Distributive Shares of the National Income.—Nearly all the increase in U.S. national income from 1950 to 1951 occurred in wages and salaries, farm income and corporate earnings. Only minor increases were recorded for nonfarm proprietors' income, rental income of persons and net interest.

Wages and salaries increased by about $24,000,000,000, or

Table I.—*National Income by Distributive Shares*

(In 000,000,000s of dollars)*

Item	1951†	1950	1949	1939
National income	275.7	239.0	216.7	72.5
Compensation of employees	178.1	153.3	139.9	47.8
Wages and salaries	169.4	145.8	133.4	45.7
Private	140.3	123.6	113.0	37.5
Government	29.1	22.3	20.4	8.2
Supplements to wages and salaries	8.7	7.5	6.5	2.1
Employer contributions for social insurance	4.9	4.0	3.5	1.5
Other labour income	3.8	3.5	3.0	.5
Income of unincorporated enterprises and inventory valuation adjustment	40.6	36.0	33.9	11.3
Business and professional	23.6	22.3	20.9	6.8
Income of unincorporated enterprises	24.2	23.8	20.3	6.9
Inventory valuation adjustment	−.6	−1.6	.6	−.2
Farm	17.0	13.7	13.0	4.5
Rental income of persons	8.4	8.0	7.5	3.5
Corporate profits and inventory valuation adjustment	42.8	36.2	30.5	5.8
Corporate profits before tax	44.5	41.4	28.3	6.5
Corporate profits tax liability	26.5	18.6	11.0	1.5
Corporate profits after tax	18.0	22.8	17.3	5.0
Dividends	9.5	9.2	7.6	3.8
Undistributed profits	8.5	13.6	9.6	1.2
Inventory valuation adjustment	−1.7	−5.1	2.1	−.7
Net interest	5.7	5.4	4.9	4.2

*Detail will not necessarily add to totals because of rounding.
†Preliminary; estimated from data for first three quarters.
Source: U.S. Department of Commerce (except 1951).

16% from 1950 to 1951, reaching a total of more than $169,000,000,000. (*See* Table I.) Nearly $7,000,000,000 of this rise was in government pay rolls, which advanced by more than one-third to $29,100,000,000, mainly because of the build-up of the armed forces and the sizable increase in the number of personnel of federal civilian defense agencies. The pay roll rise in the large private-industry sector, from $123,600,000,000 to $140,300,000,000, amounted to 14%.

On an over-all basis for private industries, higher average hourly earnings were the main factor in the 1950–51 expanded wage flow. Increased employment also contributed substantially to the rise, but the lengthening of the average work week had, in the aggregate, only a minor influence.

In the noncorporate business sector, the net income of farm proprietors advanced from $13,700,000,000 in 1950 to $17,000,000,000 in 1951 under the impetus of sharply higher farm prices. On the other hand, the aggregate net income of nonfarm proprietors in 1951—$23,600,000,000—was only moderately higher than in 1950, chiefly because the sluggishness of consumer spending during most of 1951 limited to small proportion the increase in the large trade sector.

The corporate profits component of national income—corporate profits and inventory valuation adjustment—was estimated at $42,800,000,000 in 1951, as compared with $36,200,000,000 in the preceding year. The increase was much larger than that shown by "corporate profits before tax." The smaller increase in this latter measure of reported, "book" profits—from $41,400,000,000 to $44,500,000,000—reflected the predominant business practice of charging inventories to cost of sales in terms of prior-period prices rather than current replacement prices.

In periods of rising prices, such as 1950 and 1951, the book cost of inventories used in production is less than the current replacement cost, and an "inventory profit" is thereby included in the reported profits figures. The inventory valuation adjustment—difference between the book cost and the current replacement cost of inventories used in production—is added to reported profits before taxes in order to eliminate inventory profits (or losses) and thus secure a measure of earnings from current production appropriate for inclusion in the national income. As indicated by data in Table I, inventory profits were about $3,500,000,000 larger in 1950 than in 1951.

Table II.—*National Income by Industrial Origin*

(In 000,000,000s of dollars)*

Industry	1951†	1950	1949	1939	1929
Total national income	275.7	239.0	216.7	72.5	87.4
Agriculture, forestry and fisheries	21.3	17.7	17.0	6.1	8.0
Mining	5.7	5.0	4.6	1.6	2.1
Contract construction	15.0	12.2	10.6	2.3	3.7
Manufacturing	88.2	74.1	63.2	17.9	22.0
Wholesale and retail trade	47.0	43.3	41.7	12.1	13.1
Finance, insurance and real estate	22.2	20.8	18.9	8.4	13.7
Transportation	14.2	13.2	11.9	4.5	6.6
Communications and public utilities	8.1	7.2	6.7	2.9	2.9
Services	23.8	22.0	20.4	8.1	10.2
Government and government enterprises	30.4	23.4	21.8	8.6	5.1

*Detail will not necessarily add to totals because of rounding.
†Preliminary; estimated from data for first three quarters. Source: U.S. Department of Commerce (except 1951).

The 1950–51 increase in the profits tax liability of corporations—from $18,600,000,000 to $26,500,000,000—was much more than proportionate to their increase in profits because of the higher federal rates enacted into law during late 1950 and 1951. Profits after tax in 1951 thus amounted to $18,000,000,000, about $5,000,000,000 lower than in the preceding year but not significantly different from the 1947–49 average.

National Income by Industries.—Estimates of national income by industries are shown in Table II. By far the largest income rise among the industries, 30%, occurred in government. Relatively large gains, about 20%, were recorded also for contract construction, agriculture and manufacturing. The expansion in mining was about the same as the all-industry average, 15%, whereas below average gains (6%–8%) were registered by the other industrial divisions.

Table III.—*Gross National Product or Expenditure*

(In 000,000,000s of dollars)*

Item	1951†	1950	1949	1939
Gross national product	326.8	282.6	257.3	91.3
Personal consumption expenditures	204.5	193.6	180.2	67.5
Durable goods	27.2	29.2	23.9	6.7
Nondurable goods	110.6	102.3	98.7	35.3
Services	66.6	62.1	57.6	25.5
Gross private domestic investment	58.8	48.9	33.0	9.9
New construction	22.2	22.1	17.2	4.9
Producers' durable equipment	27.6	22.5	19.0	4.6
Change in business inventories	9.1	4.3	−3.2	.4
Net foreign investment	.0	−2.3	.5	.9
Government purchases of goods and services	63.5	42.5	43.6	13.1
Federal	41.9	22.8	25.5	5.2
State and local	21.6	19.7	18.1	7.9

*Detail will not necessarily add to totals because of rounding.
†Preliminary; estimated from data for first three quarters.
Source: U.S. Department of Commerce (except 1951).

Gross National Product.—Purchases of goods and services by federal, state and local governments totalled $63,500,000,000 in 1951, half again as large as the total of $42,500,000,000 for the preceding year. (*See* Table III.) Nearly all of this increase was accounted for by federal purchases for national defense, which mounted steadily during 1951 and represented the most fundamental and dynamic element in the economic situation.

By mid-year the share of gross national product absorbed by defense purchases was about 10%, as compared with 4½% a year earlier.

Although the expansion in government purchases represented by far the largest change among the components of gross national product, there was a sizable advance also in the area of private investment. Gross private domestic investment amounted to a record $59,000,000,000 in 1951, with much of the $10,000,000,000 increase over the 1950 total occurring in the defense and defense-supporting industries. Producers' purchases of durable equipment increased from $22,500,000,000 to $27,600,000,000, and the accumulation of inventories rose from $4,300,000,000 to $9,100,000,000. Industrial and public utility construction advanced sharply, but the total value of new construction in 1951—about $22,000,000,000—was no higher than in the preceding year because of downturns in residential and commercial building stemming from the effects of mortgage credit controls by the government.

It was particularly noteworthy that inventory accumulation reached the unprecedented rate of $16,000,000,000 in the second quarter of 1951 but then fell off sharply in the latter half of the year. This decline, stimulated by the slackened rate of consumer spending, was a key factor in the easing of inflationary pressures.

Personal consumption expenditures for goods and services totalled $204,500,000,000 in 1951, about $11,000,000,000 more than in 1950. This 6% rise reflected higher prices, but it is nonetheless significant that the actual flow of consumer products matched the high 1950 volume despite expanding rearmament and the increasing diversion of productive resources to the program of national defense.

In the first quarter of 1951 consumer expenditures were stepped up sharply, to an annual rate of $204,000,000,000, on the strength of the resumed buying wave that followed the Chinese Communist intervention in Korea. They declined by $6,000,000,000 in the second quarter and then, in the aggregate, substantially levelled off despite the continued moderate rise in personal incomes. This letdown of consumer demand was an important counterbalance to the inflationary pressures stemming from the rapid advance of federal defense expenditures and the continued buoyancy of business investment demand for plant and equipment.

Net foreign investment was approximately zero in 1951, as compared with a negative $2,300,000,000 in 1950, when imports exceeded exports not financed directly or indirectly by grants from the United States. From the fourth quarter of 1950 to the fourth quarter of 1951, there was a shift from a negative to positive balance amounting, at annual rates, to a sizable $4,000,000,000. It resulted primarily from a large increase in goods and services bought from the United States by foreign countries.

Table IV.—*Personal Income and Disposition of Income*

(In 000,000,000s of dollars)*

Item	1951†	1950	1949	1939
Personal Income	251.3	224.7	205.1	72.6
Wage and salary receipts	165.9	142.9	131.2	45.1
Total employer disbursements	169.4	145.8	133.5	45.7
Less: Employees' contributions for social insurance	3.5	2.9	2.2	.6
Other labour income	3.8	3.5	3.0	.5
Proprietors' and rental income	49.0	44.0	41.4	14.7
Dividends	9.5	9.2	7.6	3.8
Personal interest income	10.5	10.1	9.5	5.4
Transfer payments	12.5	15.1	12.4	3.0
Less: Personal tax and nontax payments	28.4	20.5	18.6	2.4
Federal	25.4	17.8	16.2	1.2
State and local	3.0	2.7	2.5	1.2
Equals: Disposable personal income	222.8	204.3	186.4	70.2
Less: Personal consumption expenditures	204.5	193.6	180.2	67.5
Equals: Personal saving	18.3	10.7	6.3	2.7

*Detail will not necessarily add to totals because of rounding.
†Preliminary; estimated from data for first three quarters.
Source: U.S. Department of Commerce (except 1951).

Disposition of Personal Income.—Estimates of personal income and its disposition among taxes, consumer spending and personal saving are provided in Table IV. As already noted, personal income increased 12% from 1950 to 1951. The rise in disposable income, 9%, was smaller because personal taxes rose more than proportionately as a result to the imposition of higher federal rates.

Because of the buying restraint on the part of consumers in the last nine months of the year, the rate of personal saving in 1951 was relatively high. It amounted to roughly 10% of disposable income, as compared with an average of 4% for the period 1947–49. This sharp step-up was an important influence in mitigating inflationary pressures and in stemming the rapid post-Korean price rise. (*See* also BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; WEALTH AND INCOME, DISTRIBUTION OF.) (C. F. Sz.)

Income Tax: *see* TAXATION.

India.

This republican self-governing member of the Commonwealth of Nations in southern Asia is a union of states; areas and populations are shown in the table.

Name of State	Area (sq.mi.)	Population 1941 census	Population 1951 census
Part A (governor's) states			
Assam	54,084	7,593,037	9,129,442
Bihar	70,368	36,545,575	40,218,916
Bombay	115,570	29,506,968	35,943,559
Madhya Pradesh	130,323	19,631,615	21,327,898
Madras	127,768	49,847,508	56,952,332
Orissa	59,869	13,767,988	14,644,293
Punjab	37,428	12,593,628	12,638,611
Uttar Pradesh	112,523	56,516,622	63,254,118
West Bengal	29,476	21,837,295	24,786,683
Total part A states	737,409	247,840,236	278,895,852
Part B (rajpramukh) states			
Hyderabad	82,313	16,338,534	18,652,964
Madhya Bharat	46,710	7,151,502	7,941,642
Mysore	29,458	7,329,140	9,071,678
Patiala-E. Punjab (Petsu)	10,099	3,424,060	3,468,631
Rajasthan	128,424	13,282,105	15,297,979
Saurashtra	21,062	3,430,892	4,136,005
Travancore-Cochin	9,155	7,492,893	9,265,157
Total part B states	327,221	58,449,126	67,834,056
Part C (centrally administered) states			
Ajmer	2,425	588,960	692,506
Bhopal	6,921	785,322	838,107
Bilaspur	453	110,336	127,566
Coorg	1,593	168,726	229,255
Delhi	574	917,939	1,743,992
Himachal Pradesh	10,600	935,359	989,437
Kutch	8,461	500,800	567,825
Manipur	8,620	512,069	579,058
Tripura	4,049	513,010	649,930
Vindhya Pradesh	24,600	3,353,019	3,577,431
Total part C states	68,296	8,385,540	9,995,107
Part D territory			
Andaman and Nicobar Islands	3,143	33,768	30,963
Sikkim	2,745	121,520	135,646
Grand total	1,138,814	314,830,190	356,891,624

Source: *India Record* (London, April 25, 1951): provisional totals for the census held on March 1, 1951. No census was ever taken in Kashmir (*q.v.*), because of special conditions prevailing there, and in the part B tribal areas of Assam, which were not included in any former census and whose population was estimated as 560,000. Sikkim, an Indian protectorate, was included in former censuses and was also included in the 1951 census.

Language: two main groups, Aryan or northern (including Hindi used by approximately 47% of the total population, Bengali 8%, Marathi 7% and Gujarati 5%) and Dravidian or southern (including Telugu 9%, Tamil 7.5% and Kanarese 4.4%). English is the official language of the union, to be displaced by Hindi in the Devanagari script by 1964. Religion: Hindu (about 80%), Moslem, Christian, Sikh, Buddhist, Parsee, Jewish, etc. Chief towns (pop.: first figure, 1941 census; second figure, 1951 census): New Delhi* (cap., 93,960; 279,063); Delhi* (521,849; 914,634); Calcutta† (2,108,891; 2,549,790); Bombay (1,489,883; 2,840,011); Madras (777,481; 1,429,985); Hyderabad (739,159; 1,085,074); Ahmedabad (591,267; 788,310); Kanpur or Cawnpore (487,324; 704,536); Amritsar (391,010; 320,465); Lucknow (387,177; 497,594); Nagpur (301,957; 449,441). President: Rajendra Prasad; prime minister: Jawaharlal Nehru (*q.v.*).

History.—The year 1951 dawned with the spectre of famine darkening the horizon. This was the result of a variety of causes. The fertile province of Assam, with its extensive rice fields, had been devastated by a series of disastrous earthquakes, and northern India and Pakistan were visited by a plague of locusts. For three years in succession, the monsoon had failed over wide areas of central and southern India. The ensuing scarcity was worst in north Bihar, though many areas in Madras, Hyderabad, Gujarat, Cochin and Travancore were also affected, and there were no reserves to meet it. Food grains in the rationed areas were cut down from 12 oz. to 9 oz. a day, and it was estimated that 6,000,000 tons of food from outside would be necessary to cope with the situation if disaster was to be averted. Offers of help poured in from all sides. The British government at once released consignments of Australian wheat and made arrangements for shipping to convey 90% of the 4,000,000 tons that were being imported from outside. There was still, however, a deficit of 2,000,000 tons, and this the government of the United States offered to supply at the cost of $190,000,000, the Indian government being responsible for ocean freight expenses. The government of Pakistan arranged for grain steamers to bring supplies down the Brahmaputra river to Assam, and the Indian Tea association of Calcutta flew in 10,000 tons by air. This greatly eased the situation and, despite bottlenecks and other transport difficulties, the supply of grain to the stricken areas rose from 36,000 tons in February to 112,000 tons in May. The Bihar government opened relief works in the shape of road and tank construction and the sinking of wells, but many of the villagers, because of prolonged malnutrition, were incapable of undertaking hard manual work. A further complication arose from the fact that the supplies arriving from outside were mainly wheat, whereas the staple food of south India was rice, only obtainable in limited quantities from Burma, Thailand and China.

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*New Delhi and Delhi are counted as two cities. Put together they had in 1951 a total population of 1,193,697 and ranked as the fourth largest urban agglomeration of India.

†Greater Calcutta, including Howrah and suburbs, had in 1951 a total population of 3,490,281.

It was realized, however, that these measures were only palliatives: the real remedy lay in pushing on with projects like the Damodar Valley scheme, and by bringing into cultivation large undeveloped areas by co-operative tractor ploughing, the use of fertilizers and other modern methods of cultivation. The population was fast outrunning the available supplies, and this could be met only by the limitation of families. Another problem arose from the distribution of land: despite the abolition of landlords, 50% of the 15,000,000 peasants in north Bihar were still landless. The Nation Planning commission's first five-year plan envisaged an expenditure of Rs. 17,930,000,000, of which Rs. 1,910,000,000 would go on agriculture and Rs. 3,880,000,000 on transport and communications. It included a program involving the irrigation of 8,000,000 ac. by major works, 7,000,000 ac. by minor works, and the restoration of 4,500,000 ac. by restoring fallow lands to cultivation through a central tractor organization. This scheme, which would not come into operation before 1955–56 at the earliest, would, it was estimated, increase the production of food grains by 7,000,000 tons, besides large quantities of jute, cotton oilseeds, sugar and other consumer goods. Unfortunately the monsoon of 1951 showed little improvement on those of previous years.

The Rift in the Congress.—Up to 1950, the Indian National Congress had been able to present a united front, mainly on the prestige it had won as the organizer of liberation from British rule, and Jawaharlal Nehru was regarded as the unquestioned leader of the nation by all but a small body of irreconcilables on the extreme right and left. But toward the end of that year, rifts began to appear. The first indication of these was the election as president of the working committee of Purshottamdas Tandon, an outspoken critic of Nehru's policy. The death on Dec. 15, 1950, of V. J. Patel had been a disastrous blow. He was a man of outstanding character, who had great influence among the millowners and the members of the orthodox right wing. J. B. Kripilani, who had been defeated by Tandon, broke away from Congress altogether and was joined by R. A. Kidwai, minister of communications. They and their colleagues determined to form a new party styling itself the Kisan Mazdoor Praja. Their main objects were a sweeping overhaul of the administration, the abolition of corruption, profiteering and food hoarding, a drive for ending illiteracy and a return to the principles of Mohandas K. Gandhi. In addition to this, there were sharp criticisms of Nehru's actions in tightening up control over the press and his temporary suspension of constitutional government in the Punjab. Many Hindus, as Mrs. Vijayalakshmi Pandit herself acknowledged in Washington, D.C., had never really reconciled themselves to the two-nation theory or the idea of a secular state, and were deeply suspicious of any appearance of appeasement in dealings with Pakistan.

The upshot was that Nehru decided to resign from the working committee. The triumph of the dissidents was, however, short lived. On Sept. 8 it was announced that Tandon had resigned and that the working committee had re-elected Nehru by an overwhelming majority. This left him with the leadership of the party as well as the government, with a free hand to choose his own executive. Among these he included his opponent Tandon; the veteran Chakravarti Rajagopalachari, the former governor general, resigned for reasons of health. Nehru appealed to all to forget the past and build for the future, and invited the return of all former colleagues who through disillusionment had lately seceded. He exhorted them to rid the country of faction and cultivate a spirit of fair dealing and integrity.

Ambedkar's Resignation.—The most prominent dissentient was the law minister, Bhimrao Ramji Ambedkar, who had played a leading part in framing the Indian constitution. He resigned in September by way of protest against the policy of the high-caste Hindus who composed the right wing of the Congress party and had shelved the Hindu Code bill, the object of which was to abolish caste and reform Hindu society on Gandhian lines. He painted a distressing picture of the disabilities of the scheduled classes, of which he was a member, and particularly of women, under the existing regime. He denounced the government's attitude toward Pakistan, which had resulted in vast expenditure on armaments and had brought both countries to the verge of war; he suggested that the Kashmir dispute, root of all the trouble, could be settled by the partition of the country on the lines proposed by Sir Owen Dixon. He urged that the funds required for nation-building projects could be raised by reduction of armaments, the abolition of prohibition, the nationalization of insurance and the reimposition of the salt tax. He declared that the foreign policy of the government had alienated all India's friends, particularly the United States, whose financial support was indispensable. (*See* also KASHMIR; PAKISTAN; KOREAN WAR; TIBET; UNITED NATIONS.)

The General Election.—Meanwhile preparations were being made for holding the first general election for the central and state legislatures. The task was one of great complexity, as with universal adult suffrage 175,000,000 men and women would be going to the polls. As most of them were illiterate, appropriate symbols were chosen to represent the various parties, to be posted on their respective ballot boxes and exhibited at the polling booths. Polling began in November in the Himalayan border states before winter made the roads impassable.

(H. G. RN.)

Finance and Banking.—Budget: (1950–51 est.) revenue Rs. 3,872,100,000, expenditure Rs. 3,792,800,000; (1951–52 est.) revenue Rs. 4,011,400,000, expenditure Rs. 3,754,300,000. National debt (March 1952) Rs. 25,874,000,000. Currency circulation (Aug. 1951): Rs. 12,600,000,000. Bank deposits (Aug. 1951): Rs. 7,100,000,000. Gold and foreign exchange (Sept. 1951) U.S. $1,961,000,000. Monetary unit: rupee, with an exchange rate of Rs. 13.33 to £1 and Rs. 4.775 to U.S. $1.

Foreign Trade.—(1950): imports Rs. 5,051,000,000; exports Rs. 5,432,000,000. Main sources of imports (1950–51): U.K. 21.7%; U.S. 20.5%; Iran 6.5%; Australia 5.9%. Main destinations of exports: U.K. 23.2%; U.S. 19.0%; Singapore 5.4%; Australia 5.3%. Main imports: grains, pulses and flour 17.5%; raw cotton and waste 17.1%; machinery 14.0%. Main exports: cotton yarns and manufactures 24.0%; jute yarns and manufactures 20.4%; tea 14.0%.

Transport and Communications.—Roads (1950): 245,000 mi. Licensed motor vehicles (Dec. 1950): cars 132,000; commercial 112,000. Railways (1950): 33,086 mi. Traffic (1950): passenger-miles 39,722,000,000; goods, ton-miles 26,546,000,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 180; total tonnage 421,267; vessels with cargo in external trade (net registered tons, 1950): entrances 7,692,000; clearances 6,936,000. Air transport (1950): passenger-miles 233,400,000; cargo ton-miles 13,900,000; mail carried 3,800 metric tons. Telephones (1949): 113,466. Radio receiving set licenses (1949): 299,000.

Agriculture.—Main crops (metric tons, 1950): wheat 6,390,000; barley 2,246,000; maize 1,925,000; rice 32,000,000; tea 275,000; cotton, ginned, 580,000; potatoes 1,500,000; peanuts 3,384,000; rapeseed and mustard

INDIANS on hand to greet Jawaharlal Nehru as he arrived to inspect famine areas in central Bihar. India's 1951 food reserves were almost exhausted as a result of crop failures in 1950 caused by drought and earthquakes

839,000; cottonseed 1,265,000; linseed 391,000; sesame seed 428,000; jute 610,000; coffee 20,000; tobacco 250,000; wool, greasy basis 23,000; sugar, raw value, 3,738,000; citrus fruit production (1948) 505,000. Livestock (1950–51): cattle 180,200,000; sheep 38,900,000; pigs 3,700,000; horses 1,550,000; (1945) mules 45,000; asses 1,131,000; buffaloes 40,732,000; camels 656,000; goats 46,302,000; chickens 54,666,000. Fisheries: total catch (1949) 513,764 metric tons.

Industry.—Industrial establishments (1945): 103,400; persons employed 1,843,797. Persons employed in factories (1949): 2,413,000. Number of trade disputes (1949) 914; number of workers involved 684,188; number of days lost 6,560,887. Fuel and power (1950): coal 32,820,000 metric tons; electricity 5,100,000,000 kw.hr.; crude oil 252,000 metric tons. Raw materials (metric tons, 1950): pig iron 1,704,000; steel ingots and castings 1,464,000; copper, refined, 6,720; lead, smelter basis, 600; aluminum 3,600; manganese ore (1949) 656,000; asbestos 100; rubber 15,800; super phosphates 52,000; mica (1949) 7,700; ilmenite (1949) 254,000; salt 2,600,000; gold (fine oz.) 188,000. Manufactured goods (1950): cement 2,652,000 metric tons; cotton yarn 525,600,000 m.; cotton piece goods 3,300,000,000 m.; jute manufactures 850,000 metric tons; sheet glass 9,600,000 sq.ft.; paper and board 111,000 metric tons; cars and trucks 14,600; bicycles 104,000; radio receivers 44,500.

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India, French: *see* FRENCH INDIA.
India, Portuguese: *see* PORTUGUESE COLONIAL EMPIRE.

Indiana. An east north central state of the United States, popular name, "Hoosier," Indiana was admitted to the union Dec. 11, 1816, as the 19th state. Total area of the state is 36,291 sq.mi., including 86 sq.mi. of inland lakes and rivers. The population of the state according to the 1950 census was 3,934,224, a gain of 14.8% from 1940; 59.9% of the population was defined as urban. Capital: Indianapolis (pop. 1950 census, 427,173), the largest city. Other cities: Fort Wayne (133,607); Gary (133,911); South Bend (115,911); Evansville (128,636); Hammond (87,594); Terre Haute (64,214); Muncie (58,479); East Chicago (54,263); Anderson (46,820).

History.—The general assembly met Jan. 4, 1951, in its 86th regular session. Strong partisanship characterized the session in which several important measures were enacted into law and others failed of passage. Both houses were organized and controlled by the Republican party. The newly elected administrative officers were of the same party, but the governor, Henry F. Schricker, and the lieutenant governor, John A. Watkins, were Democrats. The budget was the largest in the history of the state, $546,880,504, although both parties promised economy. The passage of two welfare acts was the most controversial action of the session, one providing an investigation of the administration of public welfare, the other ending the secrecy of welfare records. The latter resulted in the temporary withholding of federal funds until congress legalized the procedure. A civil defense act, the ratification of a constitutional amendment limiting the president of the United States to two terms, a new truck-weight measure and a partial merit system for the highway department were adopted. A dozen committees were appointed to conduct investigations of a wide variety of subjects. A strong anti-Communist act was passed, the immediate payment of the World War II bonus to the disabled and to the next of kin of those killed was ordered, but an antilottery measure was defeated before the antigambling movement in the nation at large became popular.

Education.—The number of public schools in the state in 1951 was approximately 2,550. Enrolment in the elementary schools was 392,902, with 13,329 teachers. Enrolment in the junior high schools was 105,196, with 1,047 teachers. Enrolment in the high schools (grades 9–12) was 165,007, with 8,718 teachers. Parochial schools had an enrolment of 68,822. For the year 1950–51 the state appropriated $58,000,000 for the support of schools, in addition to the sums provided by local units of government. The state provided $17,406,827 for the operating expenses of the four state colleges. Thirty-three Indiana colleges and universities enrolled 61,824 students. Deane E. Walker was superintendent of public instruction in 1951.

Social Insurance and Assistance, Public Welfare and Related Programs.—In 1950–51 the state's welfare program cost $42,998,083.59 of which $20,933,670.93 was furnished by federal funds, $10,745,335.85 by state funds and $11,319,076.81 by county funds. Old-age assistance cost $23,786,547.50, blind assistance $886,959.77, and aid to dependent children $9,075,851.49. In addition, child welfare cost $2,440,415.69 from state and county funds. Receipts of the state for unemployment insurance for the year ending June 30, 1951, were $30,149,546.80. Benefits paid out were $9,029,596.81.

In 1951 the state maintained nine institutions for mental patients including an epileptic village; ten homes, hospitals and schools and four penal and correctional institutions. As of June 30, 1951, inmates of mental institutions totalled 13,961 and of penal correctional institutions, 6,722.

Table I.—*Principal Crops of Indiana*

	1951	1950	Average 1940–49
Corn, bu.	241,415,000	212,430,000	212,069,000
Wheat, bu.	23,529,000	32,193,000	29,529,000
Oats, bu.	50,875,000	48,060,000	48,158,000
Soybeans, bu.	36,448,000	37,170,000	25,013,000
White potatoes, bu.	3,360,000	4,250,000	4,502,000
Barley, bu.	494,000	624,000	1,168,000
Hay, all, tons	2,674,000	2,638,000	2,534,000
Tobacco, lb..	12,731,000	12,850,000	11,675,000
Apples, bu.	1,434,000	1,020,000	1,292,000
Peaches, bu..	72,000	298,000	490,000

Source: U.S. Department of Agriculture.

Table II.—*Manufacturing in Indiana*

	Employees		Wages	Value added by manufacture	
	1951	1950	1951	1951	1950
				(In thousands of dollars)	
Total manufactures	557,208	506,350	1,935,641	3,832,892	3,059,100
Food	40,052	42,161	113,264	336,179	289,970
Apparel	17,817	17,145	35,764	56,223	51,729
Furniture	24,232		69,546	114,776	
Printing	17,537	16,836	59,211	104,087	98,035
Chemicals	17,231	17,637	72,211	268,653	231,957
Petroleum and coal products	17,733	17,370	69,681	167,695	141,299
Rubber	14,733	13,638	49,033	83,056	67,271
Stone	20,180	19,049	62,989	136,673	99,387

Communications.—The total mileage of state highways in 1951 was 10,587, with county roads totalling 74,499 mi. The state highway expenditure for roads amounted to $40,741,832.37 during the fiscal year 1950–51. Steam railroad first-line trackage measured approximately 6,600 mi. There were 90 mi. of electric railways. The estimated number of telephones in the state on Dec. 1, 1950, was 1,172,000. There were 119 commercial airports, 1 military airport, 94 personal landing fields and 1 seaplane base in the state as of July 1, 1950.

Banking and Finance.—On Dec. 1, 1951, there were 361 state banks and trust companies with 76 branches. On June 30, 1951, the total resources of these banks were $1,575,321,583.02. Deposits totalled $1,467,693,753.80. There were 125 national banks and 36 branches on Dec. 1, 1951. Their mid-year resources amounted to $1,949,061,000 and deposits totalled $1,827,154,000. State savings and loan companies numbered 163 and their assets were $229,264,531.29 as of Dec. 31, 1950. The state's 70 federal savings and loan associations listed assets amounting to $356,868,642.87 as of Nov. 30, 1951.

Agriculture.—The year 1951 was a better than average year for several important crops: corn, oats, soybeans, hay and apples. (*See* Table I.)

Manufacturing.—Table II shows data of employment, wages and value added by manufacturing for the principal products in Indiana during 1950 and 1951. (J. D. Bt.)

Mineral Production.—Table III shows the tonnage and value of those mineral commodities whose values in 1949 exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Table III.—*Mineral Production of Indiana*

(Short tons, except as noted)

	1949		1950	
Mineral	Quantity	Value	Quantity	Value
Clays	1,022,699	$ 1,197,982	1,159,257	$ 1,395,662
Coal	16,549,756	66,988,237	19,957,029	79,301,847
Coke*	7,533,290	122,527,744	8,255,622	138,880,962
Iron, pig*	6,028,173	248,700,000	7,012,970	297,568,747
Petroleum (bbl.)	9,696,000	26,860,000	9,942,000	27,440,000
Sand and gravel	8,887,231	6,695,426	9,723,033	7,516,509
Stone	6,332,360	15,227,818	6,994,670	20,686,160
Other minerals		24,096,944		
Total		$141,066,407		

***Values for processed materials are not included in the totals.**

Indians, American.

By unofficial estimate, the Indian population in 1951 numbered 400,000 in the United States and 35,000 (Indians, Eskimos and Aleuts) in Alaska. These figures represented persons of Indian descent under the general administrative care of the bureau of Indian affairs of the United States department of the interior, and did not necessarily correspond with the population count of the United States bureau of the census.

The trend in the administration of Indian affairs during the year was to reduce the scope and variety of the services and duties performed by the federal government. By contractual arrangement between the government and the several states in which Indian reservation lands were located, more than one-half of all Indian children attending school were in local public schools. The arrangement with the government provided for tuition payments in lieu of tax revenue from Indian lands. Such contracts were in force with 14 states, and the contribution from the federal government amounted to about $2,500,000. Each of the states by its contract furnished a substantial amount of financial assistance to the local school districts in which Indians were in attendance.

KORCZAK ZIOLKOWSKI, U.S. sculptor, who was at work on a 563-ft. mountain memorial in 1951 representing the Sioux leader who fought Gen. G. A. Custer at Little Big Horn river, Mont., in 1876 (model of memorial in background). With him is a survivor of the battle

In the health field, likewise, contractual arrangements were made with private or public institutions wherever Indians resided in communities interspersed with non-Indians, and full-time health facilities were available. Many Indians participated in health services available on a pay basis to the general population. The facilities provided by the bureau of Indian affairs for specific Indian use consisted of 62 hospitals, staffed by 130 medical officers and 700 nurses; 28 field medical officers separate from hospital stations; 58 public health nurses; 35 dentists; and 5 sanitation experts. A 200-bed addition was completed at the Mount Edgecumbe Medical centre at Sitka, Alsk., for the care of natives suffering from tuberculosis, and a 400-bed hospital was building at Anchorage, Alsk., which would provide 100 beds for general medical care and 300 for tuberculosis care. The incidence of this disease among the Indians of the United States and Alaska continued at a rate many times that for the general population. Additional facilities were being constructed at Galen, Mont., to be operated in connection with the Montana state tuberculosis hospital. In Dec. 1951 announcement was made that the president had authorized the transfer to the bureau of Indian affairs of the 300-bed Veterans administration hospital at Fort Logan, Colo. The facility would be operated as a sanatorium for Indians living on reservations in Arizona, New Mexico, Utah, Wyoming and South Dakota.

The policy of transferring authority and responsibility to other agencies included similar transfers to the Indians. Revised regulations issued during the year 1951 removed supervision over the funds deposited to the account of individual Indians as income from trust property, except in the case of minors and mental incompetents. About 80,000 individual Indian money accounts, having an average balance of $700, were affected by the new order.

In 1948 a comprehensive program aimed at off-reservation employment of Indians was initiated on the economically depressed Navajo and Hopi reservations in Arizona and New Mexico. The initial success of this program resulted in 1950 in the establishment of a placement program for other areas, and by Dec. 1951 offices had been opened in the 11 administrative areas of the bureau and in several cities. The program was designed to assist Indians in finding off-reservation employment and permanent resettlement for those Indians desiring it, with emphasis on relieving population pressures on those reservations where the population growth had exceeded available resources.

The Ute Indians of the Uintah and Ouray reservation in Utah and the Southern Ute and Ute Mountain reservations in Colorado were awarded a judgment in a total amount of $31,750,000 for lands previously taken from them by the United States without adequate compensation. The Unitah and Ouray Indians then developed a plan for the use of their share of the award. This plan was subsequently approved by congress and funds were appropriated to carry it out. The other Ute tribes were working on similar plans at the end of the year. (D'A. Mc.)

Indochina.

Until 1946 this name covered four French protectorates and the colony of Cochin-China, bounded north by China, west by Burma and Thailand and south and east by the South China sea. From 1949 Indochina had no legal existence, being replaced by the three associated states of the French union. Areas and populations are listed in the table.

	Area (sq.mi.)	Population (1936 census)	Population (1950 est.)
Viêt-Nam	126,608	18,972,000	3,093,000
Tonkin (Bac-Ky)	44,660	8,700,000	9,851,000*
Annam (Trung-Ky)	56,974	5,656,000	7,184,000*
Cochin-China (Nam-Ky)	24,974	4,616,000	5,628,000†
Cambodia	69,866	3,046,000	3,296,000
Laos	89,320	1,012,000	1,214,000
Total	285,794	23,030,000	27,603,000

*1943 estimates. †1947 estimate.

Three-quarters of the population lives on the coastal plain, on one-tenth of the total area. Annamites of Viêt-Nam speak Annamese and are Confucians; Cambodians (or Khmers) are Buddhist and Hindu-influenced; the Mois of the southern highlands of Annam and Laos are mostly Indonesian, akin to the Dayaks of Borneo, and are pagan; Laotians are Thais, speaking a dialect different from Siamese. In the northern highlands of Laos and Tonkin there are tribes of different origins (Man, Meo, Kha). In 1936 the population of Indochina included 326,000 Chinese and 42,000 Europeans; in 1946 there were only 26,000 Europeans, including 23,000 French or *assimilés*. Chief towns (pop., 1949 est.): Saigon, capital of Viêt-Nam, with the seaport of Cholon (1,700,000); Hanoi (166,000); Haiphong (92,000); Pnom-Penh, capital of Cambodia (128,950); Vientiane or Vienchan, capital of Laos (13,700).

Rulers and commissioners (1951): Viêt-Nam: ruler, Bao Dai; high commissioner and commander in chief, Gen. Jean de Lattre de Tassigny. Cambodia: ruler, King Norodom Sihanouk; commissioner, vacant. Laos: ruler, King Sisavang Vong; commissioner, Miguel de Pereira.

History.—The situation in Viêt-Nam during 1951 remained dominated by the war against Viêt-Minh. Combatant forces were increased in March to 51,000 French troops, 18,000 foreign legionaires, 25,000 North Africans and 35,000 Viêt-Namese. By this time 30,000 people had been killed and more than 20,000 seriously wounded since the beginning of hostilities. The Viêt-Minh offensives, to the north of Hanoi in January, to the east in March and to the southwest in May, collapsed. In the last of these battles, around Ninh Binh, Lieut. Bernard de Lattre de Tassigny, son of the high commissioner, was killed. Viêt-Minh could not invade the agricultural areas of the delta. A Franco-Viêt-Namian offensive, by taking Hoa-Binh (to the southwest of Hanoi) in November, made Viêt-Minh communications between upper Tonkin and northern Annam difficult. Viêt-Minh offensives in December failed to retake it. In the mountainous Thai country of the northwest further Viêt-Minh attacks were stopped.

The Viêt-Nam government remained provisional, with Bao Dai chief of state and Tran Van Huu prime minister, yet without any elected assembly but supported by various semi-independent religious feudalities (Cao-Dai, Hoa-Hao and the Catholic bishoprics). The Dai-Viêt party, mainly Tonkinese, refused to collaborate, and 8 of the 11 ministers were from Cochin-China. France handed the police and all administrative services over to the Viêt-Namese authorities. Life in the towns was rather more secure, though the large record of assassinations included that of the French commissioner for southern Viêt-Nam. Excursions into the bush country were always accompanied by armed escorts.

Viêt-Nam sent 19 delegates to the assembly of the French union and appointed an ambassador to Thailand. In August Bao Dai announced a census for purposes of mobilization. A school for Viêt-Namese officers was set up.

In May General de Lattre de Tassigny took part in the Singapore conference on the defense of southeast Asia. In October he went to the United States to obtain the dispatch of war material: his contention was that the operations in Viêt-Nam constituted not a colonial war but a vital aspect of world defense against communism.

In the Viêt-Minh zone a reform of the currency was set in motion. This gave rise to discontent, and there was a shortage of agricultural resources. Nevertheless the number of new adherents to Bao Dai was slight.

In Cambodia elections for the new assembly took place in September. The Democrats got 53 seats, the Liberals 19 and the smaller parties 6. Half of the electorate did not vote. In November Jean de Raymond, the French commissioner, was murdered in his sleep by a Viêt-Namese servant boy. The Cambodian insurgent movement (Issarak) seemed in decline.

In Laos elections were held in August and resulted in a majority for the Progressives (14) and the Independents (17); the opposition got only 3 seats. In the mountains security had been threatened by Viêt-Minh infiltrations but was gradually being restored.

In accordance with the decisions of the Pau conference (Dec. 1950) the economic services were transferred to the three associated states. The French interest was maintained, however, in the Scientific Research committee, in the Plan d'Equipment (Monnet plan) committee, in the Rice office and the Bank of Issue with the three states' joint participation.

The three states took part in the San Francisco conference for the Japanese peace treaty. The United States signed an agreement for economic co-operation with Viêt-Nam and Cambodia.

Paddy production increased, thanks to the improvement in the military situation; in Tonkin there were 250,000 ha. under cultivation in 1950 as against 86,000 in 1949; and in Cambodia output rose from 900 to 1,200 metric tons. There were 52,000 ha. under rubber, output being 47,780 metric tons in 1950 as against 42,000 tons in 1949. The revival of business was mainly discernible in the increased number of imports for war purposes and in the fresh accumulation of stocks. (*See* also PRISONERS OF WAR.)

Education.—Schools (1945): elementary, pupils 830,000; *lycées* and *collèges* 8, pupils 6,000; University of Hanoi, students (1948) 753.

Finance.—Budget (1950 actual): expenditure, excluding the cost of military operations, 2,385,000,000 piastres. Monetary unit common to the three states: piastre, equivalent to 17 metropolitan francs. U.S. $1=350 metropolitan francs (Sept. 1951).

Foreign Trade.—(1950) Imports 73,761,000,000 fr., 59,000,000,000 from the French union; exports 25,887,000,000 fr. Principal exports: rubber 13,197,000,000 fr.; rice 5,143,000,000 fr.; pepper and pimentos 1,676,000,000 fr.; maize 946,000,000 fr.; kapok 525,000,000 fr.; coal 429,000,000 fr.

Transport and Communications.—(1950) Serviceable roads, 7,000 km.; motor vehicles, 29,700. Ships entered (Saigon-Cholon), 854. Aircraft landed, 822. (Hu. De.)

Indonesia. The independence of Indonesia was proclaimed at Jakarta (Batavia) on Aug. 17, 1945, but the republic of the United States of Indonesia came into being on Dec. 27, 1949, when Queen Juliana of the Netherlands signed the charter transferring to the Indonesian people the sovereignty of the territories of the Netherlands Indies—with the exception of Irian or Dutch New Guinea (see Netherlands Overseas Territories). The provisional constitution of 1949 stipulated that the republic was to be a federation of seven states and nine autonomous territories. On Aug. 14, 1950, the parliament of the republic decided that the principle of federalism should be abandoned and that Indonesia should be a unitary nation-state divided into ten provinces. Total area (excluding Dutch New Guinea): 583,479 sq.mi. Total pop.: (1930 census) 60,727,000, including 1,238,000 Chinese; (mid-1951 est.) 80,000,000; two-thirds of the total population lives on Java. Language: Bahasa Indonesia, a scientifically adapted version of Malay, was being propagated as the official language; 25 major languages and about 250 dialects are spoken by the different racial groups scattered over the archipelago. Religion: Moslem about 90%, Christian 3.4%, Hindu 1.4%. Chief towns (pop., 1951 est.): Jakarta (cap., 2,800,000); Jokjakarta (1,848,886); Surabaya (714,898); Bandung (659,213); Semarang (310,942); Surakarta or Solo (266,365). President of the republic: Sukarno; prime ministers in 1951: Mohammed Natsir and (from April 20) Sukiman Wirjosandjojo.

History.—In 1951, the second year of its existence as an independent state, the republic of Indonesia made some progress in consolidating its position internally as well as in its international relations.

Two main political groups, competing for popular support with an eye to electoral favour in the future, coalesced in the Masjumi (Moslem) party and the Partai Nasionalis Indonesia (Nationalist party). The Natsir cabinet was supported by the former. A few smaller groups, among them the Socialists, appealed mainly to parts of the intelligentsia.

A political group of the Communist persuasion constituted an increasing threat to the political stability and economic rehabilitation of the country, especially through its affiliation with a Communist-led labour union federation (Sentral Organisasi Buruh Seluruh Indonesia, or S.O.B.S.I.). The latter kept going a systematic country-wide campaign of excessive labour demands and strikes, designed to paralyze the ports and the agricultural and industrial enterprises. In February the government countered this by proclaiming a strike ban, on the basis of martial law, combined with compulsory mediation of official committees in labour disputes.

Resentment on the extreme left caused by this drastic measure, and certain grievances of the Nationalist party against the cabinet controlled by its Masjumi rivals, brought together an *ad hoc* majority against Natsir, who in March was forced to resign. Not until April did a new cabinet emerge, led by Sukiman as premier and Suwirjo (then mayor of Jakarta), of the Nationalist party, as vice-premier. The new administration was based on a working agreement between the rival parties which was attractive to neither of them and did not appease their growing mutual dislike.

In August evidence came to hand of the Communist plans to exploit the national Independence day celebrations (Aug. 17) for widespread agitation and subversive actions. The government thereupon ordered extensive preventive arrests of Communist party leaders and S.O.B.S.I. officials, including a number of members of parliament. In October a motion tabled in parliament to censure this action was defeated; the inherently weak coalition cabinet thereby gained a further lease of life.

Like its predecessor, the Sukiman-Suwirjo administration steered Indonesia along a course of neutrality between the two opposed power blocs, but circumstances gradually caused it to lean slightly toward the western democracies. In May the government adhered, though reluctantly, to the embargo recommended by the U.N. against the "aggressor" countries in the Korean conflict, and later in the year Indonesia appeared in San Francisco, Calif., among the signatories of the Japanese peace treaty. In the relations with the Netherlands the lingering instinct yet to lay the blame for disappointments and reverses at the door of the former colonial power remained a political factor of considerable significance. The wish to replace the Netherlands-Indonesia union, concluded at the round-table conference in 1949, by a less intimate treaty of the customary international pattern was more or less actively supported in various sectors of articulate opinion. The Netherlands government declared itself willing to go along with such a revision, provided it would not harm co-operation in practical matters to mutual advantage, and a date was set for a conference in November to begin negotiations. Then, however, the dispute over New Guinea once more became acute, in connection with proposed constitutional reforms in the Netherlands involving this remnant of Netherlands territory in the Pacific. Though the reforms would not prejudice the possibility of a change of status of New Guinea, misunderstanding of their purport caused commotion in some Indonesian circles and the Jakarta government felt compelled to insist that the New Guinea problem should be included on the agenda of the conference. The Netherlands government raised no objection.

Throughout the first half of 1951 the Indonesian economy benefited from high prices on world markets for its export products, especially rubber, tin and copra. This type of boom was not a stable foundation for prosperity, as appeared later in the year when strategic stock-piling in the United States diminished and prices began to drop. Moreover the total export values at the prevailing high prices did not yet exceed 65% of the prewar level, nor the total volume 47% of the prewar average. Imports at 54% of the prewar level, low labour productivity and increasing labour unrest indicated that the economic and social situation was still far from satisfactory. A huge and inefficient bureaucracy and excessive numbers of former guerrillas incorporated in an unwieldy army constituted a heavy drain on the revenues of the government, which consequently was forced to continue a policy of deficit spending. In a determined effort to forestall runaway inflation the government, however, used the largest available part of its increased current revenues during the boom period to redeem part of its swollen indebtedness to the central Java bank, and purchased gold bullion in the United States to back the paper money in circulation. The latter did not increase disruptively during the year. In a realistic appreciation of the prerequisites for a more lasting economic improvement, strong measures for the restoration of law, order and security, longer working hours and higher labour efficiency were advocated in ever-widening Indonesian circles. Execution of the principles was slow. (W. G. P.)

Education.—Schools (1950): primary 23,700, pupils 4,174,031, teachers 72,891; secondary 1,250, pupils 165,399, teachers 7,500; teachers' colleges 397, pupils 21,023. Universities: faculties 14, students 3,238. Chinese schools 681, pupils 162,315, teachers 3,421.

Finance and Banking.—Budget: (1950 est.) ordinary revenue 6,414,000,000 rupiah, ordinary expenditure 7,798,000,000 rupiah; (1951 est.) ordinary revenue 7,530,000,000 rupiah, ordinary expenditure 7,806,000,000 rupiah. Short-term national debt (Aug. 1951) 2,100,000,000 rupiah. Total national debt (Dec. 1950) 6,086,000,000 rupiah. Currency circulation (May 1951) 3,137,000,000 rupiah. Gold reserves (Sept. 1951) U.S. $229,000,000. Bank deposits (May 1951) 2,514,000,000 rupiah. Monetary unit: rupiah, with a basic selling exchange rate (Dec. 1951) of 3.81 rupiah to the U.S. $1.

Foreign Trade.—(1950) Imports 1,527,000,000 rupiah; exports 2,742,000,000 rupiah. Main sources of imports (1950): U.S. 21%; Netherlands 17%; Japan 10%. Main destinations of exports: Malaya and Singapore 36%; Netherlands 24%; U.S. 16%; U.K. 4%. Main imports: textiles 28%; rice 9%; machinery 7%; petroleum and products 7%. Main exports: rubber 42%; petroleum and products 20%; copra 8%; tin 7%. Volume of exports (1950; 1937=100): rubber 142; tin 79; copra 61.

Transport and Communications.—Main roads (1948) 2,400 mi. Licensed motor vehicles (Dec. 1950): cars 20,000, commercial 19,000. Railways (1950): 3,960 mi.; passengers 105,000,000; freight carried 5,316,000 metric tons. Shipping regularly serving Indonesia (1947): merchant vessels 154, gross tonnage 757,000. Air transport (1950): passenger-miles 92,000,000; cargo net ton-miles 4,000,000. Telephones (1940): subscribers 51,606. Radio receiving sets (1951): 150,000.

Agriculture.—Main crops (metric tons): rice, paddy (1950) 9,867,000; maize (Java and Madura only, 1949–50) 1,850,000; sweet potatoes (Java and Madura only, 1948–49) 1,140,000; cassava (Java and Madura only, 1948–49) 6,067,000; sugar, raw value (Java and Madura only, 1950) 277,000; peanuts (1949) 382,000; palm kernels (exports, 1950) 24,100; soybeans (1950) 274,000; copra (exports, 1950) 287,000; palm oil (exports, 1950) 97,000; tobacco (Java and Madura estates only, 1949) 10,000; tea (1950) 35,300; coffee (estates only, 1950) 10,600. Index of agricultural production (1949; 1934–38=100): 83. Livestock (1950): sheep 2,334,000; cattle 3,618,000; pigs 1,254,000; horses 616,000; buffaloes 2,773,000; goats 7,474,000. Fisheries: total landings (1948) 472,000 metric tons; men employed 258,000; boats 25,000.

Industry.—Fuel and power (metric tons, 1950): coal 799,000; crude petroleum 6,408,000. Raw materials (metric tons, 1950): tin 32,600; natural rubber 698,000; bauxite 678,000.

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Industrial Health.

Because of increasing tightness in the United States labour market during 1951, the Office of Defense Mobilization through its health resources advisory committee undertook to determine measures to extend industrial health services. A committee with representatives from the public health service and the departments of labour and commerce was instructed to formulate minimum standards of health and safety under which federal contracts must be performed and to develop guide lines for industrial health throughout the nation. In its report the committee mentioned the necessity for convincing both management and labour of the need for conserving the country's work force through the application of industrial health measures, and for making these avenues of service more attractive to physicians and nurses. Meanwhile, the Council on Industrial Health of the American Medical association prepared a report on manpower conservation which inquired into the sources of additional production workers and attempted to estimate the demands that the special needs of women, older workers and the handicapped might place on the medical profession. It also recommended methods for the recruitment and training of additional industrial health personnel needed to maintain workers at peak production.

As the year closed plans were effectuated for wide distribution of these reports. As the tempo of defense production increased, critical areas of worker concentration appeared with associated shortages in housing and in medical-health organization. The placement services of the American Medical association and its constituent state medical societies were alerted and machinery was set in motion to recruit and relocate physicians where their services were needed.

Because of its expanded objectives, the name of the division of industrial hygiene in the public health service, Federal Security agency, was changed to the division of occupational health. The Association of Industrial Physicians and Surgeons was renamed the Industrial Medical association. This latter association assumed the inspection and approval of industrial medical departments according to standards previously administered by the American College of Surgeons. Steps were also taken to create an American Board of Occupational Medicine to promote improved educational opportunities for eligible physicians and to certify them as qualified on the basis of training, experience and examination.

During the year the American Academy of General Practice pointed out the importance of the general practitioner to the small-plant health program. To improve the general practitioners' contribution, a plan of training was set in motion through the postgraduate education machinery of the academy.

Noise in industry and associated acoustical trauma continued to attract interest. Several conferences were jointly sponsored by the American Academy of Otolaryngology and Ophthalmology, the American Medical association and the Acoustical Society of America to improve the understanding of the measurement of noise, the determination of its harmful effects, the treatment of hearing loss and rehabilitation. These same organizations began basic studies to revise procedures for evaluating percentage hearing loss in medico-legal cases.

There was expanding interest in human relations in industry with better *rapprochement* between the several scientific disciplines involved. It became clear that final solutions depended upon teamwork between the social, engineering and biological sciences and that progress would depend upon the removal of interprofessional barriers.

During the year the International Congress of Industrial Medicine met in Lisbon, Port. Representatives from most of the countries of western Europe and North and South America participated. (C. M. Pn.)

Canada.—Throughout the year the medical, nursing and laboratory staffs of the industrial health division of the federal department of national health and welfare actively co-operated with provincial departments of health in improving and promoting factory medical programs, conducting researches into industrial health hazards and increasing the workers' awareness of their individual responsibilities. Special attention, in the latter field, was given to the 1,100,000 women workers in Canadian industry. A study of, and warning against, radioisotope health hazards was made; there were investigations into heat sickness, industrial fatigue and neurotic illnesses among industrial workers; and air pollution was examined.

The blindness control division of the department of national health and welfare undertook a study of and published a report on colour blindness in industry; and a toxicology laboratory was organized for the department of agriculture to evaluate the health hazards of the new insecticides. A gymometer, designed by the defense research board medical laboratories and the royal Canadian air force institute of aviation medicine, was used to record the movements of Avro jet aircraft during flight, in the hope that new means of increasing air line passenger comfort would be discovered. (C. Cy.)

Great Britain.—On June 1, 1949, the prime minister (then Clement Attlee) announced the appointment of a committee to examine the public and industrial health services in Great Britain. The report of this committee, known as the Dale committee, was presented by the prime minister to parliament in Feb. 1951.

The report of the Medical Research council, for the years 1948 to 1950, was published in July 1951. Among the important subjects dealt with in the field of occupational health were minor injuries and skin diseases and toxic chemicals used in agriculture. The vast problem of pneumoconiosis received due attention and there was no doubt that the council was exercising every effort to solve this grave problem.

The term "stress diseases" had come to be used with increasing frequency and, among these, peptic ulcer had been assumed to occupy a place of some importance. The occupational factors in the aetiology of gastric and duodenal ulcers were investigated by the Medical Research council. The report stressed the very considerable incidence of gastric and duodenal ulcers among the population and it was estimated that of the persons living in Great Britain approximately 1,500,000 had or had had peptic ulcers, and that 638,000 men complained of symptoms each year. Significantly high incidences were found among members of the medical profession and in a residual group of unskilled workers. High incidences were also found among foremen and business executives, both groups composed of workers in responsible positions in industry. Duodenal ulcers occurred commonly between the ages of 20 and 64 and their incidence was directly related to responsibility and anxiety over work. Gastric ulcers, on the other hand, although uncommon before the age of 35, were less frequent among the wealthy.

The possibility of ill health arising from welding was considered in many quarters and the chief inspector of factories decided that the matter should be investigated by his department. Those chosen for this work were A. T. Doig and L. N. Duguid and their report, *The Health of Welders,* was published by the factory department of the ministry of labour and national service. In general, the report concluded that the health of welders was little different from the rest of the general population. There was no evidence to show that the liver was damaged in any way or that endocrine disturbances were more frequent in welders than in other workers. (*See* also ACCIDENT PREVENTION; MEDICINE; PUBLIC HEALTH ENGINEERING; EPIDEMICS AND PUBLIC HEALTH SERVICES.) (A. J. AR.)

Industrial Production: *see* BUSINESS REVIEW.

Infantile Paralysis.

Incomplete data from the World Health organization indicated an unusually high incidence of poliomyelitis (infantile paralysis) during 1951 in Australia, Austria, the Belgian Congo, the Netherlands, Norway, Switzerland and the United States. The United States had a high incidence of the disease for the fourth year in succession, although the number of cases (27,593 through Dec. 1) was slightly below that reported for 1950 (33,351) and considerably below the total of 42,173 in 1949.

A critical field trial with human beings was begun in 1951 to determine whether a concentrate from pooled human blood is capable of preventing or of ameliorating the paralysis that sometimes follows a natural infection with the virus. This study was scheduled for completion during 1952. The blood concentrate is capable of inactivating in the test tube the three known types of the virus of poliomyelitis. Laboratory experiments showed that this concentrate can protect monkeys from the paralytic disease that usually follows an experimental infection with the virus. Such protection was found to be of relatively short duration. However, an injection of this substance in monkeys did not interfere with the immunization process that normally follows an infection with virus.

Additional reports appeared on the relation of paralytic poliomyelitis to recent injections given to immunize against whooping cough, diphtheria and tetanus. The tendency for paralysis to occur more often in the limb inoculated with the immunizing substance was confirmed, but the evidence was not adequate to prove that the incidence of paralytic poliomyelitis is any higher in recently immunized persons than in the general population. Similar studies attempting to show a relationship between paralytic poliomyelitis and injections of other biological and medicinal substances were not convincing.

Prior treatment with cortisone was reported to accelerate the development of poliomyelitis in mice, hamsters and monkeys.

The co-operative program of typing of the viruses of poliomyelitis in the United States was concluded. Only three different immunologic types of the virus had been discovered. A preliminary report of this study indicated that 85% of the viruses typed were found to be of the Brunhilde group, 12% Lansing and 3% Leon. Further studies were being carried out to determine the relative importance of each of these types in the production of human disease. The use of the tissue culture method for propagation of the virus of poliomyelitis made possible an expansion of research on poliomyelitis. This method was being employed for the isolation and typing of the virus, the characterization of specific antiserums obtained from human beings and for studies designed to attenuate the virus. This new technique could materially decrease the need for monkeys in research on poliomyelitis.

An encouraging report was received on a new complement-fixation test in poliomyelitis making use of a modified poliomyelitis virus grown in the brains of newborn mice. At its 1951 stage of development this test was capable of identifying approximately 50% of known cases of poliomyelitis.

Work on the Coxsackie group of viruses continued. An unusual feature of this family of viruses was that most of the human diseases which they cause remained unnamed, although it is known to be the aetiologic agent of Bornholm disease or epidemic pleurodynia, of herpangina and of a symptom-complex indistinguishable clinically from that of nonparalytic poliomyelitis. The Coxsackie viruses are known to be "camp followers" of the poliomyelitis viruses. Human beings may suffer concurrently from a dual infection with one of the poliomyelitis viruses and one of the Coxsackie viruses. The significance, if any, of this latter observation remained unknown. The greatest number of strains obtained from nonfatal cases had turned out to be of the Brunhilde type, whereas strains of the Lansing type had been largely isolated from scattered fatal cases. Strains of the Lansing type appeared to produce relatively less paralytic poliomyelitis per person immunized than was the case with other strains. This result might be due to essential differences between these virus types, or to the fact that the monkey is a particularly suitable instrument for isolating strains of the Brunhilde type of the virus but not an equally good menstruum for isolating strains of the Lansing and Leon types. For example, one investigator found that 11 of 12 strains of poliomyelitis virus isolated by direct inoculation of human stools into tissue culture, without resort to monkeys, were of the Leon type. In view of this observation there was hesitancy in concluding that strains of the Brunhilde type are responsible for the vast majority of cases of human poliomyelitis.

There were some promising developments in a comprehensive attempt to prevent the development of the chronic respirator case. This effort revolved about new equipment and new methods of treatment. The rocking bed had apparently found a definite field of usefulness as a substitute for the tank respirator, especially in those early convalescent cases having the ability to supply a part of their required lung ventilation by natural breathing. The rocking bed had also been found useful in training patients to leave the tank respirator and to dispense with this aid. Electrophrenic respiration, which involves direct stimulation of the phrenic nerve, although having a limited field of usefulness, did appear to be an effective means of artificial respiration for cases with such a degree of circulatory instability that it was not safe to use the tank respirator. It had also been found useful in cases with adequate muscle power, but with irregularities of respiratory rhythm resulting from viral damage to the higher centres of respiration. The mechanical cough machine, still under experimental development, also promised to be a useful and perhaps a lifesaving device in certain situa-

INOCULATION WARD during the first mass test of a serum which might prove to offer partial temporary resistance to the polio virus. The serum was gamma globulin, a human blood extract, and was administered in Utah county, Utah, in 1951, with the aid of March of Dimes funds

tions. (*See* also BACTERIOLOGY; EPIDEMICS AND PUBLIC HEALTH SERVICES; MEDICINE.)

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Infant Mortality.

The world-wide downward trend in infant mortality continued in 1951 practically without interruption. Provisional indications gathered from reports for the United States during the first nine months of 1951 pointed to a reduction of 1.7% from the corresponding record for the like period of 1950. During the whole of 1950, the United States had a total of 3,548,000 births and 103,700 deaths under one year of age (both figures preliminary), so that the infant mortality rate was only 29.2 per 1,000 live births. Almost a decade earlier, in 1940, the rate was more than 50% greater, namely 47 per 1,000 live births. An idea of the rapid reduction may be gained from the fact that infant mortality in 1930, namely 64.6 per 1,000, was more than double the 1950 figure, while in 1920 infant mortality was as high as 85.8 per 1,000 live births. Only a very few countries with available records were at a lower level in their infant mortality than the United States, and most of them had much smaller populations. For example, Sweden had a rate of only 20 infant deaths per 1,000 live births in 1950, while the Netherlands recorded a rate of 25 per 1,000. In the same year, for the European population of New Zealand, the infant mortality rate was down to 23 per 1,000, and the rate for Australia was 24 per 1,000. In contrast to these very favourable records, many countries were still experiencing unusually high infant mortality rates. Thus, Chile recorded a rate of 153 deaths under one year of age per 1,000 live births in 1950; nevertheless, even this bad showing was a substantial improvement over the pre-World War II situation, 1936–40, when the rate was as high as 234 per 1,000. Mexico had an infant mortality rate of 107 per 1,000 in 1949; for the same year, India showed a rate of 123 per 1,000. Among the European countries with available figures, high rates for 1950 were shown for Portugal (94 per 1,000), Spain (69), Austria (64), Italy (63) and Belgium (59). Unusually high rates for European countries were also experienced by Czechoslovakia (82 per 1,000 in 1949), Hungary (100 per

1,000 in 1948) and Rumania (199 per 1,000 in 1947).

Infant mortality in England and Wales during 1951 was about on the level of that for 1950, according to provisional urban data covering the first ten months of both years. For the entire year 1950, England and Wales recorded 691,752 births and 20,816 deaths under one year of age, so that the infant mortality rate came to 29.8 per 1,000 live births; this was only 2% higher than the corresponding rate for the United States in 1950. Canada had an appreciably higher infant mortality rate than either the United States or England and Wales in 1950; with 15,289 deaths under one year of age and 370,578 births, the infant mortality rate was 41.3 per 1,000 live births. Inside the United States, the white population had an infant mortality rate of 28.9 per 1,000 live births in 1949, while the rate for the nonwhite population was as high as 47.3 per 1,000.

A review of the factors in the decline in infant mortality in the United States (*Statistical Bulletin* of the Metropolitan Life Insurance company, Aug. 1951) showed the greatest reductions in the infectious diseases. For example, from 1933–34 to 1948 the infant mortality rate from the principal communicable diseases of childhood, which include measles, scarlet fever, whooping cough and diphtheria, fell by almost 90%; syphilis deaths decreased by the same extent. There was a drop of 75% in the rate for tuberculosis, 69% for diarrhoea and enteritis and 61% for pneumonia and influenza. These conditions, which arise principally from the postnatal environment, had been brought largely under control not only by the widespread use of chemotherapeutic substances, antibiotics, immunization and other preventive steps, but also by better infant care and feeding, by a greater proportion of births in hospitals, the increasing use of hospitals for sickness and the upward trend in the standard of living. Reductions in the rates from other causes of infant mortality resulted from the improved health status of mothers and from the better care given babies immediately after birth. Thus, for the period under review, the infant mortality rate for premature birth was reduced by 31%, for congenital debility and associated conditions by 33%, for injury at birth by 26% and for congenital malformations by 13%. However, the rate for accidents remained unchanged. Further improvement was said to depend on more adequate prenatal care, including proper nutrition of the mother, and advances in obstetrical practices and training.

A survey was made of the causes of accidental death among infants from the records of those with industrial insurance in the Metropolitan Life Insurance company for 1945–49 (*Statistical Bulletin,* Feb. 1951). One-half of these deaths were reported to be caused by mechanical suffocation, such as by bedclothes and pillows. However, many of such deaths were actually believed to be caused by acute respiratory infection. Almost one-fifth of the deaths were caused by ingested objects which resulted in puncture, obstruction or suffocation. More than one-tenth of the fatal accidents among infants were attributed to conflagrations and burns. Other causes of accidental death were falls, strangulation, ingestion of poisons, drowning and excessive heat. About 4% of the accidents involved motor vehicles. (*See* also BIRTH STATISTICS; DEATH STATISTICS.)

(M. SP.)

Inflation: *see* BUSINESS REVIEW; CONSUMER CREDIT; PRICES. *See* also under various countries.

Influenza: *see* RESPIRATORY DISEASES.

Inland Waterways: *see* CANALS AND INLAND WATERWAYS.

Insanity: *see* PSYCHIATRY.

Insects and Insecticides: *see* AGRICULTURAL RESEARCH ADMINISTRATION; HORTICULTURE.

Instalment Buying and Selling: *see* CONSUMER CREDIT.

Insulin: *see* DIABETES.

Insurance.

Life Insurance.—During 1951 the legal reserve life insurance companies of the United States and Canada paid more than $4,000,000,000 in benefits to policyholders or beneficiaries, the largest amount ever paid. Including with the above payments the increases in reserves held to assure payment of future benefits, the amount paid or credited in 1951 was more than $8,000,000,000.

Although new life insurance issued by the companies of the United States and Canada during 1951 exceeded $30,000,000,000, it was somewhat less than in 1950. At the end of the year, the insurance owned by the 91,000,000 policyholders amounted to approximately $270,000,000,000. However, this sum was equivalent to only about a year's income of all the people in the two countries. During the year, the premiums paid for life insurance and annuities totalled about $8,000,000,000 or about 3% of the income of these people.

The assets of United States and Canadian legal reserve life insurance companies increased by $4,800,000,000 during 1951 to reach $73,400,000,000.

During 1951 the life insurance companies in the United States continued to add substantially to their mortgage portfolio. As a result their mortgage holdings increased by $3,400,000,000 and attained a total of $19,500,000,000. Corporate securities of all kinds owned by the companies also increased, largely by acquisitions of industrial bonds and notes, and aggregated $28,300,000,000 at the year end. Purchases of common stocks were small despite the fact that New York state enacted a law in March 1951 permitting life insurance companies to acquire such stocks. Portfolios of United States government securities were reduced. However, the holdings of United States securities still amounted to $11,000,000,000 at the end of the year. There were heavy demands for loans which arose, in many cases, because of the country's preparations for defense.

The interest rate earned by the United States companies in 1951 on their total assets was expected to be slightly higher than the 1950 rate (3.09%). During the year, interest rates obtainable on new investments continued to improve.

Because of the unsettled state of international relationships, life insurance companies generally continued the precautionary measures they had taken in 1950. Thus, some companies inserted war clauses in policies issued to military personnel or to young men, while others placed restrictions on the amount of insurance issued to any person subject to military service.

In the United States at the end of 1951, members of the armed forces and veterans held about $50,000,000,000 of United States government and National Service life insurance. This did not include the gratuitous indemnity granted to beneficiaries of persons dying in the armed forces after June 27, 1950. There was also about $10,000,000,000 of life insurance in force in fraternal organizations, assessment associations, etc. Furthermore, the survivorship benefits provided under the Social Security act were the equivalent of an amount of life insurance which approached in magnitude that in force in United States legal reserve companies.

For many years a few life insurance companies had also sold accident and health policies. However, during 1951 a considerable number of companies entered this field as a means of broadening their insurance services to the public. (*See* also SOCIAL SECURITY.)

(L. A. L.)

Casualty and Fire Insurance.—The year 1951 witnessed the greatest volume of premium income ever produced in the history of casualty and fire insurance in the U.S. Estimates for 1951 indicated a 10%–15% premium increase over 1950. Inflation, high levels of industrial employment and activity, greater insurance consciousness and the pressure of additional state automobile financial responsibility measures contributed to this result. It was also a year of heavy losses in certain of the major casualty lines, particularly automobile insurance. There were further developments in the trend toward all-risk insurance coverage.

Automobile Liability.—Premium income and loss expenditures reached new heights in this area of casualty insurance. There were more cars on the road, more of them were insured and more of them were involved in accidents than ever before. Estimated average paid claim costs for bodily injury in 1951 showed an increase of almost 70% over 1941. For property damage claims, the average increase over the decade approximated 150%. Judgments for claimants were almost doubled. Hospital and medical fees had jumped considerably in this period. Automobile repair costs, including parts and labour, had risen 134% in the decade.

To offset the heavy drain of losses, premium rates were increased during the year. The average country-wide rate increase for bodily injury was 14.4%; for property damage, 11%.

Workmen's Compensation.—During 1951, premium volume reversed the slight downward trend of the previous two years. Increased employment, fewer lost days because of strikes, higher wages and upward rate adjustments produced this result.

Claim experience kept pace with the premium increase. Hospital and medical costs continued their upward spiral. Further, in 1951, 28 states raised the benefits for injured employees.

The year 1948 was the turning point in the loss experience. From then to 1950 the incurred loss ratio rose from 60.9% to 70.9%. Premium rates lagged behind these adverse loss results, but in 1951 there were upward rate revisions throughout the country.

General Liability Insurance.—Until 1949 this line was profitable. After that year the experience had been growing poorer. It was expected that 1951 would show a small loss.

Burglary Insurance.—This line, unprofitable in 1946, turned toward the profit side for the following five years. Premiums had increased approximately 35% from 1946.

Glass Insurance.—Premiums increased moderately in this line in 1951. The losses produced by the Nov. 1950 windstorm, coupled with rising repair and replacement costs, made this line unprofitable. Rate increases of approximately 5.3% were promulgated in 1951, and it was expected that the industry would break even for the year in glass insurance.

Boiler and Machinery Insurance.—Premiums rose substantially in this line for 1951. Loss experience was good in the indirect damage coverages such as use and occupancy insurance. It was poor for the direct damage coverage on boilers, pressure vessels and machinery, because of increased inspection and repair costs.

Fidelity and Surety.—Fidelity insurance premiums jumped tremendously in 1951, principally because a considerable portion of the business is written for a three-year period and 1951 happened to be a large renewal year. There was expected to be a profit for the year, but a smaller one than in previous years. Surety bond premiums held a steady course. Losses were slightly higher.

Accident and Health Insurance.—Loss ratios were rising in this field, but it continued to be a profitable line. Premiums for 1951 were estimated to show a 20% increase over the previous year. The premium volume in this field had surpassed that of straight fire insurance coverage. A significant innovation was the catastrophe insurance coverage for extraordinary medical and hospital expense.

Fire and Marine Insurance.—Fire and marine premiums for 1951 were expected to establish a new record volume, with an approximate increase of 15% over the previous year. Losses, however, reached their highest point. A substantial portion of the premium volume in the fire and marine field comes from automobile physical damage coverage; *i.e.* automobile fire, theft, collision and comprehensive. The rise in accident frequency and in repair costs made the experience in this line increasingly unfavourable. (*See* also FIRES AND FIRE LOSSES; VETERANS ADMINISTRATION, U.S.)

Hospital, Medical and Surgical.—The year 1951 was noteworthy for: (1) lack of serious congressional consideration of national health service proposals; (2) more attention by carriers to variety and scope of offerings; (3) an increasing number of broad-scale studies of health and health services.

In mid-year, the subcommittee on health, senate committee on labour and public welfare, published its report on health insurance plans, prepared under the direction of Dean A. Clark, director, Massachusetts General hospital. The subcommittee put aside consideration of health insurance proposals while the report was in preparation, and brought no proposals forward after its presentation.

Simultaneously, long-term studies were under way by the Brookings institution, the Health Information foundation and an independent commission on the financing of hospital care organized by the American Hospital association. The Research Council for Economic Security began an exhaustive study of the economic effect of long-term illness on the industrial worker. And, at year's end, Pres. Harry S. Truman appointed an independent commission to study the health needs of the nation.

Increasing attention was given to such problems as health insurance for the aged and coverage of dependents of members of the armed forces. So-called "catastrophic illness coverage" policies were offered for the first time by major group-writing insurance companies and by nonprofit plans.

Blue Cross hospital service plans had passed 41,000,000 members by year's end, nearly matched by unduplicated commercial group and individual insurance; an estimated 81,000,000 persons had some form of hospitalization coverage. An estimated 57,500,000 persons held some form of surgical coverage, of whom 21,500,000 were enrolled in Blue Shield or other nonprofit plans. An estimated 23,000,000 persons held some form of medical protection, about 11,000,000 of them through Blue Shield-type plans. According to the Clark report, only about 4,000,000 persons held "fully comprehensive" coverage, however.

In Canada, the Liberal party was severely defeated in Ontario over the health insurance issue, but the tax-supported municipal scheme spread rapidly among Alberta taxpayers on the heels of rising mining-oil tax income to the province. It was not expected that the Conservative victory in Britain would greatly affect that country's health insurance program. (A. G. S.)

Great Britain.—The combined fire and accident premium income of 24 representative British offices rose in 1950 by £35,156,000 to £321,231,000 and resulted in an underwriting surplus of £23,132,000 or 7.2% of the premiums, compared with £25,350,000, or 8.9% in 1949. Marine premiums in 1950 were higher by £2,002,000, at £40,248,000, and provided a surplus greater by £808,000, at £3,854,000, while the total marine funds were advanced by £3,307,000 to the new high level of £63,434,000.

New ordinary life sums assured expanded in 1950 by £60,000,000 to a record total of £600,000,000, and an increase of £1,213,000 took the total new industrial life sums assured of eight leading industrial life companies to £172,204,000, the average sum assured per policy being £43.8 against £39.5 in 1949. The aggregate industrial life premium income of the eight leading companies was advanced by £2,883,000 to £98,295,000 and the total industrial life funds were £679,371,000, showing an increase on the year of £30,122,000.

The big inflow of new life business continued throughout

1951. There was a sustained demand for endowment assurance plans for executive and noncontrolling directors and much new business took the form of income assurance. Educational and children's assurances were again sought, but life assurance in connection with house purchase plans was restricted by increased selectivity in the granting of loans by the companies. Deferred annuities were effected as provision for individual retirement. There was a tendency among managements toward a broader investment policy, and the higher level of interest earnings on invested funds, combined with continued favourable mortality experience, enabled many companies to announce reductions in premium rates for certain businesses.

Losses on the fire account remained heavy throughout the year, and included many important industrial fires. The claims experience was also noticeably affected by a considerable volume of belated claims from the 1950 windstorm in the eastern states of the U.S. The acute underwriting difficulty presented by insurance against windstorm was further emphasized by the Jamaican hurricane in mid-1951. Tension in the middle east emphasized another peril, from riot insurance. The British fire and marine markets were also heavily involved, as a result of a fire in unginned cotton at Hassa Heisa, Sudan. The insurance loss was estimated at £2,000,000.

The over-all result of the accident departments was again dominated by a world-wide unsatisfactory underwriting experience in the automobile section; the increase in U.K. premium rates at midyear was generally considered inadequate. Workmen's compensation business transacted overseas continued costly to underwriters. Group accident and sickness insurance for employees met with increased demand. Burglary, fidelity, surety and plate glass insurance and a number of risks associated with machinery were again sought and underwriting proved profitable.

Heavily increased values of hulls and enhanced cargo values were a feature in the marine insurance market. Rates for cargo business were highly competitive and were a matter of underwriting concern. Risks on land, prior to delivery of goods, showed improved results. (*See* also LAW.) (P. Ss.)

Insurance, Old Age: *see* SOCIAL SECURITY.
Inter-American Highway: *see* ROADS AND HIGHWAYS.
Interior, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Interior Decoration.

Emerging from the multitude of new designs, new materials and combinations of materials that were introduced in 1950 were two definite trends in the 1951 furniture picture.

The most important was the tremendous renewal of interest in French Provincial furnishings which was apparent in all segments of home furnishings including furniture, floor coverings, fabrics and accessories. Formerly available only in the higher-priced merchandise, consumer demand brought it down to the moderate-price level during the year.

The small scaling, warm finishes and simple graceful lines of this style, when combined with typical Provincial fabrics, make it ideally adaptable to the smaller, informal homes of today. Conversely, when used with handsome brocades, velvets or metallic textures, this same design becomes formal enough for the most sophisticated city apartment. Blending equally well with both 18th-century and 20th-century designs, French Provincial pieces are often used as accents in an otherwise traditional or contemporary room.

The other important trend in furniture design during 1951 was the development of finishes that clearly show the grain and texture of the wood. To accomplish this, dark mahogany and walnut were finished a few shades lighter but still retained the mellow tone of a traditional finish. The bleached finishes, on the other hand, were softened to permit the natural wood colour to show through, and depended upon the figurations and the texture of the wood for decorative interest.

INTERIOR by Alexander Girard, one of a series of model rooms designed by members of the American Institute of Decorators for exhibit at the Grand Rapids (Mich.) Furniture museum in 1951. The paper montage mural was Girard's own design; the furnishings, from Herman Miller

Traditional woods such as cherry, walnut and maple, usually associated with Early American and French Provincial designs, appeared in several contemporary lines which marked another new departure.

Of significant importance was the professional acceptance of blending traditional styles with current ones that were being created in the U.S. and Europe. When both are of fundamentally good design and used well together, the result is an interesting room characterized by great individuality.

In view of the Korean war, there was a trend away from combining strategic metals such as steel, copper and brass with wood, and manufacturers concentrated on new finishes and plastics to make their table tops stainproof and burnproof. In a great many of the 1951 furniture lines, metal hardware was completely eliminated, with wood drawer pulls or louvred drawers taking its place.

Fabrics followed the general trend to informality, and adaptations of authentic Provincial patterns in modern colourings were greatly in demand. Many of these designs were based on French Provincial motifs, while others took their inspiration from the early days of rural U.S. or from the American southwest. Damasks, antique satins and textures, interwoven with nontarnishable metallic threads, were foremost in the more formal styles. The year 1951 also witnessed a revival of fabric design of Italian Classic, Directoire and Greek origin. Shown in black or other dark colours on white grounds, they were used mainly in combination with elaborate wrought-iron furniture.

Sheer casement cloths that permit privacy and at the same time allow the daylight to filter through were noted in many new weaves and textures. Some of these were shown in all-cotton, sheer linen, rayon and cotton or cottons and combination weaves interwoven with washable metallic yarns. Nylon, orlon and other synthetics in both upholstery and drapery fabrics were much in evidence. In contemporary designs, the trend was to smaller patterns, and the earth tones, greens, browns and russets, were predominant.

Floor coverings kept pace with the furniture trend to informality, with designs leaning heavily toward casual patterns, long-wearing sturdy textures and small, unobtrusive abstracts. Colourwise, tones of green, beige, gray and cocoa were most in demand.

Because of the shortage and high price of raw wool, most of the manufacturers introduced carpeting in a combination of wool and carpet rayon or in all rayon. Textured cottons in wall-to-wall carpeting also made important news on the fashion front. Shown in a wide range of dark and light colours, the 1951 crop of cottons won well-deserved popularity in the moderate-price brackets. Available in sculptured patterns as well as pile effects, these cottons were claimed to be as long wearing as all wool. (*See* also FURNITURE INDUSTRY.) (G. M. J.)

International Bank for Reconstruction and Development.

The International Bank for Reconstruction and Development, established under articles of agreement drawn up at the Bretton Woods conference in 1944, began active operations in Washington, D.C., in June 1946.

During 1951 the bank continued to focus its attention on underdeveloped areas of the world both through its loans and through technical assistance. From the time of its inception to Dec. 7, 1951, 58 loans totalling $1,231,783,000 had been made in 24 of its 50 member countries. The year was marked by many new developments: For the first time some loans were made entirely in nondollar currencies; the bank participated with private investors in financing a development project; bank bonds were publicly offered and sold in European markets; a sizable loan was made for the development of an overseas territory of a member country; and various new techniques were employed in giving technical aid to member countries.

Lending Operations.—From Jan. 1, 1951, to Dec. 7, 1951, the bank made 17 loans amounting to $208,408,000. Where the government of a member country was not itself the borrower, it guaranteed the loan.

Iceland was the first borrower to receive a loan entirely in nondollar currencies. A loan consisting of European currencies amounting to the equivalent of £875,000 ($2,450,000) was made to help finance two hydroelectric power projects, which were expected to relieve the country's critical shortage of power. A loan of £360,000 ($1,008,000) was also made to further Iceland's program for increasing agricultural production by financing the import of materials to build or modernize farms and farm buildings and to improve grasslands.

Another nondollar loan amounting to the equivalent of $28,000,000 was made to Yugoslavia. It was expected to benefit all sectors of the economy by providing equipment for electric power distribution, coal mining, extraction and processing of nonferrous metals, manufacturing industries, use of forest resources, farm and fisheries production and transportation.

Two loans totalling $50,000,000 were made for development projects in South Africa. The sum of $30,000,000 was loaned to the Electricity Supply commission, an agency of the government of the Union of South Africa, for development of electric power; and the Union government borrowed $20,000,000 for the development of transport. The transport loan had particular significance in that it illustrated the bank's policy of co-operation with private investors. Simultaneously with the bank loan, private banks in the U.S. also extended a $10,000,000 credit to the Union government for transport purposes. The bank's loan and the private bank credit constituted, in effect, a single credit transaction.

Loans amounting to $70,000,000 were made to aid in carrying out the ten-year development plan of the Belgian Congo. A loan of $40,000,000 to the Congo was the first the bank made to an overseas territory of a member country. The loan would cover the foreign-exchange costs of capital goods needed for the development plan and of raw materials and consumer imports needed in the Congo as a result of higher employment resulting from the plan. At the same time the bank made a loan of $30,000,000 to Belgium to help finance imports of raw materials and consumer goods which the country needed as a result of its increased production of goods for the Congo.

The bank made a loan of $10,000,000 to Cassa per il Mezzogiorno to aid in the development of southern Italy. The dollars provided by the loan would make it possible for Italy to pay for additional dollar imports necessitated by the greater economic activity and employment resulting from the ten-year plan for development of southern Italy. The lira equivalent of the loan would be used to finance industrial projects related to the plan.

A loan of $1,500,000 was made to Ethiopia to improve telecommunications as an aid to production, commerce and government administration.

Two loans were made for development purposes in Colombia: $16,500,000 for highway construction and rehabilitation in order to provide the country with a continuous network of all-weather roads in good condition serving the more important business and agricultural centres; and $2,400,000 for the Lebrija hydroelectric power project to relieve the acute power shortage in Bucaramanga, one of the country's fastest-growing cities.

Nicaragua received three loans during the year: $3,500,000 for highway construction to improve communications between major centres of production, consumption and export and to open up new lands for cultivation; $1,200,000 for the purchase of agricultural machinery; and $550,000 for the construction of a grain-storage plant.

A loan of $1,300,000 was made for the exploration and use of underground water resources of the Rio Elqui valley in Chile. If the supply of water in northern Chile were increased, presently cultivated lands could be made more productive, and more land could be brought into production.

A loan of $5,000,000 was made to Paraguay to help increase agricultural production by providing equipment and supplies to improve cultivation methods and farm-to-market transportation.

The loan of $75,000,000 to the Brazilian Traction Light & Power Co., Ltd., made in 1949, was increased by $15,000,000, permitting the further expansion of electric power in Brazil.

Technical Assistance.—The bank continued to send general survey missions to member countries to assess their total economic resources, to determine the direction of development and to establish priorities among various development projects. Missions of this type went to Iraq, Ceylon and Surinam in 1951. The reports of previous survey missions—to Colombia, Turkey, Guatemala and Cuba—were published. During 1951 the Economic Development committee, a nonpartisan committee appointed by the Colombian government, made recommendations for a development program based on the recommendations of the bank mission. Committees were appointed in Guatemala and Turkey in order to carry out the recommendations of the bank missions.

During the year the bank increasingly interested itself in furnishing technical aid to its member countries. Various new methods were used to meet particular needs of individual countries. Among them were specialized missions to study and make recommendations on specific aspects of a country's development program; seminars in which representatives from member countries exchanged views with bank staff on specific problems; the assignment of bank officers to member countries for protracted periods as government advisers; and bank participation in institutes for training in techniques of development programming and project control.

Other Operations.—The bank's subscribed capital was increased to $8,438,500,000 by the admission of Sweden to membership in the bank on Aug. 31.

To augment its lending resources, the bank in 1951 sold its bonds in the financial markets of the United States, the United Kingdom and Switzerland in amounts equivalent to $175,634,671, bringing total borrowings to the equivalent of $436,222,222. The U.S. sales were $50,000,000 of 25-year 3% bonds and $100,000,000 of 30-year 3¼% bonds. The Swiss issue was 50,000,000 fr. ($11,634,671) 12-year 3½% bonds; the sterling issue was £5,000,000 ($14,000,000) 20-year 3½% stock. First full repayment of loans occurred during the year when loans totalling $5,000,000 to Yugoslavia and Finland were repaid. Total funds available to the bank, which had not been committed on loans, amounted to about $85,000,000 at the end of the year.

The bank's net income for the fiscal year ended June 30, 1951, was $15,156,947. This amount was allocated to a general reserve, increasing it to $42,155,217. Total reserves, including a statutory reserve to protect investors in the bank's market obligations, amounted to $62,280,965 on June 30, 1951. (*See* also BANKING; CUBA; INTERNATIONAL MONETARY FUND.)

(E. R. BL.)

International Children's Emergency Fund: *see* CHILD WELFARE.

International College of Surgeons: *see* SOCIETIES AND ASSOCIATIONS, U.S.

International Confederation of Free Trade Unions: *see* DEMOCRACY; LABOUR UNIONS.

International Court of Justice: *see* INTERNATIONAL LAW; UNITED NATIONS.

International Labour Organization.

The International Labour conference and the Migration conference, convened by the I.L.O., were the chief events of 1951.

The 34th session of the Labour conference met in Geneva, Switz., June 6–29, with 60 of its 65 member states represented. Delegates and advisers totalled 603, and included representatives of the United Nations and its other specialized agencies.

The report of the director-general gave the usual world-wide review of economic and social policies affecting labour and industry. The question of wage policy in conditions of full employment was emphasized and discussed by 109 speakers from 52 countries at 12 of the 26 plenary sessions. Many other topics were discussed, and there was general agreement that wages under full employment must permit raising living standards. The director in his reply said that some part of increased productivity should be reserved to reduce prices for those whose incomes were relatively stable in terms of money; also that I.L.O. legislative work, its technical assistance and operational activities must be kept at a high level in order to achieve the indirect as well as the direct benefits of the international labour code. Universality, implying universal service to undeveloped countries as well as to highly industrial ones, enabled the I.L.O. to make a positive contribution to world peace.

The conference voted a budget for 1952 of $6,224,922; elected the governing body for a three-year term; and adopted 2 new conventions, bringing the total to 100, and four new recommendations. Equal pay for women for work of equal value and minimum wage-fixing machinery for agricultural workers were the new conventions. Two of the recommendations were supplementary to the conventions, and two dealt with voluntary conciliation of industrial disputes and collective bargaining machinery, bringing the total of recommendations to 92.

The Migration conference met at Naples, It., Oct. 2–16, with less satisfactory results. The United Nations asked it to prepare a comprehensive plan for carrying on migration work after the International Refugee organization terminated its operations on Jan. 31, 1952. To discuss a modest, well-adapted plan was the chief reason for convening the Migration conference. The plan proposed moving 1,700,000 of Europe's excess population in the next five years. It suggested a migration administration within the framework of the I.L.O., under a migration council composed of the countries interested in immigration and emigration, who would contribute to a budget for this purpose.

The United States was expected to share largely in this contribution but unfortunately the only funds available from that source were the $10,000,000 for migration purposes provided by the Mutual Security act signed by Pres. Harry S. Truman on Oct. 17, 1951, and with the proviso that no funds should be made available to any international organization with Communist members. The I.L.O. had six Communist members, though none attended the Naples conference or was a member of the governing body or any other policy-making I.L.O. authority. Yet the U.S. delegates to the Migration conference were instructed to oppose the I.L.O. plan, and even abstained from voting, as did also Canada and Australia on the substitute plan adopted. This plan set up a consultative council on European migration to advise governments what to do.

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(S. McC. L.)

International Law.

The consequences of the conventional outlawry of aggressive war were subjected to much juristic comment during the year 1951, especially in connection with the Korean operations of the United Nations. It was pointed out that rapid decision by a competent international agency to distinguish the aggressor from the defender is essential and that this involves ready availability of the facts and also general criteria for determining aggression. Jurists emphasized particularly the necessity of confining the concept of aggression to the initiation of hostilities for objects other than necessary defense or international policing. If a government initiating hostilities is permitted to plead moral, political, economic, legal or other grievances as justification for its action, as was the case with the mediaeval distinction between just and unjust war, the determination of the aggressor becomes practically impossible. The International Law Commission of the United Nations, in a proposed code of offenses against the peace and security of mankind submitted to the general assembly in 1951, while declining to define aggression, declared that it includes "the employment by the authorities of a State of armed force against another State for any purpose other than national or collective self-defense or in pursuance of a decision or recommendation by a competent organ of the United Nations." This draft also included, among offenses against the peace and security of mankind, threat to resort to acts of aggression, preparation for such acts, incursion of armed bands acting for political purposes across national frontiers, encouragement by a government of activities calculated to foment civil strife or terrorism in another state, the toleration of such acts committed by individuals within its jurisdiction, violation of armament limitation obligations and illegal annexation of territory. While not characterized as aggression the commentary suggested that some of these acts might be included in that category. There was renewed interest among jurists in the law concerning the conduct of war. It was pointed out that even if hostilities originate in illegal aggression and, therefore, are not war in the sense of a state of hostility in which the belligerents have an equal status under international law, this by no means implies that limitations on the conduct of hostilities in the interest of humanity are unimportant. The United Nations, for example, recognized that the hostilities it was conducting in Korea were limited by rules of war even though in a legal sense these hostilities were not war. The Geneva conventions of 1949, in extending the guarantees of previous Geneva conventions in respect to prisoners of war, the sick and wounded and Red Cross agencies, and in providing new guarantees for civilians in belligerent countries, accepted this position. It was clear that detailed reconsideration of the rules of war and neutrality were called for. The rights of humanity to be observed by all belligerents, whether in legal war, in operations of collective security or in civil strife should be distinguished from the powers of lawful belligerents, such as maritime capture, occupation of enemy territory and confiscation of enemy property, which might be denied to aggressors and other unlawful belligerents. Furthermore, the changing technology of war and the extension of the concept of reprisals, which were invoked to justify departure from traditional rules, doubtless required that the rules be adjusted to a new balance between military necessities and humanitarian considerations (J. Kunz, *American Journal of International Law,* vol. 45, p. 37).

The problem of regulating hostilities was also involved in proposals for limitation of armament. Official discussion of this topic was renewed in the general assembly in 1951 by a broadcast by Pres. Harry S. Truman and presentation of a detailed project by the United States, Great Britain and France. The latter proposed unified consideration of atomic and conventional armaments and progressive restrictions as systems of inspection and control were established. This project was accepted as a basis for further discussion in a resolution of the assembly. The Soviet Union voted against this proposal and presented a counterproposal looking toward extensive prohibitions of the use and manufacture of atomic weapons, and limitation of other armaments to be followed by the establishment of inspection systems.

The Individual and International Law.—The United Nations charter in demanding respect for human rights and fundamental freedom, and the Nuremberg charter in providing for the punishment of offenses against peace, humanity and the law of war, implied that in principle the individual was a subject of international law with rights and duties defined by that law, irrespective of the law of his own state. The action of the general assembly in proclaiming the Universal Declaration of Human Rights and a convention defining the crime of genocide in Dec. 1948, and the action of the International Law commission in submitting to the general assembly in 1951 a draft code of offenses against the peace and security of mankind were steps toward implementing this concept. The critical problem in making the individual a subject of international law concerns his capacity, irrespective of his state, to initiate an international procedure to protect his human rights, and the capacity of an international authority, irrespective of the attitude of any state, to initiate prosecutions of individuals accused of international crimes. In the solution of these problems progress was slow. There was still at the close of 1951 a considerable opinion which believed the state should be the only subject of international law.

The proposed Covenant of Human Rights as submitted by the Human Rights commission to the Economic and Social council which transmitted it to the general assembly in 1951, though defining many of these rights and obliging parties to the covenant to respect them, did not give the right of petition to individuals or nongovernmental agencies, nor did it provide an international court with competence to declare national action violative of human rights null and void. Such provisions were indeed proposed to the Council of Europe, but the Convention for the Protection of Human Rights and Fundamental Freedom, signed at Rome, It., in Nov. 1950 under the auspices of that council, did not provide automatically for individual petition to a European commission nor for consideration of cases by the European Court of Human Rights. These procedures were, however, provided in optional clauses applicable to states which accepted them. The declaration concerning human rights approved at the Bogotá (Colom.) International Conference of American States in 1948 also left implementation to the states themselves.

While national courts sometimes apply international standards of human rights, especially when incorporated in treaties (*Fujii* v. *California,* 217 Pac. [2nd] 481), they are more likely to be guided by standards of national law. The United States circuit court of appeals applied the latter standards in a claim of a Puerto Rican to be exempted from the draft on the ground, among others, that military conscription was contrary to the rights assured to peoples of nonself-governing territories by article 73 of the United Nations charter. In denying the application, the court expressed the opinion that the armed forces of the United States were necessary for the protection of Puerto Rico as well as continental United States and consequently it was not unjust to expect the Puerto Ricans to contribute to that effort. (*Ruiz Alicea* v. *U.S.,* 180 Fed. [2nd] 870.)

There was also hesitancy to establish a direct responsibility of the individual to the world community in the field of international crime. The Genocide convention, though alluding to the possibility of an international criminal court, only requires states to punish the offense in the exercise of their own jurisdiction. A special conference which met at Geneva in Aug. 1951 under the auspices of the United Nations did, however, draw up a convention for the establishment of an international criminal court. The jurisdiction of this court over a particular offense was, however, contingent upon consent of the state of which the accused was a national, the state in whose territory the crime was committed and the state in which the accused was seeking asylum. This draft was submitted to the states for consideration by the general assembly in 1952.

Economic and Social Objectives.—The development of international law to meet the demands for higher economic standards, especially in underdeveloped areas, proceeded through the specialized agencies of the United Nations and through recommendations of the Trusteeship council and of the general assembly concerning nonself-governing territories and technical aid to underdeveloped areas. A demand for the formulation and acceptance of broad principles in this field through the incorporation of economic and social rights in the Covenant of Human Rights was pressed by the soviet group of states and, in lesser degree, by underdeveloped states. This movement was resisted by the United States and in lesser degree by the states of western Europe on the ground that social and economic rights can not be implemented by the same methods as other human rights. Civil liberties are susceptible of judicial application, but social and economic progress involves the development of practical institutions and the making of appropriations to facilitate action of the type undertaken by national, educational and social security systems and by the specialized agencies of the United Nations. Both types of rights were included in the Universal Declaration of Human Rights but the Human Rights commission proposed that the Covenant of Human Rights should exclude the economic and social rights. The general assembly in 1950 asked for reconsideration of this decision. The covenant presented to the Economic and Social council and to the general assembly in 1951 by the commission included both types of rights but with such diverse obligation in respect to implementation that it amounted in effect to two conventions.

The Recognition of States and Governments.—The issue of "What is a state?" is to be distinguished from the issue of "What is the government of a state?" The latter issue continued to occupy the attention of the United Nations during 1951 in connection with China. The general assembly rejected efforts to establish criteria for deciding between contending governments, leaving the matter to the political judgment of the general assembly, giving due consideration to the purposes and principles of the charter. It continued to recognize the national government in Formosa as the representative of China. However, it conducted negotiations for an armistice in Korea with the government of the People's Republic of China.

Debate on the legal status of Germany continued among jurists, though the admission of the Federal Republic of Germany to the Food and Agricultural organization appeared to amount to a recognition that it was a state for United Nations purposes. The United States terminated the state of war with Germany on Oct. 24, 1951, by presidential proclamation based upon a congressional resolution, and the western allies proceeded with the negotiation of contracts to convert the warlike occupation into a peaceful military assistance. Jurists expressed differing opinions on the status of Germany from the time of its unconditional surrender in May 1945 to the recognition of the statehood of the federal republic in 1951. Discussion of the topic during the year suggested general acceptance of the opinion that Germany continued as a state during this period, but with its sovereignty vested temporarily in the four powers to which it had surrendered unconditionally. These powers operating, at first actually and later theoretically, through the Control council constituted the government of Germany. This government was justified in exercising powers far beyond those of a military occupant because the powers' "completed conquest" of Germany established a situation in which their occupation was no longer precarious and consequently, apart from such limitations as might be deduced from the Kellogg-Briand pact and the Atlantic charter, they would have been free to declare its annexation. They could, therefore, take the lesser step, as they did on June 5, 1945, of declaring that they would for the time exercise German sovereignty but not annex the country. The subsequent disagreement of the Soviet Union and the western allies resulted in the *de facto* transfer of German sovereignty to rival governments in east and west Germany, the latter being recognized as the government of Germany by the United Nations.

Privileges and Immunities of Governments.—A number of national court cases during the year clarified the law concerning diplomatic and consular immunities, and the opinion of the International Court of Justice in the case concerning asylum given by the Colombian embassy in Peru to Haya de la Torre threw some light on this problem. In its third judgment in this case handed down in June 1951 the court held that Colombia was not obliged to surrender the refugee but that his asylum should terminate. Reconciliation of these apparently inconsistent conclusions was to be sought by diplomacy which presumably might result in an agreement by which Haya de la Torre could leave the country under Colombian auspices or by which Peru might withdraw its charges against him (I.C.J. *Reports*, 1951, 71).

Procedures of International Legislation.—The United Nations had increasingly utilized the general assembly as an agency of international legislation through its drafting of general treaties or passing resolutions, and in their respective technical fields similar action proceeded in the technical agencies of the United Nations. The process of developing international law and adapting it to changed conditions was, however, greatly assisted by the activities of private international organizations such as the Institute of International Law which met at Bath, Eng., in Sept. 1950, and the International Law association which met at Copenhagen, Den., in Aug. 1950. National associations such as the American Society of International Law which met in Washington, D.C., in April 1951 and the writings of individual jurists also contributed to this process although binding rules of law are contingent upon the express or tacit consent of the states to be bound. The Human Rights commission of the United Nations had prime responsibility for developing international law in this field, and submitted a draft Covenant of Human Rights to the general assembly. Its work led to special conferences which drafted conventions on freedom of communications.

The most important instrument in this process, however, was the International Law commission of the United Nations which functioned under the authority of the general assembly both to codify and to develop international law. This commission submitted to the general assembly in 1951 draft articles on offenses against the peace and security of mankind, and on the continental shelf and related subjects. It also codified the Nuremberg principles and made reports on the sources of customary international law, the regime of the high seas and reservations to multilateral treaties. Its discussions of an international criminal court led to a conference in Geneva in Aug. 1951, which submitted a draft on this subject to be considered by the states and eventually by the general assembly. It had subcommittees at work on the law of treaties and the law of arbitral procedure. It initiated studies on the law of the nationality and statelessness, and the regime of territorial waters.

An important problem connected with the conclusion of general treaties of international legislation was the problem of reservations. The International Court of Justice gave an advisory opinion at the request of the general assembly to the effect that states making reservations to the Genocide convention were to be considered parties if their reservations were compatible with the object and purpose of the convention. Any other party to the treaty could, however, if it thought that a reservation was incompatible with that object and purpose, consider that the reserving state was not a party to the convention. The International Law commission thought this conclusion too vague for general application and proposed more definite rules on the subject.

Limitation of the use of reservations and the tendency of the general assembly to develop international law by resolutions tended to mitigate the influence of the veto which had hampered progress in international legislation. Furthermore, the tendency of the International Court of Justice and of the organs of the United Nations to interpret legal provisions, especially those of the charter, "effectively" rather than "restrictively" facilitated the adaptation of international law to changing conditions.

Procedures of International Adjudication.—The International Court of Justice dealt with an unusual number of cases during the year 1951. Especially important was its order enjoining action by Iran which would deteriorate the position of the Anglo-Iranian Oil company while the case of Great Britain in behalf of the company opposing Iranian nationalization was pending. The Iranian government ignored the order, claiming it encroached upon its domestic jurisdiction. Other world court opinions given during the year concerned reservations to the Genocide convention and the asylum given to Haya de la Torre by the Colombian embassy in Peru (*see* above). At the end of the year four cases were pending: the Ambatielos case between Greece and the United Kingdom, the case concerning rights of United States nationals in Morocco, the Anglo-Iranian Oil company case, and the Anglo-Norwegian fisheries case.

Regional Differences in International Law.—The modern system of international law, although it originated as the law of the community of Christian states of Europe in the 16th century, expanded throughout the world by a process involving the recognition by the original members of non-European and non-Christian states as members of the international community. By the beginning of the 20th century international law had come to be considered a universal system. There were claims by some United States jurists of a special American international law and some jurists detected a difference between interpretations of international law by common law countries and civil law countries. Some German jurists asserted novel principles during the regime of the Nazis. More serious attacks upon the universality of international law arose because of the peculiar positions taken by the Soviet Union and its satellites. They tended to reject obligations of international law except insofar as included in treaties to which they were parties. They also sought to relate the principles of international law which bind them to Marxist theory and to distinguish these principles from the "imperialistic" international law which they asserted was practised by other states. Jurists of non-soviet states, on the other hand, tended to interpret Communist international law as a flexible body of doctrine utilized as propaganda to forward policies at the moment pursued by the Soviet Union. This differentiation was made manifest by letters from two leading soviet jurists, R. Trainin and E. Korovin, who, declaring themselves supporters of "the Soviet conception of international law," resigned from the American Society of International Law on the ground that through its journal it supported incompatible principles (*American Journal of International Law,* vol. 45, p. 779).

These developments led western jurists to raise the question whether international law might not cease to be a universal system (K. Wilk, *American Journal of International Law,* vol. 45, p. 648). Undoubtedly, division of the community of nations by the "iron curtain" militated against the development of a universal society and a universal law. Nevertheless the Soviet Union and some of its satellites continued to be members of the United Nations and to appeal to the principles of the charter and, on occasion, to those of general international law both in diplomatic discussions and in the organs of the United Nations. The principle of the sovereign equality of states was regarded as the foundation of universal international law and was also stated to be the basic principle of the United Nations to which the Soviet Union subscribed. It appeared, therefore, in principle that international law continued as a universal system. (*See* also TRUST TERRITORIES; UNITED NATIONS.) (Q. W.)

International Monetary Fund.

During 1951 the International Monetary fund carried forward its work in the field of international consultation and co-operation on the monetary and exchange problems of its 50 member countries. The fund conferred with its members on questions of exchange rates, multiple currency practices, exchange restrictions and discrimination and international transactions in gold. It devoted its attention to general problems such as inflationary pressures in its member countries and the use of the fund's resources to help member countries in achieving the fund's objectives. The fund continued and extended its program of technical assistance to its members through staff missions and studies. It also continued its program of collecting and analyzing statistical information on international trade and payments and monetary reserves, and conducted training programs for officials of central banks and ministries of finance on the work of the fund, balance of payments techniques and on general monetary and economic problems. Close contacts and working relations were maintained with the International Bank for Reconstruction and Development, the contracting parties to the General Agreement on Tariffs and Trade (to which the fund served as financial adviser), the Economic and Social council of the United Nations, and the United Nations economic commissions for Asia and the far east, for Latin America and for Europe.

Admission of Sweden in Aug. 1951 brought the fund's membership to 50 countries and members' quotas to a total of $8,136,000,000. Major asset items consisted of approximately $1,529,000,000 in gold, $5,732,000,000 in members' currencies and $859,000,000 in capital receivable from members whose par values had not yet been established.

As of Jan. 1, 1951, the par values expressed in gold and U.S. dollars had been established for the currencies of 37 of the fund's members. This number increased during the year as a result of the establishment with the fund of initial par values for the Pakistani rupee (March 19), the Finnish markka (June 27) and the Swedish krona (Nov. 5). The executive board concurred in a devaluation of the Paraguayan guaraní (March 5), accompanied by measures to simplify the country's exchange system. Approval was given (March 20) to a proposal by the government of Colombia to reduce restrictions on imports and to establish a new buying rate to apply to all exchange receipts except those from coffee exports. Later there was agreement to a plan for unifying the exchange structure by gradually bringing the coffee rate, too, into line.

The fund continued to send missions of staff officials to its member countries and to provide individual consultants for members seeking special technical advice for longer periods. Among the countries which it was able to serve in this way during 1951 were Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Greece, Iceland, Panamá, Paraguay, the Republic of the Philippines and Yugoslavia. In response to a request from the United Nations, staff officials were also made available for studies of Libya's currency, banking and financial problems.

From the start of fund operations in March 1947 through Dec. 14, 1951, 20 member countries had obtained short-term financial assistance by purchasing foreign exchange from the fund with corresponding amounts of their own currencies. These transactions reached a total of $814,000,000 on Nov. 13, when the government of Iran arranged to purchase U.S. $8,750,000 against Iranian rials. The government of Brazil purchased 10,000,000 British pounds sterling on Jan. 9, 1951, in exchange for cruzeiros. The following countries repurchased amounts of their own currencies from the fund during 1951 with payments of gold or dollars or both: South Africa $9,985,000; Ethiopia $300,000; Mexico $22,498,000; Chile $3,434,000; Lebanon $855,800; and Norway $9,560,948. With these payments, repurchases totalled $80,650,000.

The fund's board of governors held its sixth annual meeting in Washington, D.C., Sept. 10–14, 1951. At that time the executive board, in reporting on the fund's activities, noted that development of policy on use of the fund's resources had been affected by the distorted and confused postwar payments situation. It outlined, however, a program under which the fund's resources might be made available to members willing to undertake agreed, practical programs to make more rapid and significant progress toward the achievement of the fund's objectives, which included the achievement of monetary stability, the adoption of realistic rates of exchange, the relaxation and removal of restrictions and discrimination and the simplification of multiple currency practices.

In urging reduction of exchange restrictions and discrimination wherever possible, the board pointed out that the fund would soon begin a new period of work in this field. It referred to provisions in the articles of agreement under which members still retaining such restrictions should consult the fund in March 1952 and each year thereafter as to their further retention.

The fund's views on international gold sales at premium prices were first expressed in a policy statement sent to members in June 1947, when the executive board held that these transactions diverted gold from central monetary reserves into private hoards and tended to undermine exchange stability. In a statement published in March 1951, the board said gold sales at prices above the official $35 an ounce appeared to be increasing. The staff was directed to consult with the members concerned and suggest corrective measures. After receiving the staff's report, the board concluded that it was impracticable to expect all members to take uniform measures to achieve the objectives of the fund's premium gold policy. The fund reaffirmed its belief in the principles involved and urged members to support them, but added in its decision of Sept. 28 that it would leave to its members the practical operating decisions involved in their implementation.

A new schedule of charges on the fund's currency transactions was adopted in November for use during the period from Dec. 1, 1951, to Dec. 31, 1952. Its continuance thereafter would depend on further decision of the executive board. Charges for longer term transactions were raised and those for shorter terms lowered, the purpose being to make it more expensive for members to make extended use of the fund's resources and to encourage use for short periods.

On April 10, 1951, the executive board announced the appointment of a new managing director, Ivar Rooth, head of the Central Bank of Sweden (Sveriges Riksbank) from 1929 to 1948. He assumed his new duties on Aug. 3, 1951, succeeding Camille Gutt of Belgium, the fund's first managing director, who served a full five-year term from May 6, 1946, to May 5, 1951. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; LAW; TRUST TERRITORIES; UNITED NATIONS.) (A. N. O.)

International Red Cross: *see* RED CROSS.
International Refugee Organization: *see* REFUGEES.

International Trade.

The value of world exports in the first half of 1951 rose to approximately $77,000,000,000 at an annual rate. This was about a 35% increase over the value of exports in 1950 when they totalled $56,000,000,000. Because of substantially higher prices for many commodities, the volume of world trade did not rise nearly so sharply, but there probably was an increase in volume of from 10%–15% in the first half of 1951 over the preceding year.

As the war in Korea continued throughout 1951, the North Atlantic Treaty organization increased its efforts to build western Europe's defenses, and many other nations began to strengthen their programs for defense. All countries tried to replenish depleted stock piles against an emergency. A wide demand was created in world markets for grain, fibres and textiles, and for all kinds of metals, metal manufactures and machinery. Prices of many strategic raw materials, which had already risen sharply in 1950, continued to increase in the first quarter of the year, and then declined toward more reasonable levels. The latter part of 1951 saw new price increases, although rarely to the levels of earlier in the year.

The progress which had been achieved toward a dollar balance between the United States and the rest of the world was inevitably stopped, as the United States increased its exports at a much faster rate than its imports. Based on the first ten months of the year, the United States trade surplus was running at approximately $3,300,000,000, compared with $1,300,000,000 in 1950. United States military and economic assistance together with U.S. capital investment enabled other countries to increase their gold reserves between June 30, 1950, and March 31, 1951, by an estimated $3,000,000,000. On the latter date, they stood at $19,630,000,000, or at about the same level as in June 1945.

Restrictions on world trade tended to increase as export and import controls were reintroduced or extended. The tense international situation was responsible for expanded controls by many of the free nations on trade in strategic commodities with the soviet bloc. The volume of trade between the free world and the soviet bloc declined significantly during 1951. United States trade with China was completely cut off, following a presidential order issued at the end of 1950. Some nations, including Canada, western Germany and Pakistan, relaxed certain import restrictions, but others felt compelled to tighten controls over less essential imports. The closing months of the year brought a serious decline in the gold and dollar reserves of the United Kingdom and a new government program was instituted to reduce imports.

The negotiations at Torquay, Eng., on tariff reductions under the auspices of the General Agreement on Tariffs and Trade, which were begun in Sept. 1950, ended in a new agreement between the participants in the late spring, and provided for certain new reductions in tariff barriers. (*See* also TARIFFS.)

United States.—United States trade values in the first nine months of 1951 continued the upward trend which had characterized them in the last half of 1950. International tensions stimulated demands for larger exports from the United States, particularly by western European nations, and also greatly increased U.S. imports of certain types of goods. These demands led to substantial price rises for many commodities.

Table I.—*Geographic Distribution of United States Foreign Trade*

(Value in millions of dollars)

Country	Total exports* Jan.–Sept. 1950	Total exports* Jan.–Sept. 1951	General imports Jan.–Sept. 1950	General imports Jan.–Sept. 1951
Total	7,326.5	11,037.7	6,207.7	8,503.5
Canada	1,412.5	1,984.7	1,385.7	1,666.3
Japan	303.1	442.1	122.9	160.6
Latin-American republics, total	1,928.5	2,772.6	2,148.2	2,570.9
Brazil	224.0	495.1	500.7	651.6
Colombia	172.8	173.8	231.2	256.6
Cuba	322.9	406.7	324.7	337.1
Mexico	351.4	523.8	221.7	240.4
Venezuela	281.8	348.6	245.1	240.9
ERP countries and dependencies, total†	2,559.4	3,901.6	1,368.4	2,289.1
Belgium and Luxembourg	193.8	252.9	88.2	171.9
France	233.4	304.6	75.3	219.1
Germany	327.6	371.8	58.1	178.4
Italy	257.9	352.7	66.8	105.7
United Kingdom	355.9	599.4	220.5	357.3
Sterling area, total†	919.9	1,474.4	1,100.9	1,784.7
India	160.6	272.5	188.3	241.5
Australia	72.2	111.8	98.7	302.2
Malaya	13.7	44.0	198.9	353.8

*Grand total and group totals include "special category" exports; country figures exclude them.

†Total includes United Kingdom and dependencies and Ireland.

Total United States exports between Jan. 1951 and Sept. 1951 were $11,037,700,000, approximately a 50% increase over the comparable period of 1950. In terms of volume it was estimated that exports of United States merchandise were about 30% greater than in 1950.

United States general imports likewise showed substantial increases in value, rising in the nine months of 1950 and 1951 from $6,207,700,000 to $8,503,500,000, or about 35%. This rise in value was almost entirely accounted for by increases in the prices of imported goods. The index of the quantity of goods imported for consumption rose only about 3%.

The countries in the western hemisphere received about 45% of the total United States exports in Jan.–Sept. 1951, a slightly smaller percentage than in the first nine months of 1950. The countries participating in the European Recovery program and their dependencies took about one-third of U.S. exports, or nearly $4,000,000,000, compared with $2,600,000,000 in Jan.–Sept. 1950.

The western hemisphere was the source of 50% of United States imports in the first nine months of 1951, a little less than in Jan.–Sept. 1950. ERP countries and their dependencies were supplying the United States with 5% more of its imports in 1951 than in 1950. About 27% came from these countries in Jan.–Sept. 1951.

In 1950 the values of U.S. imports and exports were more nearly in balance than in any year since 1940. In the second quarter of 1951 the trend toward a balanced United States trade reversed itself and, by the end of the third quarter, exports had already exceeded imports by $2,500,000,000. The only major area which was selling to the United States more than it was buying was the sterling area. In the first nine months of 1951, sterling area net dollar earnings from trade were $310,000,000.

Table II.—*Selected Principal Commodities Traded by the United States, in Quantity*

Commodity	Unit of quantity	Jan.–Sept. 1950	Jan.–Sept. 1951
Principal exports			
Wheat and wheat flour	thousand bu.	189,666	368,177
Raw cotton	million lb.	2,303	1,385
Cotton cloth	million sq.yd.	410	607
Coal and related products	thousand short tons	21,114	45,053
Iron and steel mill products	thousand short tons	2,499	2,701
Motor trucks	number	95,553	162,447
Passenger cars	number	85,369	182,327
Principal imports			
Cocoa or cocoa beans	million lb.	536	526
Coffee	million lb.	1,850	1,943
Cane sugar	million lb.	6,117	6,053
Crude rubber	million lb.	1,303	1,288
Jute burlaps	million lb.	320	265
Wool, unmanufactured (clean basis)	million lb.	383	301
Sawmill products	million bd.ft.	2,538	1,906
Newsprint	million lb.	7,222	7,323
Iron and steel mill products (excluding scrap)	thousand short tons	898	2,756
Copper	million lb.	899	836
Ethyl alcohol	thousand gal.	5,964	110,615

Canada.—Canada's foreign trade reached new high levels during the first nine months of 1951. Total imports for Jan.–Sept. 1951 were $3,142,000,000 (in terms of Canadian dollars, used throughout this section) and exceeded exports and re-exports by $324,000,000. This was a reversal of the 1950 trade picture when exports for the year slightly exceeded imports. Canada's trade imbalance with the United States for the nine-month period rose to $430,000,000, or nearly six times the 1950 nine-month figure of $71,000,000, but this was little more than half the record $718,000,000 accumulated during the first nine months of 1947. Large United States investments in Canadian industry and United States government defense and military expenditures in Canada more or less offset the trade account drain on foreign exchange reserves.

Canada's other principal trading partner, the United Kingdom, increased the magnitude of its imbalance during 1951. The nine months' excess of Canadian exports to the United Kingdom over its imports was $112,000,000 compared with $56,000,000 for Jan.–Sept. 1950. Canada's exports to Britain were still limited to such essential commodities as wheat, metals, iron ore and lumber. Despite Britain's economic crisis toward the end of 1951, the Canadian government expressed confidence that these traditional exports would be maintained.

JAPANESE COTTON MILL worker watching for breaks in the thread on a warping machine. Cotton goods, manufactured with low-wage labour, were a leading Japanese export in 1951

Official reserves of gold and United States dollars had declined somewhat from their high levels of a year earlier but were still large at U.S. $1,610,000,000 on Sept. 30, 1951. The Canadian dollar, which in the autumn of 1950 was freed from a pegged relationship to the United States dollar, fluctuated at around 95 cents in terms of United States currency, and, at certain times late in 1951, was quoted on the New York market at only a fraction of a cent below par with the U.S. dollar.

Canada's commodity imports from Europe (excluding the United Kingdom) doubled during Jan.–Sept. 1951 over the same period a year before, rising from $68,000,000 to $130,000,000. Exports to Europe, however, rose by 80% this period, so that the favourable trade balance for Canada with continental Europe was more than $100,000,000.

Latin America.—The foreign trade of the Latin-American republics continued to show a surplus in the first six months of 1951 of about $1,000,000,000 at an annual rate. The value of both exports and imports increased, but imports rose somewhat more rapidly so that the favourable trade balance was less than in 1950. Prices of major export commodities from this area, which began to rise after the start of the Korean war, continued at high levels as world demand remained strong. Cacao, coffee, sugar, cotton and copper prices were at record postwar levels.

Latin-American imports from the United States in the first six months of 1951 rose by 46% from the level of January-June 1950. Purchases by one of the largest markets of the group, Brazil, were more than twice as great in 1951, as were those of the smaller markets of Chile and Uruguay. Leading imports into Latin America from the United States showed the following in-

Table III.—*Percentage Distribution of Latin-American Imports from Selected Areas*

Source of imports		Latin-American dollar area* (per cent)	Latin-American nondollar area† (per cent)	Total Latin America (per cent)
Sterling area	1948	5.5	16.5	11.3
	1950	5.5	16.1	10.6
Western Europe	1948	7.6	24.8	16.6
	1950	11.1	32.1	21.2
United States	1948	78.6	38.9	57.8
	1950	75.4	27.6	52.5
Latin America	1948	5.0	15.4	10.4
	1950	3.4	17.7	10.2
Rest of world	1948	3.3	4.4	3.9
	1950	4.6	6.5	5.5

*Central American republics, Colombia, Ecuador, Bolivia, Mexico, Venezuela.
†Argentina, Brazil, Chile, Paraguay, Peru, Uruguay.

creases in value between the periods January–June 1950 and January–June 1951: machinery 47%; automobiles and parts 122%; chemicals 59%; and iron and steel mill products 39%.

United States imports from these countries in January–June 1951 showed widely varying rates of increase from the like period in 1950. United States imports of coffee from Brazil in January–June 1951 totalled 741,000,000 lb. compared with 498,000,000 lb. in six months of 1950. United States imports from Argentina increased by 62%, while those from Venezuela were up only 4%.

Incomplete data for the early months of 1951 indicated that the trend, already noted in 1950, for western Europe to become a more important supplier for the Latin-American countries was continuing, primarily at the expense of the United States. This represented a return toward a pre-World War II pattern of trade. Latin-American imports from the Federal Republic of Germany rose spectacularly from early 1950, increasing from $44,000,000 in January–June 1950 to $162,000,000 in January–June 1951. This change in trade patterns was more marked in the case of Latin-American countries which were not included in the dollar area and with whom European countries did not need to make settlements in dollars.

Western Europe.—Both the value and volume of the combined foreign trade of the western European countries comprising the Organization for European Economic Cooperation (O.E.E.C.) rose to record levels in the first seven months of 1951. The value of exports averaged $2,200,000,000 per month compared with $1,644,000,000 per month in 1950. The value of imports was about $2,800,000,000 per month in those months of 1951 compared with $2,013,000,000 on the average per month in 1950. These export value figures for 1951 represented an export volume 50% above the pre-World War II level and about 12% above the average 1950 export level. Imports were still being kept down by controls, but the volume of goods imported by the group as a whole rose during the first seven months of 1951 to 14% above prewar. This represented an increase in volume of about 6% above the 1950 average.

Table IV.—*Foreign Trade of O.E.E.C. Member Countries*

(In millions of U.S. dollars)

	Imports			Exports		
Country	1949	1950	Est. 1951*	1949	1950	Est. 1951*
Total of member countries	24,836	24,209	33,440	18,822	19,736	26,297
United Kingdom . . .	8,426	7,285	10,899	6,826	6,311	7,441
Iceland.	59	35	52	40	28	37
Ireland	479	447	560	221	203	196
Austria	594	483	639	286	326	437
Belgium-Luxembourg .	1,798	1,937	2,488	1,765	1,641	2,588
Denmark	800	849	1,013	658	652	784
France	3,278	3,065	4,456	2,711	3,065	4,147
Federal Republic of Germany. . . .	2,237	2,704	3,457	1,123	1,981	3,352
Greece.	410	428	405	115	93	88
Italy	1,498	1,442	2,123	1,107	1,199	1,575
Netherlands	1,828	2,037	2,616	1,289	1,390	1,841
Norway	770	674	844	394	389	584
Portugal	349	272	320	156	183	251
Sweden	1,103	1,178	1,781	1,073	1,102	1,644
Switzerland	882	1,049	1,372	804	905	1,047
Trieste	38	41	48	8	8	13
Turkey	288	283	367	246	261	272

*Based on January-September trade.

About three-fifths of western Europe's exports moved to countries within the O.E.E.C. during the months of 1951 for which data were available at the close of the year. Of the remainder, approximately 7% was sent to the United States and 7% to Latin America. A larger percentage of the O.E.E.C. countries' imports came from nonparticipating countries. A little over half represented intra-European (O.E.E.C.) trade, and about 48% came from other areas. The United States was the source of 12% of western Europe's supplies in January–July 1951, a slightly smaller percentage than in 1950.

There were many variations in the positions of individual countries. Between April and September 1951, western German exports rose above the value of its imports for the first time since World War II. However, a liberalization of import quotas by the Federal Republic of Germany caused a sharp rise in imports in September, and the favourable balance was reversed. Western German exports made great strides upward during 1951, however, and by the middle of the year were more than 40% above prewar in volume, compared with an average of 10% below prewar in 1950. The foreign trade of France which was in balance in 1950 showed a small excess of imports over exports in the first eight months of 1951, as France built up its defense program. Belgian exports in 1951 continued to rise steadily over those of 1950, especially to other O.E.E.C. participants. They were not compensated for by imports, so that Belgium built up a substantial trade surplus during the second and third quarters of 1951. The trade position of the Netherlands and Norway tended to improve in the latter part of 1951; increased exports and reduced imports brought about reductions in their trade deficits.

Changes in the patterns of trade among the O.E.E.C. partners and with the rest of the world combined with capital movements and payments for invisibles to bring about considerable adjustment during 1951 in gold and dollar holdings and in European Payments union (E.P.U.) holdings. By the end of the third quarter of 1951 persistent surpluses had exhausted Belgium's quota and had almost exhausted the Italian quota in the E.P.U. France showed a substantial continuing deficit, but Germany's surpluses in the second and third quarters reduced that country's deficit in the E.P.U. substantially.

Gold and dollar holdings of the participating countries at the end of Sept. 1951 totalled $7,600,000,000, which was about $900,000,000 above Sept. 1950 and almost $2,600,000,000 above Sept. 1949. (*See* EUROPEAN RECOVERY PROGRAM.)

United Kingdom.—A sharp deterioration in the terms of trade of the United Kingdom during the first nine months of 1951 helped to bring on a third serious post-World War II financial crisis. The value of total imports for Jan.–Sept. 1951, at £2,919,000,000, was 53% above the average for the same period of 1950. Against this, United Kingdom exports, at £1,896,000,000, increased by only 21% between January and September. This left an excess of exports over imports of £1,023,000,000, compared with £341,000,000 in Jan.–Sept. 1950, to be paid for by other earnings and withdrawals from reserves. The large increase in import values represented only a 14% increase in the volume. The remainder was accounted for by higher prices. Prices of raw materials imported by the United Kingdom increased by nearly 90% between June 1950 and June 1951. These increases were primarily responsible for the fact that the index of total import prices in June 1951 was 43% higher than the average for 1950. The export price index for June was 20% above the 1950 average.

In an effort to improve Britain's economic position, the chancellor of the exchequer announced in Nov. 1951 that certain measures were to be taken which would effect savings of £350,000,000 on external payments. Chief among these measures were new import restrictions, tightening controls over certain commodities, particularly unrationed food and semiluxury items. The principal countries concerned by this action were O.E.E.C. countries, their dependencies and other nonsterling areas. These measures were instituted to reduce the loss of gold reserves through further substantial deficits in the European Payments union such as occurred in the third quarter of 1951.

Britain's unfavourable balance of trade with the O.E.E.C. countries and their dependencies, which in 1950 averaged about £5,500,000 per month, was running in the first nine months of 1951 at £26,800,000 per month. As a result of the continued dollar drive, exports to the United States and Canada were increasing and reached in Jan.–Sept. 1951 an annual rate 19% higher than in 1950. Imports from North America, however, were rising even faster. Britain's trade deficit with the entire western hemisphere rose from £19,000,000 per month in 1950 to about £40,000,000 monthly in the January–September period of 1951. Britain's trade with the rest of the sterling area, which in 1950 showed a surplus of about £5,000,000 per month, changed in the first nine months of 1951 to a monthly average deficit of nearly £14,000,000.

Near East.—Incomplete data for the first half of 1951 indicated that the value of trade for countries in the near east was expanding.

Egypt's trade increased steadily in value through the first three quarters of 1951. The world shortage of cotton, which accounts for 85% of Egypt's export trade, brought increased demand for that Egyptian product. Israel's imports in the first six months of 1951 showed little change from their 1950 level, but the value of exports increased about one-third. Nevertheless, strict controls over imports continued to be maintained because collections available from abroad declined from levels of earlier years. Turkey's exports rose sharply in the last quarter of 1950 and the first quarter of 1951, while imports also rose, but only slightly, leaving Turkey with a favourable trade balance. After the dissolution of the customs union between Syria and Lebanon in March 1950, these countries established trade restrictions, but each remained the major trading partner of the other. Both countries independently withdrew from the General Agreement on Tariffs and Trade in 1951 in order to have complete freedom of action to negotiate trade agreements.

Table V.—*Value of United Kingdom Overseas Trade*

(In millions of pounds sterling)

	Imports			Exports		
		Jan.–Sept.			Jan.–Sept.	
Commodity	1949	1950	1951	1949	1950	1951
Total.	1,686.6	1,907.9	2,919.1	1,315.6	1,566.8	1,896.2
Food, drink and tobacco, total	706.5	758.4	977.8	67.3	94.2	119.5
Grain and flour	138.8	121.4	190.3	1.8	2.5	1.9
Meat	103.7	152.8	161.2	0.7	0.8	1.7
Dairy produce	145.0	127.5	129.0	1.1	1.6	3.3
Beverages and cocoa preparations	87.4	96.0	126.4	22.9	32.7	37.6
Raw materials, total	581.7	717.8	1,282.4	55.1	79.2	70.9
Wood and timber	67.4	65.2	147.2	0.1	0.1	0.2
Raw cotton and cotton waste	101.5	116.0	207.6	0.5	1.3	1.8
Wool, raw and waste and wool rags.	97.1	136.8	219.9	7.8	19.3	28.9
Seeds and nuts for oil, oils, fats, resins and gums . .	122.7	159.3	241.5	1.8	3.9	4.7
Rubber	15.9	35.0	114.4	0.4	0.7	1.7
Manufactured articles, total .	383.0	417.8	647.1	1,159.9	1,360.3	1,669.3
Iron and steel and manufactures	30.9	19.3	26.8	92.3	113.1	117.3
Nonferrous metals and manufactures	74.8	78.6	119.0	47.5	56.5	53.5
Machinery	34.5	34.1	37.9	208.4	234.2	265.0
Cotton yarns and manufactures	20.8	22.0	42.8	123.7	111.4	158.0
Woollen and worsted yarns and manufactures . . .	14.4	17.4	26.2	77.8	97.8	140.1
Chemicals, drugs, dyes and colours	18.8	26.2	48.9	64.5	75.9	104.1
Oils, fats, resins, manufactured	84.5	95.7	122.4	9.9	14.7	26.7
Vehicles, including locomotives, ships and aircraft .	15.6	16.8	14.9	226.1	297.9	346.5

Union of South Africa.—The Union of South Africa's trade in 1951 was being sustained at levels substantially higher than in 1950. For the first six months of 1951, imports totalled £(S.A.) 229,000,000 compared with £(S.A.) 128,000,000 for the corresponding period of 1950. Exports, including open market sales of gold, amounted to £(S.A.) 180,000,000, compared with £(S.A.) 93,000,000 in the same period of 1950. Imports from the dollar area rose from £(S.A.) 38,000,000 in January–June 1950 to £(S.A.) 56,000,000 in January–June 1951, and sterling area imports for the same period increased from £(S.A.) 83,000,000 to £(S.A.) 145,000,000.

Far East.—The far eastern trade situation was characterized in 1951 by further steps toward correcting the serious trade imbalance of the early postwar years; by booming export demands for raw materials as a result of the defense programs of all the major nations of the world; by fluctuating prices for important materials; by the further emergence of Japan as a major supplier, supplanting to some extent both the United States and the United Kingdom; and by new controls on trade with the soviet bloc, including Communist China.

Japan's trade soared above 1950 in value during the first nine months of 1951, despite a decline in the third quarter. Preliminary estimates for Jan.–Sept. 1951 showed exports of $972,000,000 compared with $533,000,000 for a like period of 1950, and imports of $1,688,000,000 compared with $695,000,000. The relatively slow movement of imports in the third quarter was attributable to internal difficulties in financing and to earlier overstocking by traders. Japan's heavy postwar dependence on the United States for imports continued to decline, until in 1951 the proportion purchased from the U.S. was roughly equivalent to that before World War II, or about 33%.

The foreign trade of the Philippines during the first six months of 1951 climbed significantly over that of January–June 1950. Imports totalled 410,000,000 pesos in 1951 compared with 380,000,000 pesos in 1950. Of the 1951 six-month total, 279,000,000 pesos, or 68%, came from the United States. Exports increased by 72% between these two periods, rising from 282,000,000 pesos in January–June 1950 to 484,000,000 pesos in the like period of 1951. The United States took 67% of Philippine exports, the major part of which was copra and cocoanut oil.

The tremendous increase in export values, which had characterized Malaya's trade since the beginning of the war in Korea, was checked after the price of rubber, which had more than quadrupled since 1949, began to fall in April 1951. Malaya's export totals for the first six months of 1951 were, however, nearly three times those of January–June 1950. The country's favourable trade balance rose from Mal. $95,000,000 in the first half of 1950 to Mal. $981,000,000 in the first six months of 1951.

Indonesia, likewise influenced by the boom in rubber, reported exports and imports for the first nine months of approximately the same volume as in 1950, but exceeding that year in value by 60% to 65%.

Burma, Ceylon and Thailand were all running substantial trade surpluses in the months of 1951 for which data were available. The trade of Hong Kong declined greatly in the third quarter of 1951, as a result of the colony's anti-Communist trading controls. Trade with China was drastically reduced, exports falling to H.K.$89,000,000 in September from a high of H.K.$245,000,000 in March 1951. Trade with the United States continued despite the existence of stringent United States controls. Nevertheless, exports to the U.S. during the summer months (latest available at the close of the year) averaged no more than one-third the 1950 average.

India's trade in 1951 was influenced particularly by the strong world demand for raw materials and by generally higher prices for both imports and exports. Increased grain imports were responsible for substantial increases in import totals in the second quarter of the year. As the political differences between India and Pakistan over Kashmir remained unsolved, trade between these countries remained relatively limited. India's traditional exports of jute manufactures were therefore sharply reduced as a result. India's trade controls continued to restrict imports of manufactured goods, of which the United Kingdom had long been the principal supplier.

Pakistan continued during the first nine months of 1951 to run a sizable surplus trade balance. Exports of raw jute and raw cotton, both in short world supply, provided the major part of Pakistan's incoming revenue, and cotton manufactures were again the major import. Trade agreements were negotiated during the year with western Germany, Iraq and Australia. An agreement was signed with Canada in September whereby Pakistan received a gift of $10,000,000 of capital equipment and essential goods and services toward its six-year development program under the commonwealth Colombo plan for underdeveloped areas. In the middle of 1951 Pakistan enlarged the list of commodities which could be imported under open general licence from the sterling area and, in certain cases, from Japan.

Australia, New Zealand.—The value of Australian exports in the first three quarters of 1951—$1,655,000,000—was more than 50% above the comparable period in 1950, and reflected the spectacular rise in wool prices in Australian markets late in 1950. The value of imports rose steadily throughout January-June 1951, and very sharply during the third quarter. The adverse trade balance for July-September of $250,000,000 was larger than any previous deficit for an entire year.

New Zealand's trade continued through the first six months of 1951 to show a surplus with the world. Exports were valued at £N.Z.130,000,000 and imports at £N.Z.82,000,000 from January to June 1951. This was a substantial rise over the period of 1950, particularly on the export side. At that time exports were £N.Z.108,000,000 and imports £N.Z.74,000,000. Imports from both hard and soft currency sources were kept down by strict licensing controls. (*See* also BUSINESS REVIEW; EXCHANGE CONTROL AND EXCHANGE RATES; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND.)

FILMS OF 1951.—*Introduction to Foreign Trade* (Coronet Films); *World Trade for Better Living* (Encyclopædia Britannica Films Inc.). (F. L. H.)

International Wheat Agreement: *see* AGRICULTURE; WHEAT.

Interstate Commerce Commission.

The duties and powers of the Interstate Commerce commission are set forth in the Interstate Commerce act, originally passed in 1887 and later amended in many important particulars. The act is divided into four parts and deals with the regulation of railroads, oil pipe lines, motor and water carriers, as well as freight forwarders. The regulatory powers of the commission extend, among other things, to the charges made by these carriers for transportation services; to the filing of periodic reports; to questions involving the valuation and financial reorganization of railroads; to the issuance of securities; to the acquisition of control of these various carriers by other carriers or persons; to their accounting practices; and to matters involving the determination of whether public convenience and necessity require the institution of new services by motor and water carriers or by freight forwarders, or for the construction, abandonment or operation of lines of railway.

There was no substantial change in the statutory authority of the commission during 1951. Commissioners Hugh W. Cross and John L. Rogers were reappointed for full terms of seven years to expire Dec. 31, 1957. Commissioner Walter M. W. Splawn was appointed chairman in lieu of Commissioner J. Monroe Johnson. Commissioner James K. Knudson also acted as administrator of the Defense Transport administration, dealing with phases of domestic transportation, storage and port facilities, or the use thereof, but excluding air transport, coastwise, intercoastal and overseas shipping.

The carriers subject to the jurisdiction of the commission were confronted with numerous and difficult problems during the year, including the rising costs of labour and materials, shifts in the movement of commodities because of change in the location of plants and substitution of commodities, changes in commodities handled and movement of traffic because of increased defense activities, and changes in competitive advantages brought about by differences in technological improvements between the different agencies of transportation.

Because of mounting costs, the commission on Aug. 2, 1951, after full hearings, authorized an increase in freight charges for the railroads of 9% within eastern territory, except that on iron ore, coal and coke, and grain and grain products the increase authorized was 6%, and 6% within southern and western territories and on all interterritorial traffic, with certain limitations, above basic rates and charges in effect on Jan. 16, 1951.

The effect of an increase in private transportation was particularly felt in the passenger field. (W. M. W. S.)

Intestinal Disorders: *see* STOMACH AND INTESTINES, DISEASES OF.

Intoxication, Alcoholic.

The year 1950 was noteworthy in that the greatest advance in the study and treatment of alcoholic intoxication was in public education while 1951 was a period of holding these gains and consolidating them with an active program that emphasized prevention.

The American Medical association, at a national convention, passed a resolution designating alcoholism as a chronic illness and recommending that the medical profession initiate a program of prevention.

A subcommittee on alcoholism was established by the Massachusetts Medical society. The Alcoholism subcommittee of the Expert Committee on Mental Health of the World Health organization held its first session in Geneva, Switz., Dec. 11–16, 1950, and presented its formal report of this session in *World Health Organization Technical Report,* series no. 42, Sept. 1951. This pamphlet gave information on such topics as general consideration, definition of the problem, treatment facilities, means of treatment, education and training, conclusions, recommendations, etc.

The second session of this group was held in Copenhagen, Den., in 1951.

In the sphere of community action, more local citizens' committees were established; by the close of 1951 these numbered 58. One important result of these committees was the acceptance for treatment by more general hospitals of alcoholics in the acute phase. It was still difficult in some communities, however, to procure adequate hospital treatment for acutely intoxicated individuals. There were 36 out-patient clinics for exclusive service to alcoholics which had been established by community programs and by state legislative action. The Massachusetts General hospital opened its first out-patient clinic for the treatment of alcoholism in 1951. Thirty-one states had programs established by acts of their legislatures with a variety of activity ranging from simple surveys to programs of broad rehabilitation. Their results were reported at the National Conference of State Programs on Alcoholism, whose annual meeting was held in New York city Aug. 5–8, 1951.

The Yale Center of Alcohol Studies, a part of the Laboratory of Applied Physiology, has several sections, among which are the Yale Plan clinic, Summer School of Alcohol Studies and the publications division which produces the *Quarterly Journal of Studies on Alcohol.* The staff of the Yale Center of Alcohol Studies gave a large share of their attention during the year to the public health aspects of alcoholism. One study pointed out that the alcoholic is very often a skilled and responsible worker in industry in contrast to the popular idea of the skid-row derelict. This fact led to the formation of the National Medical Advisory council to the Yale Center of Alcohol Studies, made

DEMONSTRATING one of a variety of chemical tests of motorists' sobriety used in 29 U.S. states in 1951. In the "intoximeter" test (above), the presence of alcohol in the breath causes a substance in the vial to change colour

up of doctors responsible for health programs in leading industrial concerns throughout the country.

Tetraethylthiuram disulphide (Antabuse) was being widely used and investigated. By the end of the year, the bibliography on this one drug totalled 200 items, many of which were of primary scientific importance. It was clearly shown, however, that the drug is not a specific remedy, that it is useless without psychotherapy and that its most important function is as an adjunct in psychiatric treatment.

Some physicians believed that the relief given by adrenal cortex extract in severe acute intoxication provided more fundamental treatment of the disease than any other drug. ACTH and cortisone approached the effectiveness of adrenal cortex but some observers concluded that the effects were not identical with those of adrenal cortex extract.

Whereas formerly sedatives were greatly emphasized in treating the alcoholic personality, there was a strong tendency toward caution in regard to the use of sedation, especially with respect to barbiturates. Basic sedative drugs such as the bromides and the analgesic commonly called aspirin continued to be the most practical and simple remedies for the symptoms of the hang-over.

Myanesin, an antispasmodic drug, continued to receive favourable response during the year.

(*See* also LIQUORS, ALCOHOLIC.)

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Inventions: *see* CERAMIC PRODUCTS; ELECTRONICS; MUNITIONS OF WAR; PATENTS; STANDARDS, NATIONAL BUREAU OF.

Investment Banking: *see* BANKING.

Investments, Foreign, in the U.S.: *see* FOREIGN INVESTMENTS.

Iowa. Iowa, popularly known as the "Hawkeye state," was admitted to the Union in 1846. Located in the north central region, it comprises 56,290 sq.mi., of which 245 sq.mi. are inland water surface. The census figures for 1950 showed a population of 2,621,073, an increase of 3.3% over the 1940 figures. The capital and largest city is Des Moines, with a 1950 population of 177,965. Other chief cities are Sioux City, 83,991; Davenport, 74,549; Cedar Rapids, 72,296; Waterloo, 65,198; Dubuque, 49,671; and Council Bluffs, 45,429. According to the new census definition Iowa had 1,250,938 persons living in urban territory. This was 47.7% of the total population. Although Iowa is primarily an agricultural state, the percentage of rural over urban population declined steadily after 1910.

History.—In 1951 Iowa's state officers, all Republicans, were: governor, William S. Beardsley; lieutenant governor, W. H. Nicholas; secretary of state, Melvin D. Synhorst; auditor, Chet B. Akers; treasurer, M. L. Abrahamson; secretary of agriculture, Clyde Spry; attorney general, Robert L. Larson; superintendent of public instruction, Jessie M. Parker. Biennial elections for these offices would be held in 1952. Iowa's United States senators were: Bourke B. Hickenlooper (Republican, re-elected 1950) and Guy M. Gillette (Democrat, elected 1948). Iowa's eight representatives in congress were all Republicans.

The general assembly met in biennial session on Jan. 8, 1951, and adjourned April 20. The senate was composed of 50 members, 41 Republicans and 9 Democrats; the house, with 108 members, had 93 Republicans and 15 Democrats. William S. Lynes of Waverly was elected speaker of the house. Of the 272 bills passed during the session, only two were vetoed by the governor. The appropriation bill provided for an expenditure of $107,170,370 per year for the next biennium, an increase of about $5,000,000 over the yearly appropriations made for the 1949–51 biennium. No bills were passed increasing state taxes. Iowa had a reserve fund of $30,000,000.

Education.—During the 1950–51 school year Iowa had 3,812 public elementary school districts; 835 public high school districts; and 19 junior colleges. The elementary schools in the 1949–50 school year had 364,942 students; the high schools, 112,778. The junior colleges, in 1950–51, had 1,524 students. The number of teachers and superintendents in the public schools in 1950–51 was 23,145.

There were 26 colleges and universities in the state, the majority of the colleges privately endowed or supported by various church organizations. The state supports three institutions: The State University of Iowa, at Iowa City; the Iowa State college of Agriculture and Mechanic Arts, at Ames; and the Iowa State Teachers college, at Cedar Falls. Enrolment at these three schools for 1951 was 17,256, a decrease from 1950 of 2,684; of this number, 2,910 were veterans, a decrease of 1,980 from 1950.

Social Insurance and Assistance, Public Welfare and Related Programs.—The 1951–52 state appropriation for old age assistance was $14,500,000; for aid to dependent children, $2,175,000; for child welfare, $220,000; for emergency relief, $40,000; and for aid to the blind, $275,000. The total of these appropriations was an increase of $2,035,000 over the funds voted in the 1949–51 period. Contributions to the state unemployment insurance fund as of June 30, 1951, totalled $5,515,556.63; during the fiscal year 1950–51, $1,407,973.98 was paid out of this fund in benefit payments. The reserve fund, as of June 30, 1951, totalled $22,023,546.50.

Iowa's five penal and correctional institutions had 2,447 inmates as of Oct. 1, 1951. The four hospitals for the insane had 5,806 patients; two homes for the feeble-minded had 3,530 patients. The state orphanage at Davenport, the Iowa Annie Wittenmyer Home, cared for 325 children; while the State Juvenile home at Toledo cared for 201 dependent, neglected or destitute children. There were 412 residents of the Old Soldiers home at Marshalltown.

Communications.—Iowa had a total of 5,838 mi. of paved highway and 61,755 mi. of gravel roads; the state ranked fourth in the nation in concrete paved road mileage. During the 1951 calendar year the state spent $24,000,000 on primary road construction and $8,090,728 on maintaining these primary roads.

The state is served by twelve major railroads. Class I roads have a total of 8,576.26 mi. of track. In 1950 these roads carried 4,551,371 passengers and 97,237,995 tons of freight. There are 355 mi. of electric interurban roads in the state; during 1950 they carried 464,797 passengers and 4,325,126 tons of freight. The number of passengers carried by motorbus during 1950 was 19,170,286. There were, in 1950, 109 mi. of oil pipe line, 1,632 mi. of gasoline pipe line and 2,683 mi. of natural gas pipe line in Iowa. During the first nine months of 1951, 1,172,553 automobiles were registered in Iowa, an increase of about 30,000 over the figure for 1950.

Iowa is served by three national airlines. There were ten major airports in the state in 1951.

There were about 800,000 telephones in Iowa in 1951. More than 87% of all farms had telephones. There were 50 radio stations in 27 cities, most of the larger cities having at least two, representing the larger networks. There were television stations in Davenport and in Ames—the latter in connection with Iowa State college. In addition, television relay towers had been built across the state. There were about 70,000 mi. of electric

Table I.—*Principal Crops of Iowa*

Crop	1951	1950	Average 1940–49
Corn, bu	471,780,000	475,203,000	533,540,000
Oats, bu.	182,886,000	270,580,000	198,417,000
Wheat, bu.	2,212,000	5,454,000	4,387,000
Flaxseed, bu.	630,000	1,194,000	1,980,000
Rye, bu.	140,000	208,000	257,000
Barley, bu.	693,000	1,696,000	2,819,000
Potatoes, bu.	1,040,000	1,485,000	3,232,000
Hay, tons	6,961,000	6,472,000	5,474,000
Popcorn, lb.	23,200,000	40,560,000	56,803,000
Soybeans, bu.	32,508,000	42,460,000	30,709,000

Source: U.S. Department of Agriculture

Table II.—*Livestock of Iowa*

	1950	1951
Hogs	11,920,000	13,321,000
Cattle	5,007,000	5,208,000
Sheep	949,000	1,021,000
Horses	242,000	205,000
Mules	6,000	5,000

Table III.—*Mineral Production of Iowa*

Short tons, except as noted

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Cement (bbl.)	6,655,208	$14,602,554	7,231,807	$16,157,979
Clays	571,505	628,674	579,423	645,057
Coal	1,724,484	6,911,956	1,891,411	6,976,616
Gypsum	858,464	2,188,002	981,647	2,507,651
Sand and gravel	6,831,190	8,663,201	8,425,490	10,668,427
Stone	7,978,229	4,446,661	8,994,822	4,795,835
Other minerals	...	16,560	...	?
Total		37,457,608		?

transmission lines in Iowa, and 86.2% of all farms were electrified.

Iowa had more than 500 newspapers in 1951, of which 46 were published daily, the rest weekly.

Banking and Finance.—There were, as of June 30, 1951, 556 state banks. In addition, there were 164 bank offices, 212 small loan licensees and 213 credit unions under the supervision of the state banking department. Total assets of the state banks on June 30, 1951, were $1,656,042,937 (an increase of $67,575,923 over the 1950 figure); total deposits were $1,536,614,982 (an increase of $57,658,139 over 1950). As of April 9, 1951, there were 97 national banks in Iowa with total deposits of $808,506,000 and total resources of $860,076,000.

The revenue received from all special taxes in Iowa for the fiscal year ending June 30, 1951, was $172,915,486, compared with $151,153,737 for 1949–50. Of this total, 30% came from the state's 2% sales tax; 18% from motor vehicle licence fees; 17% from the gasoline tax; 13% from individual and corporation income taxes; 5% from state liquor store profits and the beer tax; 2% from use taxes assessed on articles purchased outside the state; and the remainder from miscellaneous taxes. In addition, real estate and personal property taxes for 1951 amounted to $188,964,442. These property taxes were assessed locally, not having been assessed by the state since 1942. Iowa has no state debt.

Agriculture.—Agriculture is Iowa's most important industry. The state has 25% of all the grade A farmland in the nation and produces more than 10% of the nation's food. There were 200,401 farms in Iowa in 1950, compared with 200,679 in 1949. These farms had a total acreage of 34,710,424 ac.; the average size of the farms was 173.2 ac. Of the total, 49.6% were owner-operated and 50.4% tenant-operated. The state ranked first in corn, hogs, oats, poultry, eggs, finished cattle for market and in total production of combined grain crops. Of Iowa's 35,000,000 ac., 96.2% were in farms.

The total cash income of Iowa farmers for 1950 was $2,114,869,000; of this total, $1,734,188,000 was from livestock, $380,681,000 from crops and $10,920,000 from government payments. On Jan. 1, 1951, there were 44,344 trucks on Iowa farms; 239,022 tractors, and 92,881 mechanical corn pickers; all figures showing an increase over the 1950 figures.

Manufacturing.—There were 3,865 manufacturing plants in Iowa in 1951, employing approximately 166,250 persons. The average weekly wage in 1951 was $64.69. compared with $59.26 for October of 1950. (M. Te.)

Mineral Production.—Table III shows the tonnage and value of those mineral commodities whose values in 1949 exceeded $100,000 and the corresponding data for 1950, so far as they were available at the close of 1951.

Iran.

(Persia). An independent kingdom of western Asia, Iran is bounded east by Pakistan and Afghanistan, north by the U.S.S.R., west by Turkey and Iraq and south by the Persian gulf and Arabian sea. Area: 634,413 sq.mi. Pop. (no census ever taken, 1950 est.): 18,772,000. Language: mainly Persian, but Turki and Armenian in the northwest, Kurd in the west, Arabic in the south and Pashtu in the east. Religion: Moslem, mainly Shia but the Kurds (750,000) are Sunni; Christian (there are *c.* 50,000 Gregorian Armenians, a few thousand Catholic Armenians and 40,000 Nestorians); Jewish 80,000; and *c.* 10,000 Zoroastrian Parsees. Chief towns (1948 est.): Tehran (cap., 850,000); Meshed (250,000); Tabriz (214,000); Isfahan (205,000); Abadan (150,000); Shiraz (129,000); Resht (122,000); Hamadan (104,000). Ruler: Shahanshah Mohammed Riza Pahlavi; prime ministers in 1951: Gen. Ali Razmara, Hussein Ala and (from April 29) Mohammed Mossadegh (*q.v.*).

History.—In 1951 Iran moved suddenly forward from the background of world affairs into the fullest prominence. The occasion was the dispute between the Iranian and British governments over the position of the Anglo-Iranian Oil company (A.I.O.C.), which occupied the centre of the stage in Iran to the exclusion of practically every other matter throughout 1951.

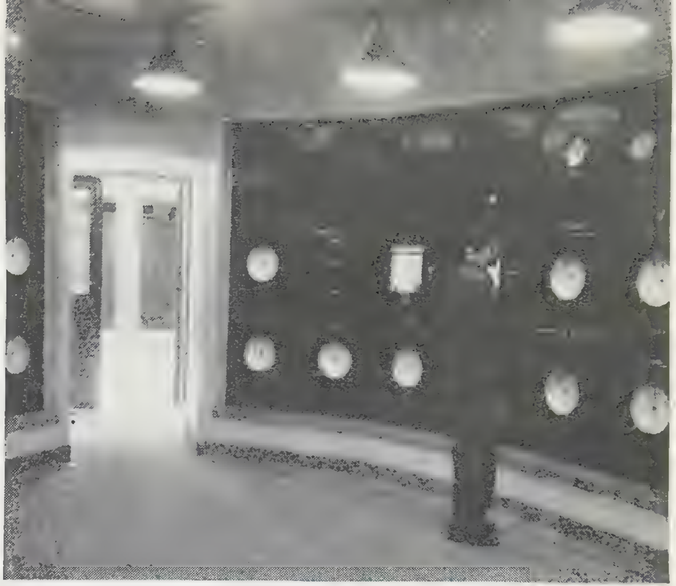
The dispute was already in progress, though little noticed in the world outside, when the year began. At the instigation of the National Front party (whose leader, Mohammed Mossadegh, was one of the deputies for Tehran in the *majlis*), the special parliamentary commission set up to consider the new supplementary oil agreement, which had been signed by a previous government with the A.I.O.C., had already decided to reject it before the end of 1950. Mossadegh continued his campaign relentlessly against the A.I.O.C. in 1951. Having first shaken the government of General Razmara in January by successfully agitating against the press law of March 1949, which was duly repealed, the National Front next attacked the finance minister Hosain Furuhar for having spoken in support of the supplementary oil agreement and forced his resignation. In Feb. 1951 the government reached an arrangement with the A.I.O.C. by which advances were provisionally to be made to Iran at approximately the same rate as if the supplementary oil agreement were in force; and Mossadegh retaliated on Feb. 19 by demanding outright the nationalization of oil throughout Iran. The shah had so far taken little part in the dispute, being preoccupied first with the philanthropic task of transferring his father's estates to the peasants who worked on them; and later by his marriage, on Feb. 12, to his second wife, Suraya Isfandiari, a connection of the tribal family of the Bakhtiari.

The dangers arising from the oil dispute grew more severe when General Razmara, the prime minister, was assassinated on March 7 by Abdullah Rastigar, a member of the fanatical Fadayian Islam (Devotees of Islam). Both the National Front and the Communist Tudeh parties were accused of having instigated the assassination. After a brief interval during which Hussein Ala reluctantly became prime minister, the shah appointed Mossadegh prime minister on April 30, after the latter had successfully forced through the parliamentary oil commission, against Ala's opposition, a motion providing for the immediate taking over of the A.I.O.C.'s assets by a new National Iran Oil company (N.I.O.C.). Since Mossadegh had become the personal symbol of the move for nationalization, in which he was backed by the religious leader Ayatollah Kashani and the clandestine intervention of the Tudeh party, it was perhaps inevitable that he should be nominated once Razmara was removed.

The nationalization law was promulgated on May 2. Its validity was disputed by the British government in a series of notes, which had no effect. A request by the A.I.O.C. for arbitration was also rejected. Disturbances and anti-British demonstrations took place both in the capital and in the oil area of southern Iran. A generally antiwestern character was added to the nationalism when other European countries and the United States appeared inclined to support the British case. When the British government referred the case in May to the International Court of Justice at The Hague and obtained an injunction on July 5 to restrain both governments from further action to alter the *status quo*, the court's competence was denied by the Iranians. A delegation sent out from Great Britain in June by the A.I.O.C. to negotiate was invited either to accept the nationalization law or to leave; and a temporary board of the new N.I.O.C. was established on Abadan Island to take charge of the oil industry. Gradually the work of the A.I.O.C. began to close down and its staff to withdraw.

On July 15 W. Averell Harriman, sent specially by U.S. Pres. Harry S. Truman as a neutral mediator to bring the parties

Above: STEEL STACKS at Abadan, the world's largest refinery and core of the Iranian oil industry, which was nationalized by law May 2, 1951. The Anglo-Iranian Oil company was more than 50% British-owned



Above: TECHNICAL EQUIPMENT at the world's largest refinery at Abadan. The last British technicians were evacuated from the refinery Oct. 3, 1951

Below: PREMIER MOHAMMED MOSSADEGH (second from left, front) with delegates to the British-Iranian oil conferences at Tehran. Negotiations broke down on Aug. 22, 1951, when Mossadegh refused all proposals for leaving the technology or marketing of Iranian oil in British hands

Below: IRANIAN NATIONALISTS during an anti-British demonstration in the summer of 1951

together, arrived in Tehran. Thanks to his efforts, the atmosphere improved somewhat, and the British government sent out a new negotiating mission, headed by the lord privy seal, Richard Stokes, who reached Tehran on Aug. 4. Although warmly received at first, he was unable to achieve any real progress in the tangled negotiations and left Tehran for England on Aug. 23; Harriman left on the following day. Relations steadily deteriorated thereafter, until in September the Iranian government finally announced the impending cancellation of the residence permits of all the A.I.O.C.'s British staff remaining in Abadan. The British government appealed to the Security council of the United Nations but, rather than precipitate violence, agreed to the withdrawal of the British staff from Abadan on Oct. 3. Thereafter the Iranians were in sole control of the oil industry, but production was negligible.

Mossadegh flew personally to New York to conduct Iran's case before the Security council. He persuaded the council to adjourn all discussion of the dispute, instead of accepting a British motion condemning Iran's action against the A.I.O.C.; but despite a prolonged stay in the United States he failed to persuade the U.S. government either to grant Iran the considerable economic help needed in place of the revenues formerly received from the A.I.O.C., or to induce the British government to renew negotiation on Iran's terms. He arrived in Tehran on Nov. 23, after flying by way of Cairo in order to demonstrate solidarity with the Egyptian government (which was similarly involved in a dispute with the British government), and was welcomed with a nationalistic fervour which served temporarily to conceal the desperate condition of Iran's economy. Administration by the cabinet was almost in abeyance; the cost of living was rapidly rising; the oil industry was barely functioning; the seven-year plan of economic reconstruction was largely neglected; and the Tudeh party, outlawed since 1949, was nevertheless openly active.

Shortly after Mossadegh's return to Tehran, he was accorded an unexpected vote of confidence in the *majlis,* in spite of the growing vigour of the opposition, and he took advantage of the opportunity to announce the long-awaited elections to the *majlis* before the end of the year. The electoral period, always protracted and varied in different parts of the country, began in the capital and northern provinces on Dec. 18. It was still in progress, with no indication of the likely result, when the year ended.

Education.—Schools (1942–43): elementary 2,401, pupils 244,315, teachers 9,748. There were two universities (Tehran and Tabriz) and three university colleges (1949), students 5,919.

Finance and Banking.—Budget: (1950–51 est.) revenue 8,950,000,000 rials; expenditure 11,470,000,000 rials; (1951–52 est.) revenue 9,553,000,000 rials; expenditure 9,550,000,000 rials. Internal national debt: (Dec. 1949) 5,668,000,000 rials. Currency circulation: (March 1950) 6,030,000,000 rials. Bank deposits: (March 1950) 6,200,000,000 rials. Gold reserve and foreign exchange: (Aug. 1951) U.S. $220,000,000. Monetary unit: *rial,* with an exchange rate of 91 rials to the English pound and 32.50 rials to the U.S. dollar.

Foreign Trade.—Imports (1950) 8,403,000,000 rials, including imports of concession holders 2,190,000,000 rials; exports 22,562,000,000 rials, including exports of concession holders 19,600,000,000 rials. Main sources of imports, excluding imports of concession holders (1950): U.S. 33.7%; U.K. 27.0%; India 8.6%; U.S.S.R. 5.1%. Main destinations of total exports (1950): U.K. 16.4%; India 9.7%; France 4.0%; Australia 3.7%. Principal imports, excluding imports of concession holders (1949–50): cotton piece goods 18.7%; cereals 9.8%; sugar 9.4%; tea 7.5%. Principal exports, excluding exports of concession holders (1949–50): carpets 26.1%; dried fruits 15.5%; gums 10.2%; skins and furs 7.9%.

Transport and Communications.—Roads (1949): 17,000 mi., of which 8,000 mi. were suitable for vehicles. Licensed motor vehicles (Dec. 1950): cars 12,000, commercial 12,000. Railways: (1948) 1,750 mi.; passengers carried (1947) 1,600,000; freight carried (1948) *c.* 1,000,000 metric tons. Iranian airways: unduplicated route miles (1950) 5,077. Radio receiving set licences (1949): 60,000.

Agriculture and Fisheries.—Main crops (metric tons 1950): wheat 2,150,000; barley 800,000; ginned cotton 24,000; jute 4,000; sesame seed (1949) 10,000; cottonseed 35,000; rice (1949) 480,000; sugar, raw value, 62,000; tea (1949) 7,600; tobacco (1949) 17,000; oranges and tangerines 45,000; olives 12,000; olive oil 1,000. Livestock (1948–49): cattle 2,500,000; sheep 13,000,000; horses 365,000; mules 42,000; buffaloes 10,000; camels 600,000; goats 7,000,000; chickens 13,000,000. Livestock products (metric tons): wool, greasy basis (1950) 16,000; butter (1949) 40,000. Fisheries: approximate catch of sturgeon (1949) 5,000 tons, from which 30 tons of caviar were extracted.

Industry.—Fuel and power: coal (1948) 150,000 metric tons; crude petroleum production of the Anglo-Iranian Oil company, (1950) 32,256,000 metric tons; electricity (1948) 200,000,000 kw.hr. Raw materials (metric tons, estimated annual production): copper ore 1,000; sulphur 600; red oxide 10,000; arsenic ore 500. Manufactures: cotton yarn (1949) 12,000 metric tons; cotton piece goods (1949) 30,000,000 m.; cigarettes (1948) 4,350,000,000; tobacco (1947) 8,700 metric tons; cement (1948) 58,000 metric tons.

FILMS OF 1951.—*Struggle for Oil* (British Information Services).

Iraq.

An independent Arab kingdom of Mesopotamia, Iraq is bounded by Syria, Turkey, Iran, the Persian gulf, Saudi Arabia and Jordan. Area: 116,600 sq.mi. Pop.: (1949 est.) 4,990,000. Languages: Arabic 67%, Kurdish 25%, others 8%. Religions: Moslem 91%; Christian 5%; by the end of 1951 all 107,000 Jews had left for Israel. The Sunni Arabs are the ruling class. Chief towns (pop., est. 1947): Baghdad (cap., 552,000), Mosul (279,400), Basra (206,000), Kirkuk (148,300). Ruler: King Feisal II (born May 2, 1935); regent: Crown Prince Abdul-Ilah; prime minister in 1951: Nuri Pasha es-Said.

History.—At the Jan. 1951 meeting of the Arab league in Egypt, Iraq qualified its acceptance of the league security pact by maintaining its independence in financial matters. During the Israeli-Syrian conflict on the upper Jordan the Iraqi government announced its support of Syria and published a decree which deprived emigrating Jews of their remaining property. In the following month Iraqi aircraft, anti-aircraft units and troops were dispatched to Damascus at the request of the Syrian government. In May the regent, Crown Prince Abdul-Ilah, accompanied by Nuri Pasha es-Said, the prime minister, visited Jordan.

On March 20 a law was published authorizing the building of a state oil refinery near Baghdad, and in July an Iraqi Development board was appointed. Its five-year plan included projects for the reclamation (with U.S. Point Four program assistance) of land in the Tigris and Euphrates valley, and the completion of the Wadi Tartar scheme for control of the annual Tigris floods.

On Aug. 13, after several months' negotiations, the government reached agreement with the Iraq Petroleum company and its subsidiaries, the Mosul Petroleum company and the Basra Petroleum company, for revision of their existing concessions. The agreement stipulated that the government would receive half of the three companies' profits (before the payment of foreign taxes) which were derived from their operations in Iraq. Part of this 50% of the profits would be paid in crude oil for local purposes. It was also agreed that if at any later date a neighbouring government should receive under a subsequent arrangement a higher revenue per ton of oil than that received by Iraq, the Iraqi government would have the right to demand a similar increase from all three companies. Further clauses laid down that the boards of the three companies should be reinforced by a number of Iraqi directors and that the three companies would themselves finance the organization of facilities for Iraqis to study oil subjects both in Iraq and Great Britain; that in future no foreigners would be employed if suitable Iraqis were available; and that the agreement was subject to ratification by the Iraqi parliament. In September it was announced that another new oil refinery with a capacity of 100,000 tons would be built south of Basra. Meanwhile the Basra Petroleum company had brought a new oil field into production, from which a pipe line had been laid to the Iraqi port of Fao at the mouth of the Shatt-al-Arab on the Persian gulf where there was deep-sea anchorage for tankers.

The four powers (Great Britain, France, Turkey and the United States) whose invitation to Egypt to participate in the organization of a joint middle east defense command had been refused by Egypt, informed Iraq and the other members of the

ULSTER'S farmstead of 100 years ago and its farmhouse of the future, on view at the Exhibition of Farm and Factory in Northern Ireland. The exhibition was Ulster's contribution to the 1951 Festival of Britain

Arab league and Israel in October that these plans would be proceeded with irrespective of their rejection by Egypt.

On Oct. 31 the leaders of the People's Socialist party (Salih Jabr), of the United Popular Front party (Gen. Taha al-Hashimi) and of the National Democratic party (Kamil Chadirchi) made a joint announcement which, after expressing full support for Egypt, asserted that the Anglo-Iraqi treaty of 1930 had been signed under duress, was outdated and should be abrogated.

On Nov. 21 the soviet government warned Iraq—and the other members of the Arab league and Israel—that they would forfeit soviet good will if they accepted the proposed defense scheme, which would only rob them of their independence.

A new agreement was signed in Baghdad on Dec. 25 between the government and the Anglo-Iranian Oil company's two Iraqi subsidiaries. The government purchased distribution facilities in Iraq and the Alwand refinery. The Khanaqin Oil company was to be the distributing agent for the government until 1961 and would also operate the Alwand refinery until the proposed government refinery at Baghdad was erected. (O. M. T.)

Education.—Schools (1949–50): primary 1,194, pupils 196,336, teachers 6,740; intermediate 133, pupils 22,899, teachers 492; secondary 71, pupils 7,222, teachers 983; vocational 10, students 1,275, teachers 64. Institutions of higher education 10, students 5,200, lecturers 124.

Finance and Banking.—Budget (1949–50): revenue 27,000,000 Iraqi dinars, expenditure 32,000,000 Iraqi dinars; (1950–51 est.) revenue 27,000,000 Iraqi dinars, expenditure 28,000,000 Iraqi dinars. Currency circulation (Aug. 1951) 31,700,000 Iraqi dinars. Bank deposits (April 1951) 13,000,000 Iraqi dinars. Monetary unit: Iraqi dinar, at par with the pound sterling and with an exchange rate of 0.357 dinars to the U.S. dollar.

Foreign Trade.—(1950) Imports 40,600,000 Iraqi dinars; exports, excluding oil 22,600,000 Iraqi dinars, including oil 44,600,000 Iraqi dinars. Main sources of imports (1949): U.K. 43.2%; U.S. 11.4%; Italy 7.6%; Ceylon 6.3%. Main destinations of exports, excluding oil (1948): India 19.2%; U.K. 17.1%; U.S. 13.4%; Egypt 7.7%. Main imports (1949): textiles 18.0%; tea and sugar 12.6%; iron and steel 12.1%; boilers 11.1%. Main exports, excluding oil (1949): cereals 45.5%; dates 22.4%; wool 3.7%.

Transport and Communication.—Roads (1949): 4,500 mi. Licensed motor vehicles (Dec. 1950): cars 8,789; commercial 10,292. Railways (July 1949) 1,027 mi.; traffic (1947–48): passenger-miles 329,000,000, ton-miles 367,000,000. Air transport (1949): passenger-miles 5,861,000, cargo net ton-miles 118,600. Telephones (March 1949): 14,595. Radio receiving sets (1950): 30,000.

Agriculture.—Main crops (metric tons, 1950): barley 900,000; wheat 600,000; rice 250,000; dates (1949) 170,000; tobacco 8,000; cotton, ginned, 8,000; cottonseed 10,000; wool, greasy basis, 13,000. Livestock (1948–49): sheep 7,055,000; goats 1,849,000; cattle 822,000; buffaloes 130,000; camels 291,000; horses (1950) 184,000; mules 52,000; donkeys 413,000.

Industry.—Industrial establishments (1948) 1,762; persons employed 27,246. Fuel and power: crude oil production (1950) 6,480,000 metric tons; electricity (1948) 69,000,000 kw.hr.

See Majid Khadduri, *Independent Iraq* (London, 1951).

Ireland, Northern.

The six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone together form a part of the United Kingdom of Great Britain and Northern Ireland. Northern Ireland has its own parliament and executive (with limited powers for local purposes) and is represented in the United Kingdom parliament by 12 members. Area: 5,451 sq.mi. Pop. (1951 census) 1,370,709. Language: English. Religion (1951 census): Roman Catholic 471,329 (34.39%), Presbyterian 410,259 (29.93%), Episcopalian 353,025 (25.75%), Methodist 66,544 (4.86%), other (or not stated) denominations 69,552 (5.07%). Chief towns (pop., 1951 census): Belfast (cap., 443,670); Londonderry (50,099); Bangor (20,615). Governor in 1951: the Earl Granville; prime minister: Sir Basil Brooke.

History.—Except for the United Kingdom general election on Oct. 25, 1951, politics were uneventful. The Unionists lost West Belfast to the Irish Labour by 25 votes but retained 9 other seats, 4 without opposition. The antipartitionists held mid-Ulster and Fermanagh-South Tyrone without ending their policy of abstention. The return of the Conservative party put in abeyance the campaign led by W. F. McCoy for wider anti-Socialist powers for the Northern Ireland parliament. In his May budget J. M. Sinclair, the minister of finance, reduced from five to three years before death the period in which gifts *inter vivos* were free of estate duty. This concession was offset by a tax on pool betting. Revenue at £69,711,000 and expenditure at £50,633,000 left an increased imperial contribution of £19,000,000 as a token payment toward cost of rearmament. The passing of the Public Order act in June was followed by the revoking of a number of regulations under the Civil Authorities (Special Powers) acts. The Irish republican army raided in May a military armoury at Londonderry, capturing some weapons. The education (Miscellaneous Provisions) act of February resolved a controversy in the Unionist party on state aid to voluntary schools.

Capital investment for 1951–52 was estimated at £47,000,000, including £12,000,000 devoted to new housing, but warning was given of cuts in the program for 1952–53. The housing trust announced a plan for a town of 10,000 people at Carnmoney, near Belfast.

New factories with floor space of 373,000 sq.ft. built by the government were occupied. Despite rearmament, unemployment rose to 32,482 (November); this was chiefly because of the falling-off in demand for textiles, notably shirts. The prime minister, Sir Basil Brooke, with the minister of finance and minister of commerce (W. V. McCleery), went to London in November to seek more rearmament contracts. The rearmament work handled was not extensive except for a Belfast aircraft factory which began production of the Canberra jet bomber. The Belfast shipyards remained in full production, launching 10 ships of 120,000 tons gross. The principal deliveries were the aircraft carrier "Eagle," the Argentine whale factory ship "Juan Perón" (23,000 tons) and the liner "Rhodesia Castle" (17,300 tons). However, by the end of the year the output began to be restricted because of a steel shortage.

In agriculture the number of acres tilled and the livestock population (save pigs) fell because of the higher costs of feeding stuffs, fertilizers and wages. The government ordered an inquiry into the Ulster Transport authority, which reported a loss of £400,000 in the year ending Sept. 30. In November the authority raised freight rates and season ticket charges. An agreement was reached in October between Northern Ireland and the Republic of Ireland for the purchase of the Great Northern railway for £450,000 and its transfer to a joint board. The offer was accepted by the stockholders. (J. E. Ss.)

Education.—Schools (1950): nursery 21, pupils 609; primary 1,631, pupils 187,991; secondary intermediate 12, pupils 6,696; secondary grammar 79, pupils 28,386; technical intermediate 28, pupils 4,529; institutions of further education 114, students 26,312; Queen's university of Belfast, students 2,686.

Finance and Banking.—Budget: (1950–51 actual) revenue £64,153,051 excluding £2,000,000 from U.K. exchequer, expenditure £48,168,439 excluding contribution of £16,000,000 to U.K. exchequer; (1951–52 est.) revenue £67,071,000 excluding £2,700,000 from U.K. exchequer, expenditure £50,633,000 excluding contribution of £19,000,000 to U.K. exchequer. National debt (March 1951): £25,962,007.

Foreign Trade.—(Estimates compiled from the returns of the harbour authorities and the board of customs and excise, 1950): imports £219,300,000, of which £175,700,000 from and through Great Britain; exports £183,000,000 of which £172,600,000 to and through Great Britain. Main direct sources of imports, excluding Great Britain (1950): Irish republic 26.2%; Canada 11.2%; Belgium 14.6%; U.S.S.R. 6%. Main direct destinations of exports, excluding Great Britain: Irish republic 51.3%; U.S. 14.4%; Italy 6.1%; Norway 5%. Main imports (1950): cotton goods, including goods sent for finishing, etc., 8.5%; machinery 6.7%; coal 5.8%; tobacco 3.9%. Main exports: linen and rayon piece goods 19.1%; apparel 8%; cotton goods, including goods sent for finishing etc., 7.9%; livestock 6.7%.

Transport and Communications.—Roads (1950) 13,254 mi. Licensed motor vehicles (Dec. 1949): cars 47,618, commercial 22,663. Railways: (1950) 743 mi; passengers carried (1948–49) 9,092,564; livestock transported (1948–49) 141,830 head; merchandise carried (1948–49) 405,063 tons. Telephones (Oct. 1950): subscribers 42,838.

Agriculture.—Main crops (metric tons, 1951 est.): oats 297,300; potatoes 1,214,900; wheat 1,300; barley 3,300; dredge corn 4,500; hay 757,800; turnips 188,500; mangels 14,700; flax fibre 3,600. Livestock (mid-1951): cattle 941,000; sheep 563,000; pigs 578,000; goats and kids 8,000; horses 42,000; asses 4,900; poultry 17,808,000. Food sales (1950–51): milk 84,000,000 gal.; eggs 56,000,00 doz.; pork 788,934 cwt. Number of animals sold to ministry for slaughter: cattle 278,000; sheep and lambs 313,000. Shipments of food to Great Britain (1951): milk 6,000,000 gal.; eggs 43,000,000 doz.; poultry 5,893 tons; bacon and ham 18,550 tons.

Industry.—Electricity sales (1950) 609,000,000 kw.hr. Merchant vessels launched (1950): 11; gross tonnage 130,720. Exports of yarns (cwt., 1950): linen 90,000; woollen 30,000; cotton 8,000; hemp 9,000.

BIBLIOGRAPHY.—Gilbert Camblin, *The Town in Ulster* (Belfast, 1951); Estyn Evans, *Northern Ireland* (London, 1951) and *Mourne Country* (Dundalk, 1951).

Ireland, Republic of. An independent republic on an island west of Great Britain, Ireland has an area of 26,602 sq.mi. Pop.: (1946 census) 2,955,107; (1951 census) 2,958,878. The increase in population between 1946 and 1951 of 3,771, when deducted from the natural increase of 125,402, gives a figure of 121,631 for the net emigration. Language: English *c.* 76%, Erse (Gaelic) *c.* 24%. Religion (1936 census): Roman Catholic 93.4%, Episcopalian 4.9%, Presbyterian 1%, Methodist 0.3%, Jewish 0.1%. Chief towns (pop. 1951 census): Dublin (cap., 521,322), Cork (74,577), Limerick (50,823), Dun Laoghaire (47,963), Waterford (28,689). President: Séan Thomas O'Kelly; prime ministers (1951): John A. Costello and (from June 13) Eamon de Valera (*q.v.*).

History.—Ever since the Anglo-Irish treaty of 1921 the only real issue separating the two main political parties had been tempo. At what speed should political separation from Britain proceed? The year 1950 had seen all that settled, and the matter of leaving the commonwealth as well, John Costello's interparty government having adroitly stolen Eamon de Valera's clothes. But in 1951 De Valera had his (very limited) revenge. The interparty government, which seemed to be running its full term to 1952, suddenly began to disintegrate, largely through internal disruption in Séan MacBride's Clann na Poblachta (party of the republic). The crisis arose, in a manner too complicated to be briefly explained, over the Catholic hierarchy's objections to a medical welfare scheme proposed by the minister of health, Noel Browne, a member of Clann na Poblachta and supposedly MacBride's right-hand man. Browne broke with MacBride, the equilibrium of the interparty government was destroyed and in the election that followed, De Valera's Fianna Fáil party was returned as the strongest single party. The results were, with the seats held at the dissolution in parentheses: Fianna Fáil 69 (67), Fine Gael 40 (30), Labour 16 (20), Clann na Poblachta 2 (6), Clann na Talhman (Farmers') 6 (5) and Independents 14 (17).

The new government, however, depended for its painfully small working majority in the *dail eireann* on almost exactly the same set of independents who before the election had sided with Costello; the cost of living, with which De Valera's ministers had made great play in opposition, went on rising obstinately and the balance of payments tilted further against the republic. In such circumstances it was difficult for the new government to be strikingly different from that of Costello.

The year 1951 provided a partial fore-shadowing of the issue which seemed likely to divide the Irish liberals and conservatives. The agency behind this possible regrouping of Irish politics might prove to be the report of the central bank, issued in the autumn. The report called upon the Irish people to produce more, save more and generally to conduct themselves according to the ethos of central banks everywhere. At first the government looked like it would accept the bank's advice, but in the end it weakened and washed its hands of the report. Meanwhile MacBride, whose battered Republican party had advocated a new financial deal as its central policy, came back into the limelight and looked, moreover, like he would carry a section of the once supposedly conservative Fine Gael party with him. His main point was that the rate of the Irish pound against the British should be variable, as it was right up to the third decade of the 19th century. The historical departure was that Irish politicians had at last begun to face the issues of the 20th century and had ceased to carry on a protracted post mortem on the Anglo-Irish treaty and the civil war.

Trade returns issued by the central statistics office reflected the adverse conditions common to much of western Europe. For the first nine months they showed an adverse balance on merchandise trade of £97,000,000 as compared with £65,000,000 for the same period of 1950. Imports for the nine months were valued at £150,000,000 and exports at £53,000,000. More than £2,000,000 worth of meat, fresh, chilled, frozen or canned, was exported in the same period. Most of the chilled and frozen meat went to the United States and a contract for 4,000,000 lb. of frozen beef for U.S. forces in Germany was secured by a Waterford firm. The year 1951 saw agreement on the joint purchase of the Great Northern railway by the governments of the Republic of Ireland and of Northern Ireland. Each government contributed an equal share of the purchase price, and a joint board was to be responsible for operating the undertaking.

The United States and Great Britain sent new ambassadors: Francis P. Matthews, from the United States, was secretary of the navy before his appointment to Ireland; Sir Walter Hankinson, from Great Britain, had already served as a diplomatist in Dublin. Ireland continued to play its part both in the council of ministers and the consultative assembly of the Council of Europe, and in the Organization for European Economic Cooperation. (D. L. I.)

Education.—Schools (1949–50): elementary 4,896, pupils 445,183, teachers 12,821; secondary 416, pupils 47,065. Universities 2, (the National university has 3 constituent colleges) students 7,448, professors and lecturers 499.

Finance and Banking.—Budget: (1950–51 est.) revenue £77,400,000, expenditure £85,400,000; (1951–52 est.) revenue £80,500,000, expenditure £81,600,000. National debt (March 1950) £130,600,000. Currency circulation (Sept. 1951): £57,400,000. Bank deposits (quarterly average, July–Sept. 1951) £252,700,000. Gold and foreign exchange (Sept. 1951) = U.S. $204.000,000. Monetary unit: Irish pound at par with the pound sterling and with an exchange rate of £1 = U.S. $2.80.

Foreign Trade.—(1950) Imports £159,600,000, exports £72,400,000. Main sources of imports (1950): Great Britain 51.3%; U.S. 13.2%; Canada 3.7%; India 3.0%. Main destinations of exports: Great Britain 74.0%; Northern Ireland 11.5%; Netherlands 2.5%; Germany 2.0%. Main imports (1950): food, drink and tobacco 24.2%; textiles, excluding apparel 13.7%; machinery and vehicles 15.6%; nonmetalliferous mine and quarry goods 8.2%. Main exports: live animals 40.4%; food, drink and tobacco 40.6%. Index of volume of trade (on basis of 1937 = 100, 1950): imports 134, exports 94.

Transport and Communications.—Roads (1950): 49,170 mi. Licensed motor vehicles (Dec. 1950): cars 85,140, trucks 40.748. Railways, two principal railways including cross-border operations (1950): 2,460 mi.; passengers carried 21,000,000; freight carried 4,476,000 metric tons; freight net ton-miles 327,000,000. Air transport (1950): passenger-miles 50,000,000; cargo net ton-miles 495,000. Inland waterways: 566 mi. Telephones (1950): subscribers 49,429. Radio receiving sets (1950): 296,388.

Agriculture and Fisheries.—Main crops (metric tons, 1950): wheat 333,000; oats 537,000; barley 121,000; rye 3,000; potatoes 2,920,000; sugar, raw value 100,000; flax fibre 1,400. Livestock (June 1951): cattle 4,381,000; sheep 2,702,000; pigs 548,000; goats 50,000; horses (1949) 402,000; mules (1949) 5,000; poultry 18,570,000. Wool production (greasy basis, 1950) 6,000 metric tons. Food production (metric tons, 1950) meat 148,000, of which beef and veal 62,000, pork 71,000, mutton and lamb 15,000; butter from co-operative creameries 37,400; cheese 3,200. Fisheries (wet fish, 1950): 9,415 metric tons; value, including shell fish £436,901.

Industry.—Persons employed in industrial establishments (1948) 197,550. Fuel and power (1950): coal 169,200 metric tons; manufactured gas 153,600,000 cu.m.; electricity 903,600,000 kw.hr. New houses constructed under state aid (1950) 12,048. Index of industrial production (1950) 162 (1937 = 100).

Iron and Steel.

For convenience in coverage, this subject is subdivided into three major parts: iron ore, pig iron and steel.

While conditions varied in different producing countries, the iron and steel industry as a whole attained production levels far above any previous records. The 1950 increases over 1949 were 11% for iron ore, 15% for pig iron and 17% for steel, and most of the producers showed further sharp advances in 1951.

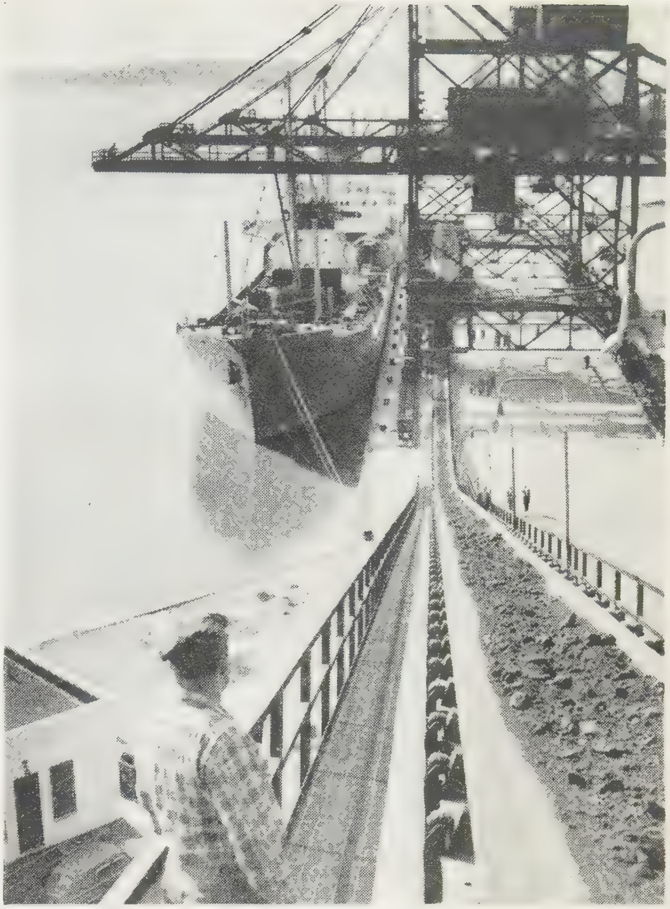
Iron Ore.—World output made a new record high in 1950, and preliminary data on 1951 indicated further increases. Table I shows the outputs of countries which had prewar or war records of 1,000,000 tons or more a year. The countries listed usually account for 80%–85% of the world total.

Table I.—*World Production of Iron Ore*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
United States	98,982	79,344	104,263	113,124	95,130	109,945
Canada	1,135	1,581	1,919	1,337	3,675	3,648
Newfoundland	1,103	1,393	1,617	1,644		
Brazil	789	1,102	1,022	1,589	1,641	2,094
Chile	1,042	1,491	1,772	2,806	2,863	3,280
Austria	357	520	976	1,320	1,640	2,049
Czechoslovakia	304	1,230	1,502	1,575	1,550?	1,765?
France	8,502	17,893	20,634	25,363	34,639	33,293
Germany	?	4,674	5,232	8,296	10,320	12,356
Great Britain	15,902	13,634	12,422	14,660	15,005	14,490
Luxembourg	1,550	2,477	2,196	3,749	4,560	4,238
Spain*	1,291	1,760	1,669	1,798	2,068	2,292
Sweden	4,332	7,570	9,805	14,647	15,155	15,352
U.S.S.R.	20,000?	23,000?	26,000?	?	?	?
Yugoslavia		439	814	969	921	880?
India	2,536	2,697	2,798	2,559	3,146	3,300?
Japan	1,495	624	550	618	859	1,003
Philippines		—	—	18	408	660
Algeria	1,326	1,842	1,715	2,065	2,798	2,836
Morocco, French		138	172	335	393	350
Morocco, Spanish	843	868	958	997	1,040	948
Sierra Leone	926	817	941	1,067	1,075	1,306
South Africa	885	1,044	1,281	1,283	1,375	1,311
Australia	1,750	2,046	2,414	2,290	1,636	2,649
Total	179,000	170,000	206,000	239,000	242,000	270,000

*Incomplete data; annual rate maintained during months for which data were available.



CHILEAN ORE arriving at a pier opened in May 1951 by the Baltimore & Ohio railroad in Baltimore harbour, Md. The pier was especially designed to handle the increasing flow of foreign ores to the United States

The salient statistics of iron ore in the United States are shown in Table II, as reported by the U.S. bureau of mines.

Table II.—*Production of Iron Ore in the United States*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Crude ore						
Production	119,070	94,298	127,649	141,372	117,433	140,828
Open-pit	88,407	71,522	95,900	110,876	87,542	108,492
Underground	30,663	22,776	32,870	30,496	29,891	32,337
Shipments	119,324	94,064	127,589	141,259	117,015	141,010
To consumers	76,153	60,377	79,813	85,846	71,138	78,885
To concentrators	43,170	33,686	47,775	55,415	45,877	62,125
Usable ore						
Production	98,982	79,344	104,263	113,124	95,130	109,810
Shipped direct	75,901	60,496	79,657	86,108	71,646	78,746
Concentrated	18,831	15,455	19,105	21,342	18,382	25,548
Sintered	3,670	2,825	4,893	5,136	4,501	4,872
Haematite	91,050	73,616	94,680	101,569	85,414	97,617
Brown ore	1,056	769	1,346	2,437	1,731	2,929
Magnetite	6,295	4,391	7,629	8,581	7,384	8,621
Shipments	98,713	78,501	104,513	112,921	94,849	109,496
Imports	1,337	3,159	5,491	6,842	7,663	9,220
Exports	2,311	1,687	3,144	3,451	2,716	2,845
Consumption	96,498	80,836	107,650	112,559	99,924	?

Table III.—*World Production of Pig Iron*

(In thousands of short tons)

	1946	1947	1948	1949	1950
Australia	979	1,268	1,384	1,170	1,214
Austria	64	307	676	924	973
Belgium	2,382	3,105	4,331	4,133	4,071
Canada	1,521	2,120	2,372	2,366	2,491
Czechoslovakia	1,058	1,569	1,822	2,067	2,076
France	3,852	5,393	7,230	9,210	8,647
Saar	272	720	1,250	1,744	1,854
Germany	2,711	2,922	5,340	8,146	10,767
Great Britain	8,692	8,457	10,389	10,641	10,786
India	1,632	1,728	1,647	1,842	1,862
Japan	233	405	922	1,791	2,520
Luxembourg	1,504	2,004	2,896	2,615	2,755
Poland	800	956	1,249	?	1,378
U.S.S.R.	11,000?	12,500?	15,500?	18,400?	21,500?
United States	46,323	60,141	61,966	54,868	66,378
Total	87,000	111,000	124,300	128,000	147,000

Table IV.—*Data on Pig Iron and Ferroalloys in the U.S.*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Pig Iron						
Production	53,224	44,842	58,327	60,073	53,323	64,500
Shipments	53,265	45,076	58,368	60,051	52,219	64,626
Imports	21	14	33	222	100	796
Exports	91	96	40	7	81	7
Consumption	53,187	45,072	58,291	60,026	53,447	
Castings	6,567	6,611	8,096	7,849	6,944	
Open-hearth	41,683	34,608	45,338	47,267	41,783	
Bessemer	4,751	3,723	4,712	4,778	4,612	
Electric	163	113	127	132	108	
Ferroalloys						
Production	1,732	1,481	1,814	1,893	1,544	
Shipments	1,662	1,551	1,842	1,952	1,425	
Ferromanganese	610	492	615	659	560	
Spiegeleisen	158	112	124	109	54	
Ferrosilicon	616	614	766	819	590	
Others	278	333	336	365	221	

Table V.—*World Production of Steel*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Australia	1,565	1,220	1,502	1,545	1,304	1,543
Austria	189	206	394	714	921	1,044
Belgium	826	2,532	3,177	4,321	4,243	4,176
Canada	2,878	2,327	2,946	3,200	3,190	3,384
Czechoslovakia	1,045	1,839	2,520	2,921	2,767	3,016
France	1,831	4,859	6,319	8,009	10,040	9,537
Saar	?	321	780	1,354	1,937	2,090
Germany	322	3,351	4,428	7,844	10,864	14,634
Hungary	142	389	658	818	936	1,127
India	1,515	1,448	1,407	1,407	1,515	1,584
Italy	435	1,271	1,864	2,342	2,265	2,604
Japan	2,295	621	1,037	1,889	3,429	5,344
Luxembourg	285	1,428	1,890	2,704	2,504	2,700
Poland	546	1,344	1,741	2,154	2,541	2,700?
Sweden	1,326	1,325	1,313	1,386	1,510	1,585
U.S.S.R.	13,200?	14,500?	15,400?	20,300?	25,400?	29,800?
United Kingdom	13,243	14,218	14,251	16,662	17,420	18,249
United States	79,702	66,603	84,894	88,640	77,978	96,836
Total	124,000	122,300	149,900	172,000	175,300	205,000

Table VI.—*Steel Industry in the U.S.*

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Capacity	95,505	91,891	91,241	94,233	96,121	104,230
Production	79,702	66,603	84,894	88,640	77,978	96,836
Basic open-hearth	71,070	60,112	76,209	78,715	70,249	86,263
Acid open-hearth	870	600	665	625		4,535
Bessemer	4,305	3,328	4,233	4,248	3,947	6,039
Electric	3,557	2,563	3,788	5,057	3,783	
Shipments	57,242	48,776	63,057	65,973	58,104	
Domestic	53,449	45,749	58,850	62,728	54,586	
Exports	3,793	3,027	4,207	3,245	3,518	

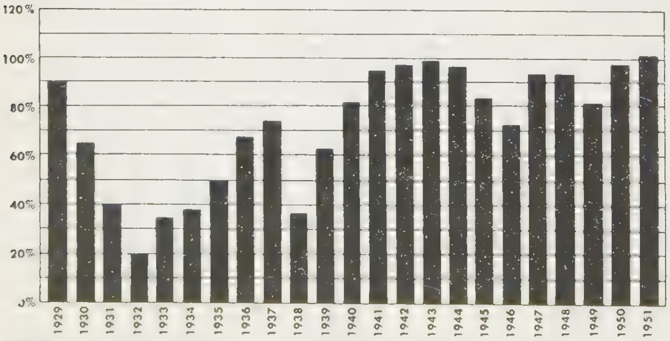
Production in the first ten months of 1951 totalled 121,227,000 short tons, as compared with 109,810,000 tons in the full year 1950.

Pig Iron.—Blast-furnace output of pig iron and ferroalloys in countries producing 1,000,000 tons or more annually are shown in Table III. The countries listed usually account for about 95% of the world total.

While there were small reductions in output by a number of minor producers, France and Belgium were the only major producers to show declines in 1950; of the total increase, 60% was in the United States.

The more important data on pig iron and ferroalloys in the United States are shown in Table IV, as reported by the U.S. bureau of mines.

Blast-furnace production in 1951 was 71,232,761 tons, of which 70,847,380 tons was pig iron and 745,381 tons was ferroalloys.



STEEL PRODUCTION in the United States, 1929-51; monthly average percentage of capacity (figures compiled by American Iron and Steel Institute)

Steel.—The countries listed in Table V, having normal outputs of 1,000,000 tons a year, usually account for 95%–98% of the world total.

The 1950 world total was a new record high; for the first time, steel output exceeded 200,000,000 tons. As with pig iron, France and Belgium were the only major producers to show declines, and 63% of the increase in the world total was made in the United States.

The outstanding features of the steel industry in the United States are shown in Table VI, as reported by the American Iron and Steel institute.

With a steel output of 96,240,773 tons through November, 1951 would be the first calendar year in which output exceeded 100,000,000 tons. (*See* also BUSINESS REVIEW; METALLURGY.)

FILMS OF 1951.—*Iron Ore Mining, Iron—Product of the Blast Furnace* (Academy Films). (G. A. Ro.)

Iron and Steel Institute, American: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Irrigation. **United States.**—Supplies of water for irrigation during 1951 were about as forecast by snow surveys, being sufficient or ample except in the southwest. In Arizona the long drought was broken briefly in August by storms which, in limited areas, built up soil moisture and the stored water that normally meets irrigation needs. However, storage was brought up to only about 12% of reservoir capacities or 350,000 ac.-ft. Thus the carry-over into 1952 was sure again to be meagre. In New Mexico, by October, storage in main reservoirs sank almost to zero; six with capacity of 3,630,000 ac.-ft. held only about 250,000. There also, unless winter snows should be unusually heavy, another year of shortages appeared likely. Since irrigation reservoirs in southern California are few and small, heavy pumping further depleted the ground water. The year thus ended with reserves very low throughout the southwest, especially in Arizona and New Mexico. They were average or better in central and northern California, Utah, Nevada and Washington; excellent in Idaho, Montana and Wyoming; varied in Colorado.

Notwithstanding widespread concern over depletion of reserves in the southwest, changing crop patterns brought about a marked increase in water use. In California the cotton acreage more than doubled, partly by reduction of alfalfa but also by the irrigation of acreages previously dry, and this, with other shifts, resulted in use of perhaps 1,500,000 ac.-ft. of water more than in 1950, much of it ground water. A similar cotton increase in Arizona—289,000 ac. in 1950, 559,000 in 1951—was somewhat offset by reduction in alfalfa, a heavier water user.

These pumping increases were brought about mainly by individual farmers, the federal bureau of reclamation still being the principal constructor of large-area systems. The 1950–51 program was one of its most comprehensive, served acreage increasing 346,000 ac. over the previous year and bringing total service, full and supplemental, to almost 6,000,000 ac. in more than 100,000 farms. The major achievements were the completion of canals and pumping plants ensuring the first integrated operation of the Central valley project in California where supplemental water was delivered to districts in which 172,000 ac. had been irrigated in 1950, and the making of water available for the first 87,000 ac. of the Columbia basin project in Washington. Installed nameplate capacity of 3,939,500 kw. in the 23 operated power plants increased 771,100 over the previous year. Sales of electric energy approximated 21,000,000,000 kw.hr. and produced revenue of about $35,000,000. At year's end, construction was under way in 13 storage dams, 2 diversion dams, 10 power plants, 6 pumping plants, 360 mi. of main canals, 28 mi. of tunnels, 2,200 mi. of transmission lines, and lateral systems for 17 separate areas.

Consciousness of water shortages in southern California led the state legislature to approve plans long under consideration by federal and state agencies for the largest and most expensive irrigation project in the United States. This project would divert water from Feather river to the southernmost counties of the state, through many shortage areas. The ultimate cost to the state would exceed $1,000,000,000.

The first announcements of returns from the federal census of irrigation of 1950 were made late in 1951 by the bureau of the census. Of chief significance were the figures (preliminary and subject to revision) showing acres irrigated in the 17 westernmost states in 1949, as follows: Arizona, 979,014; California, 6,618,595; Colorado, 2,940,502; Idaho, 2,168,323; Kansas, 140,992; Montana, 1,809,908; Nebraska 887,505; Nevada, 722,-896; New Mexico, 691,429; North Dakota, 35,759; Oklahoma, 44,189; Oregon, 1,338,226; South Dakota, 84,356; Texas, 3,148,-115; Utah, 1,166,659; Washington, 617,362; Wyoming, 1,475,-069. The total, 24,868,899 ac., was an increase of 4,473,856 over the 1939 total, which was accounted for largely by California and Texas, the latter state superseding Colorado in second place. For California the acreage reported as irrigated by water pumped from wells (3,350,543 ac.) was more than half the state total; this was true also of the figures for Texas (1,856,642), Arizona (524,335) and Kansas (92,171). The 72,163 pumped wells in California were three-fifths of the 116,080 in the entire group, Texas with 15,065 being in second place. California reported 1,687 reservoirs and Colorado 1,182 of the total of 7,411. Investment in irrigation works and water rights increased by $798,522,870 during the decade, bringing the total to $1,833,-239,633 as of Jan. 1, 1950. California was again in the lead, increasing its investment of $321,172,287 to $640,061,505. Washington was in second place, increasing $122,061,268 to $178,476,464.

Australia.—A compilation by the bureau of investigation, Queensland, 1951, reported on 37 reservoirs in Queensland, New South Wales, Victoria and Tasmania. Of these, 13 were already in existence, 8 under construction and 16 proposed; total capacity, 25,890,000 ac.-ft. The largest, of about 7,000,000 ac.-ft., was proposed at Burdekin falls, Queensland. The Burdekin river authority had arranged, as the first step, for a temporary weir and simultaneous construction of the dam with the early objective of pumping from the river to irrigate about 800 farms and to generate electric power. In Queensland about 100,000 ac. were being irrigated, but water for 2,000,000 ac. was available for development. From Burdekin river the ultimate irrigation of 350,000 ac. was expected in tobacco, sugar cane and pastures.

India.—Bhakra-Nangal, involving a reservoir on Sutlej river in the Punjab, was to store 7,200,000 ac.-ft., provide 400,000 kw. of firm power and irrigate 6,600,000 ac. Completion goal, 1955 or 1956. Damodar valley (province of West Bengal), India's first venture into the valley authority type of administration, involved dams and canals for power and navigation as well as eventual irrigation of nearly 1,000,000 ac. Completion goal, 1954–55. Hirakud dam (province of Orissa), which would form a reservoir, store 6,000,000 ac.-ft., irrigate 1,000,000 ac. and provide power, flood control and navigation facilities, was behind schedule but going forward. Tungabhadra project, on the boundary of Madras and Hyderabad provinces and being built by them jointly, was scheduled for completion by 1954. Involved were a reservoir of 2,500,000 ac.-ft. effective capacity and eventual irrigation of nearly 1,000,000 ac., as well as power development. In Madras province the Kistna Pennar project, still in the planning stage, would, if built as planned, irrigate 3,200,000 ac.

Thailand.—Fifteen projects were planned or in construction stages. An emergency enterprise, financed with Economic Co-operation administration funds, comprised diesel pumps mounted on trucks which would move from place to place to pump additional water to rice paddies. Construction of a canal system on Mool river, begun in 1939 but suspended during the war years, had been resumed. About 40,000 ac. of paddy lands in a food deficiency area were involved. (*See* also Aqueducts; Dams; Floods and Flood Control; Soil Erosion and Soil Conservation.)

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Films of 1951.—*The Importance of Water* (Bailey Films).

(P. A. E.)

Islam.

The drive for literacy made considerable progress in most Islamic countries in 1951. The two most important cultural events were the world Moslem conference at Karachi, Pak., in February and the 21st Congress of Orientalists at Istanbul, Turk., during September. For the first time in the long history of the congress the eastern Moslem orientalists banded themselves together into an independent congress of their own. Everywhere in the Islamic sphere of influence there was a craving for knowledge and an immense amount of journalistic activity often combined with a striving toward political unity and social equality.

In Egypt steps were taken toward implementing the ministry of education's promise of free education for all. Thus, the budget for education was raised from £E 23,000,000 in 1950 to £E 30,000,000 in 1951. Of this £E 3,457,205 was spent on school meals. Apart from education of the young, a literacy campaign drove for more than 400,000 students. The Egyptian government opened an institute of Islamic studies in Madrid, Sp., and aimed at opening another at Tangier. Syria devoted £S 30,000,-000, 20% of its budget, to education; the number of elementary schools had risen from 658 in 1946 to 1,576 in 1951. In Iraq part of 12,618,000 dinars allocated for the school building program was expended, and it was hoped that the University of Baghdad would at last become a reality. In Kuwait and Saudi Arabia, education received a great stimulus as a result of increased oil revenues. The Palestine Arabs with their high standard of education played a large part in helping Jordan evolve toward a constitutional monarchy: King Talal (*q.v.*) made a promising start to his reign and his friendly attitude towards Egypt gave a tremendous stimulus to the Arab cultural ties. Lack of revenue, because of the oil crisis, prevented expansion of education in Iran.

In the French-administered north African states, there was great enthusiasm for publications in Arabic and for information about the Islamic world, particularly about the new independent Islamic countries. North African Arabs under French rule continued their struggle to get recognition of their right to education in their native tongue. In Algeria, the 'Ulamas, continuing the work of the Sheikh 'Abd al-Hamid bin Badis, played an important part in keeping education in Arabic alive. In Nigeria, where the bulk of the 11,000,000 population in the northern provinces are Moslem, and in Senegal, Mauritania, Zanzibar, Oman and Aden there was increasing demand for Arabic literature.

Pakistan added a university to its already existing four when parliament passed an act to establish a federal university at Karachi. A stimulus was also given to education in east Pakistan whose government set up a committee to advise on reorganization of the educational system. Free primary education, formerly provided in at least 14 districts, was extended to the whole of east Pakistan. U.N.E.S.C.O. officials carried out a three-year survey of education in Afghanistan, and published the first detailed account of education in that country. An intensive campaign was carried out to educate the nomadic Afghan tribes.

In Indonesia, where six years previously 93% of the population was illiterate, an active campaign was pursued to wipe out illiteracy. In 1949, 513,626 people had been taught to read and write. The universities of Jakarta and Jokjakarta were enlarged to 14 faculties and English was substituted for Dutch as the compulsory second language. In the Malay states cultural activities were restricted by the war against the terrorists.

(A. MD.)

Isle of Man: *see* COMMONWEALTH OF NATIONS; GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

Isotopes: *see* ATOMIC ENERGY.

Israel. Israel is a republic, proclaimed on May 14, 1948, at Tel Aviv, bounded north by Lebanon, east by Syria and Jordan, south by Egypt and west by the Mediterranean sea. According to a partition plan adopted on Nov. 29, 1947, by the general assembly of the United Nations, the state of Israel was to cover 5,579 sq.mi. (with Negeb); after armistices concluded with all the neighbours during 1949 the official area of Israel was estimated to be 8,084 sq.mi. Pop.: (Nov. 1948 census) 782,000, including 713,000 Jews; (Sept. 1951 est.) 1,555,000, including 1,383,000 Jews. Religion: mainly Jewish, but by 1951 there were 125,000 Moslems and 46,300 Christians, mainly Arabs (Roman Catholic rites: Graeco-Melchite 20,000, Latin 5,100, Maronite 1,200, Armenian 1,200; Greek Orthodox 17,000; Protestant denominations 1,500; Copts 300). Chief towns (pop., Dec. 1949 est.): Jaffa-Tel Aviv (more than 300,000); Haifa (more than 150,000). President of the republic in 1951: Chaim Weizmann; prime minister: David Ben-Gurion.

History.—Although immigration and development projects continued to make progress in 1951, the enormous disparity in the balance of trade brought increasing hardship on the population. In the field of foreign relations, while Israel was able to improve its friendly relations with the western powers, the "cold war" with the surrounding Arab states grew more bitter.

The number of immigrants during the year totalled 174,000, of whom the greatest number (87,916) came from Iraq; Rumania provided more than 37,000, Iran 9,000 and the Moslem countries of Africa 13,000. The influx of this large number of new arrivals increased the strain on the country's economy. The weakness of the Israeli currency, principally a result of the disequilibrium in the country's economy, was illustrated by the fact that the Israel pound, nominally equivalent to the pound sterling, was quoted in Dec. 1951 on the free market in Tel Aviv at one-fifth its official value. The cost-of-living index (100 in 1939), which was 319 in May 1950, stood at 388 in Oct. 1951. The problem of maintaining an adequate food ration, in view of the fact that the bulk of supplies had to be imported, caused grave concern, and the shortage of consumer goods placed an increasing strain on the population.

Dissatisfaction with the Ben-Gurion government's handling of the economic problem was again, as on Oct. 15, 1950, the underlying cause of his second resignation when, on Feb. 14, 1951, he was defeated in the *knesset* on a motion dealing with religious education in immigrant camps. As no alternative government could be found after a fortnight of strenuous negotiations between the parties, Ben-Gurion announced that his government would remain in office until fresh elections could be held. These took place on July 30 and resulted in a loss of 1 seat by the prime minister's Mapai (Labour) party and a gain of 13 seats by the General Zionists, a centre party, which thus became the second largest party in the *knesset*. The General Zionists offered to join Mapai in forming a coalition, but it was found impossible to achieve a common program. Negotiations between the parties continued for many weeks, but it was not until Oct. 7 that Ben-Gurion, as leader of the largest party, was able to form his new coalition cabinet. For his third administration Ben-Gurion relied upon a combination of his own party with the religious parties which had been immediately responsible for his two parliamentary defeats. His supporters in the *knesset* numbered only 65 of a total of 120 and included 5 representatives of Arab parties affiliated to Mapai.

Chaim Weizmann, whose failing health gave cause for serious anxiety at the beginning of December, was re-elected president on Nov. 19 by 85 votes to 11 in the *knesset*.

The 23rd World Zionist congress met in Jerusalem from Aug. 14 to 30. The meeting was principally notable for the lively discussion on the position and functions of the Zionist organization in relation to the state of Israel, which was not in existence at the time of the previous congress. The attempt to enunciate a new program, comparable with that laid down by the first congress in Basle in 1897, failed for lack of agreement among the 480 or so delegates, and a new formula was adopted which stated that the task of Zionism was to strengthen the state of Israel, to gather in the exiles in Israel and to foster the unity of the Jewish people. Disagreement showed itself most strongly when the Israeli delegate tried to insist that it was the duty of all Jews to come to Israel, an exhortation which was strongly resented by the U.S. delegates in particular, who claimed that their obligations did not extend beyond assisting the state by all means in their power from the other side of the Atlantic.

In foreign affairs the outstanding feature was the continued tension between Israel and the Arab states. Minor border incidents between Israel and Jordan were frequent. Between Israel and Syria a serious situation arose toward the end of March as a result of the latter's objection to Israel's drainage works at Lake Hulah. In retaliation for the shooting of seven Israeli policemen in the area on April 4, the Israeli air force the following day bombed a Syrian position at El Hamma. The matter was referred to the U.N. Security council and in May both parties agreed to accept the council's cease-fire resolution. Another dispute which came before the Security council concerned the Egyptian embargo on all shipping in the Suez canal which carried goods destined for Israel. This led to the adoption on Sept. 1 by the council of a resolution condemning Egypt's action, but the latter, supported by the states of the Arab League, declared its refusal to execute the decision. In a further endeavour to improve relations between Israel and the Arab states the U.N. Palestine Conciliation commission convened a conference in Paris, which opened in September. These efforts proved abortive and the conference closed on Nov. 21.

Israel's relations with the western powers continued to be friendly. On Aug. 23 Israel signed a treaty of friendship with the United States, and trade agreements were concluded with a number of countries including Poland, Yugoslavia and Finland. In May the prime minister paid a three weeks' visit to the United States to help the campaign for selling Israeli bonds. Israel's position in relation to the U.S.S.R. remained delicate in view of the fact that Israel strove not to be implicated in the east-west diplomatic struggle and that it strongly desired to obtain facilities for Jewish immigration from the Soviet Union, a matter which was discussed by the foreign minister, Moshe Sharett, with Andrei Vishinsky in Paris in December. (*See* also IMMIGRATION AND EMIGRATION.) (D. F. K.)

Education.—(1950–51) Government schools: kindergartens 1,325, pupils 51,485, teachers 1,748; elementary 703, pupils 130,721, teachers 6,175; secondary 113, pupils 12,923, teachers 1,234; vocational 37, pupils 4,027, teachers 390; agricultural 31, pupils 4,425, teachers 344; teachers' train-

SURVEYOR calculating the dividing line between Israel and Jordan in March 1951

ing colleges 16; theological schools 135, pupils 7,337. Arab schools 97, pupils 24,240, teachers 536. Nongovernment schools: Jewish religious schools 37, pupils 4,300; secondary 2; teachers' training college 1; trade schools 8. Institutions of higher education 4; Hebrew university (Jerusalem), students 1,862, professors and lecturers 290.

Finance and Banking.—Budget: (April 1950–March 1951) balanced at IL.59,500,000; (1951–52) balanced at IL.198,500,000, including IL.85,000,000 for development and IL.38,000,000 for defense. Currency circulation (July 1951): IL.87,500,000. Bank deposits (Nov. 1950): IL.133,800,000. Foreign exchange (July 1951): U.S. $7,700,000. Monetary unit: Israel pound, theoretically at par with the pound sterling.

Foreign Trade.—(1950): imports IL.102,600,000; exports IL.13,200,000. Main sources of imports (1951, six months): U.S. 34.5%; U.K. 9.3%; France 5.1%; Union of South Africa 4.7%. Main destinations of exports: U.K. 39.8%; U.S. 17.8%; Denmark 6.7%; the Netherlands 5.0%. Main imports: machinery, grain and flour, vehicles, iron and steel manufactures, fuel. Main exports: food, drink and tobacco (62% in first half 1951).

Transport and Communications.—Roads (1951): 2,126 mi. Licensed motor vehicles (Dec. 1950): cars 9,300, commercial 15,200. Railways (1950): 260 mi.; freight net ton-miles 43,900,000; freight carried 708,000 metric tons. Shipping (Dec. 1949): merchant vessels 27; total tonnage 78,649; passengers transported by merchant vessels (1950) 80,000; cargo carried (1950) *c.* 200,000 tons. Air transport (1950): passengers carried *c.* 100,000. Telephones (1950): 24,984. Radio receiving set licences (1949): 143,907.

Agriculture.—Main crops (metric tons, 1949): wheat 22,000; barley 20,000; maize and durra 10,000; oats 1,000; potatoes (1950) 40,000; sesame (1950) 600; grapes (1948) 18,000; olives (1948) 11,000; olive oil 3,000; oranges and tangerines (1950) 173,000; grapefruit (1950) 36,000; lemons (1950) 4,000; plums and prunes (1950) 2,300; apricots (1951) 5,000; bananas (1949) 4,000. Wine production (1949) 7,000 hl. Livestock (1949): cattle 33,000; sheep and goats 70,000; horses and mules 8,000; asses 2,000; chickens (1950) 4,750,000. Fisheries, total catch (1948–49): weight 3,500 metric tons; value IL.1,583,900.

Industry.—Electricity sales (1950) 460,800,000 kw.hr. Manufactured goods (metric tons): cement (1950) 380,400,000; margarine (1949) 7,400,000; wheat flour (1949) 98,700; soap (1949) 5,400; beer (1949) 8,936,000 l.; cigarettes (1949) 1,031,000,000.

FILMS OF 1951.—*Jerusalem—The Holy City* (Encyclopædia Britannica Films Inc.); *Jordan Valley* (International Film Bureau, Inc.).

Italian Colonial Empire: *see* ERITREA; LIBYA; SOMALILAND, ITALIAN.

Italian Literature.

There was strong evidence in the literary production of the year 1951 that Italian novelists were definitely breaking away from the subject of World War II and its immediate effects upon the people, to concern themselves chiefly with man in his relation to society and to the world in general. Combining great sensitivity to the life and problems of their country with a profound sentiment of human sympathy, a yearning for love, justice, peace and understanding among men, they delved in man's heart and mind to discover and analyze the evils afflicting him. A considerable number of works dealt with the spiritual tragedy of Italy's youth, scarred by inhuman experiences during the fascist wars, and now entering a world filled with fear, hatred and insecurity. Some of these young men, still in their early twenties, described the illusions and disillusionments of their own generation with staggering stoicism, maturity, simplicity and humility. They belonged to no literary movement. Their school had been life, their models stark reality. A cogent analysis of the historical background of this state of mind was furnished by the eminent liberal Catholic historian, Arturo Carlo Jemolo, in his volume of essays, *Italia tormentata.*

The dilemma of guilt or nonguilt, of good or evil and of "choice" was investigated by Eugenio Vaquer (*Settanta volte sette*) in the case of a German girl who, having been the mistress of a Jew, had to join the gestapo in order to redeem herself. While lacking action, the novel was captivating for the vivid characterization of its heroine and for its implication that forgiveness pays better dividends than the accumulation of hatred. Dante Arfulli (*La quinta generazione*) developed the theme of man's struggle for fair play in the story of two fathers and then of their two sons who grow up together through fascism, the war and liberation until they separate when one acquires great wealth and power and the other the conviction that hard work and grief are the inevitable price of honesty. The same theme but with a different solution was elaborated by Libero Bigiaretti (*Carlone*) in his account of the life of a common man who strives to be good in a society which is not good and who, after a half-century of disappointments, still clings to his faith in humanity. The fear of loneliness and ennui, the danger of drifting in the vacuum created by our civilization were treated in the beautifully written pages of Giorgio Soave (*Le spalle coperte*). An attempt to mitigate man's self-inflicted unhappiness was made by Roberto Papi (*Piccolo giudizio universale*) who suggested that we ban lofty and unattainable illusions to appreciate and enjoy what is real: youth, love, nature and the eternal truths. Rita Ferroni, in the story of a schoolmistress and one of her boy students (*Aiutiamoci a vivere*) finds that life as it is commonly conceived brings nothing but sorrow and misery whereas the only life that can give genuine satisfaction is that of the soul, and that true happiness consists in loving our fellow men, particularly those who suffer more than we do. Vice and innocence, sin and purification, as seen through the vicissitudes of a factory girl were carefully examined by Armando Meoni in *La ragazza di fabbrica.*

The surprise of the year was an incredibly skilful short novel by 20-year-old G. Parise (*Il ragazzo morto e la cometa*), whose story of an adolescent fused life and death, heaven and earth, reality and fantasy in such a manner as to make of the boy a symbol of his anguished generation. The temptation to escape from man's chaotic existence was handled brilliantly by Tommaso Landolfi in *Cancroregina,* an account of a tired man's flight to the moon with a mad companion. Some authors extended their human sympathy even to their fellow animals as did Eva Quajotto in *Bestie e noi* and Giuseppe Toma in *Le bestie parlano* in which the sensibilities of the animals, the mystery of their lives, their labour and tasks in common with man are so cleverly brought out that their story becomes our own. Bino Samminiatelli returned to the literary scene with four short novels, *Gente in famiglia,* in which he probes the multiple and conflicting human passions in that smallest of all social units, the family, between World Wars I and II. Alberto Moravia added another portrait to his growing gallery with the penetrating though unconvincing study of a young man who, in his overpowering drive to conform, annihilated his own personality (*Il conformista*).

The three most coveted prizes of the year went to Domenico Rea's *Gesù, fate luce* (Viareggio prize), a charming collection of picaresque stories about girls, Allied soldiers, convicts, beggars, hack drivers and black marketeers in and around Naples during World War II; to Giuseppe Berto's *Il brigante* (Valdagno prize), a novel about love and hate, the land reform, brigantism and Marxism in Calabria; and to Corrado Alvaro's *Quasi una vita* (Strega prize), the author's notebook from 1927 to 1947, containing his inner thoughts, sketches of well-known personalities and his impressions of his European travels. Restful and diverting reading was provided by Luigi Bartolini's *Il mezzano Alipio*, a narration of the fantastic deeds and misdeeds of a village go-between and a jealous city gentleman; and by Francesco Serantini's *L'osteria del gatto parlante,* a collection of short stories brimming with the lust and pathos of a little world whose capital was a wine shop in the rich land of Romagna.

Most of the poetry was concerned with themes of human suffering and loneliness, melancholy, peace, death and the tragic sense of life. Representative of this trend were Attilio Bertolucci's *La capanna indiana* (Versilia prize), Ugo Fasolo's *Accettazione della notte,* M. Saba's *La serena disperazione,* Luigi Fiorentino's *Basalto del tuo corpo* and Cesare Pavese's posthumous lyrics *Verrà la morte e avrà i tuoi occhi.* A panorama of recent poetic production was offered in the *Prima antologia di poeti nuovi.* (M. F. C.)

Italy.

A republic of southern Europe, bounded on land northwest by France, north by Switzerland and Austria and northeast by Yugoslavia. The country includes not only the whole of the Apennine peninsula, but also the large Mediterranean islands of Sicily and Sardinia and a number of smaller islands. Area: 116,224 sq.mi., excluding Venezia Giulia, Zara and the islands (2,843 sq.mi.) ceded to Yugoslavia, the five small areas in the Alps ceded to France (273 sq.mi.) and the Free Territory of Trieste (*q.v.*). Pop.: (1936 census) 42,444,588, in the territory of the date of census; (Nov. 4, 1951 census) 47,020,536. Language: mainly Italian, but in Venezia Tridentina there were *c.* 210,000 German-speaking Tyrolese, and *c.* 10,000 Romansch-speaking Ladins; in the area east of Udine there were *c.* 11,200 Slovenes and the population of Val d'Aosta (*c.* 6,600) was French-speaking. Religion: mainly Roman Catholic (99.6%). Chief towns (pop. 1951 census): Rome (cap., 1,606,739); Milan (1,264,402); Naples (1,003,815); Turin (711,492); Genoa (678,200); Palermo (482,594); Florence (375,392); Bologna (338,710); Venice (315,291); Catania (297,773); Bari (267,726); Messina (218,593). President, Luigi Einaudi; prime minister, Alcide de Gasperi (*q.v.*).

History.—Italy was the scene of much political excitement during 1951. Late in January the still powerful Italian Communist party witnessed the defection of two former partisan leaders, Valdo Magnani and Aldo Cucchi, active and respected members of the party in the region of Emilia and both deputies. The ground for their action was provided by the dictation of Moscow against which they were determined to protest. Public opinion expected something like a landslide to follow, and many people hoped that the splintered anti-Communist Socialist party would reap the benefit. The permanent Socialist crisis in Italy became more than usually acute in the next few months, in the course of fresh efforts to reunite the party. The left-wing groups led by Ignazio Silone and Giuseppe Romita made it the condition of their co-operation with the right wing led by Giuseppe Saragat that the latter, together with his following, should resign from the government, which was, except for three Republican ministers, Christian Democratic and anti-Socialist; in return Silone and Romita were prepared to abandon their opposition to the North Atlantic treaty. On this basis the anti-Communist Socialist party theoretically reunited on May 1. This reunion was, however, obviously brittle as the local elections in May and June were to prove.

The last elections in the more than 8,000 communes of Italy had been held in 1946 and had placed local authority under Communist or pro-Communist control in many of Italy's most important cities. De Gasperi's government naturally wished to alter this situation. For this purpose a new electoral law was made according to which, in communes with more than 10,000 inhabitants, party lists could be linked; further, whichever group of lists gained the majority was to be awarded at least two-thirds of the seats on the communal *giunta* or council. These local or, as the Italians call them, administrative elections, which included the election of provincial authorities, were to be held in three rounds, the first taking place on May 27 and the second on June 10. On June 3 the autonomous region of Sicily elected its legislative assembly.

The results of the voting brought above all Christian Democratic losses, heavy by comparison with the general election of 1948. The old Liberal party made slight but noticeable gains in cities like Milan and Turin, but scored less than the neofascists of the Movimento Sociale Italiano, which increased sharply, especially in the south and in Sicily where Communist and anti-Communist extremists polled equally well, leaving a centre composed of about one-third of the deputies. On the other side the Communists, to everyone's surprise, stood firm, and the pro-Communist Socialists led by Pietro Nenni made gains while the anti-Communist Socialists made no headway in spite of "reunion." Thus, while the control of many big communes—thanks to the list linking system—passed to the progovernment parties, the Communists and their allies held the chief Emilian cities with a two-thirds majority on the town councils; the actual voting figures showed a swingback toward those of 1946 as compared with 1948. The government decided to postpone the third round of local elections until the following year.

On July 15 the minister of the treasury, Giuseppe Pella, who had successfully steadied the lira but had long been criticized from all sides for his policy of restricting credit, resigned suddenly. This brought about the resignation of the cabinet. By July 26, however, De Gasperi had formed his eighth government which in fact differed little from its predecessor, consisting again of a large majority of Christian Democrats with three Republicans, and with Pella as minister of the budget. The Republicans now carried even less weight than before, for De Gasperi himself superseded Count Carlo Sforza (Republican) at the foreign office, with Paolo Emilio Taviani practically in charge. Though Sforza remained as a minister without portfolio it was felt by many that the rising nationalist outcry against him had succeeded and that De Gasperi would find it necessary to give more weight to nationalist demands.

Foreign Affairs.—After De Gasperi's and Sforza's meeting with their French counterparts at Santa Margherita in February they both paid what was considered a successful visit to London from March 12 to 16. The Italian sense of grievance was, however, not relieved, the feeling of having no real voice in world affairs taking the form of an exaggerated indignation against the Italian peace treaty which Sforza found it necessary to declare "morally extinct" in a speech at Genoa on May 20. Italy's entry into the North Atlantic Treaty organization made the treaty, with its restrictions upon the armed forces and its encroachments upon Italian sovereignty, a complete anachronism. Further, the Soviet Union had consistently vetoed what was to have followed upon the treaty—Italian membership of the United Nations. Finally the peace treaty had outraged Italian sentiment by the creation of the Free Territory of Trieste which on March 20, 1948, the United States, Great Britain and France had suggested should be restored to Italy unconditionally. Since then, as the Italians saw it, Yugoslavia had become important to the three powers in their "cold war" with the U.S.S.R., and Italy's claims had been forgotten.

On Sept. 26 the three western powers again issued a statement condemning the Italian peace treaty and advocating Italian membership of the United Nations. To this the U.S.S.R. responded on Oct. 11 by saying that it was willing for the treaty to be revised provided that Italy left the North Atlantic Treaty organization; if Italy were admitted to the U.N. then Bulgaria, Finland, Hungary and Rumania should receive the same treatment. On Dec. 8 the Italian government published its request to the 21 signatories of the peace treaty for its revision.

Agrarian Reform.—The problem of southern Italy overlapped largely with the problem of agrarian reform which, however, in varying degrees affected the whole country. In spite of much grumbling and opposition real progress was made with the settling of landless peasants in southern Italy on land of their own with decent housing and access to implements and advice. The 30 families who were settled on the Sila plateau in Calabria in Sept. 1950 were increased to about 8,500 by Oct. 1951, according to a speech made by the minister of agriculture in the chamber on Oct. 26, and plans for the expropriation of about 800,000 ac. in the other backward areas were worked out during the year, nearly 1,500 ac. near Rome being distributed to 156 peasants on Dec. 2. At the same time a good deal of preparatory work on roads, drainage and the clearance of stony tracts was carried out and some tractor centres established (a great novelty in southern Italy), while in Lucania, the most derelict region of all, the foundations of three model villages were laid—the first at the beginning of September. On Oct. 11 the International bank, two weeks after De Gasperi's visit to the United States, announced a loan of $10,000,000 to promote the work of developing southern Italy. It should on the other hand be noted that the third and more ambitious of the agrarian reforms, which was to have affected the whole country, was by common consent considered to have been dropped, as was also the special program for the Po delta. Near here, especially in the province of Rovigo, catastrophic floods toward the end of November ruined about 301,000 ac. of cultivable land apart from grave losses of life and house property.

GLASS-WALLED ticket hall of the railway terminus in Rome, It., photographed in 1951 several months after its official dedication. About 320 scheduled trains operated from the station daily

Economic Position.—It cannot be said that the Italian industrial situation changed much in 1951. Government boring for oil continued with reasonable success but without sensational results. The substitution of the use of natural gas for that of coal was extended to include Novara and Turin in Piedmont in the network centred on Milan and spread over Lombardy. But apart from this the difficulties of scarce raw materials and too many hands combined with bad management involving obsolete plant equipment (for which industrialists were inclined to blame Pella's short credit policy) remained. They involved permanent tension between employers and employees, especially in the mechanical industries.

Overpopulation leading to unemployment and above all to underemployment and inadequate pay was equally apparent among white collar workers. Throughout the year the inflated and underpaid civil service was extremely restive. On May 8 there was a one-day strike of civil servants throughout the country, a strike which was backed by all the trade unions—Communist, Catholic and Socialist alike—and which was observed by large numbers. Later in May and in June there were teachers' strikes, so that in May, for instance, many secondary schools were closed for half a week. (It should be emphasized that Italian teachers of all kinds were particularly badly paid.)

On Sept. 19 there was another 24-hour strike of civil servants in which, this time, the railwaymen but not the teachers participated. Toward the end of the year the government completed the draft of a bill intended to restrict drastically the right to strike.

Another much-talked-of reform matured in October. Tax evasion, especially by large concerns but also by individuals, had long been a crying abuse; moreover, it resulted in exorbitant demands from the inevitably suspicious authorities. Ezio Vanoni, minister of finance (and Pella's successor at the treasury in July), decided to try to create a hitherto unknown confidence between the government and the public by asking for honest individual declarations of income by Oct. 10 in return for which he undertook to overlook past evasion and to reduce the rate of taxation; dishonest statements were to lead to great severity. It was too early by the end of 1951 to judge the success of this measure. (*See* also ERITREA; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; LIBYA; SOMALILAND, ITALIAN.) (E. WI.)

Education.—Schools (1948–49): elementary 38,766, pupils 4,878,149, teachers 165,399; secondary 1,192, pupils 374,616 (boys 207,302, girls 167,314), teachers 31,668; technical secondary 2,161, pupils 342,706 (boys 242,103, girls 100,603), teachers 30,312; schools of art and academies of music 93, pupils 11,562 (boys 8,205, girls 3,357), teachers 1,734; universities and institutions of higher education 27, students 167,978, lecturers 3,890.

Finance and Banking.—Budget: (1950–51 est.) revenue 1,227,000,000,000 lire, expenditure 1,397,000,000,000 lire; (1951–52 est.) revenue 1,455,000,000,000 lire, expenditure 1,824,000,000,000 lire. Internal national debt (Aug. 1951): 2,820,000,000,000 lire. Currency circulation (Aug. 1951): 1,090,000,000,000 lire. Bank deposits (Aug. 1951): 1,433,000,000,000 lire. Gold and foreign exchange (June 1951): U.S. $765,000,000. Monetary unit: lira (pl. lire) with an exchange rate of 1,750 lire to the pound and 625 lire to the U.S. dollar.

Foreign Trade.—(1950): Imports 897,648,000,000 lire; exports 746,328,000,000 lire. Main sources of imports (1950): U.S. 13.4%; Germany 8.3%; U.K. 5.6%; Argentina 5.4%; France 4.6%. Main destinations of exports: U.K. 11.5%; Germany 9.8%; France 8.7%; Switzerland 6.4%; U.S. 6.4%. Main imports (July–Dec. 1950): raw cotton and waste 10.1%; petroleum and products 6.9%; coal 6.8%; raw wool and waste 6.0%; wheat and flour 5.5%. Main exports: fresh and dried fruit 11.0%; artificial fibres and fabrics 10.2%; cotton yarn and fabrics 9.7%; machinery 7.5%; wool yarn and fabrics 5.3%.

Transport and Communications.—Roads (June 1950): 108,237 mi. Licensed motor vehicles (Dec. 1950): cars 342,021, commercial 229,277. Railways (1950): 13,449 mi., of which state railways 10,137 mi. Traffic on state railways (1950): passenger-miles 12,643,000,000; goods, ton-miles 24,314,000,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,070; total tonnage 2,582,547. Air transport (1950): passenger-miles 94,300,000; cargo, ton-miles 1,900,000; mail, ton-miles 600,000. Telephones (1949): 831,434 subscribers. Radio receiving set licences (1949): 2,543,000.

Agriculture.—Main crop (metric tons, 1951): wheat 6,736,000; maize 2,583,000; barley 268,000; oats 526,000; rye 123,000; potatoes 3,342,000; (1950): rice 690,000; sugar, raw value 610,000; dry beans 118,000; cotton, ginned 3,000; cottonseed 7,000; flax fibre 4,800; linseed 12,000; hemp fibre 63,500; rapeseed 6,000; ground nuts 7,000; tobacco 67,000; olives 898,000; olive oil 150,000; oranges and tangerines 578,000; lemons, limes and other citrus fruits 332,000; grapes 5,990,000. Wine production (1950) 35,790,000 hl. Livestock (1949–50): cattle 8,331,000; sheep 10,376,000; pigs 4,375,000; horses 791,000; mules 391,000; goats 2,592,000; buffaloes 12,000. Livestock products (metric tons, 1950): wool, greasy basis 16,000; meat (1949) 511,000, including beef and veal 266,000, pork 197,000, mutton and lamb 48,000; butter 54,000; cheese 261,000; eggs (5,000,000,000). Fisheries, total catch (1949): 152,000 metric tons.

Industry.—Index numbers of employment in manufacturing (1947 = 100, 1950): 97. Fuel and power (1950): coal (metric tons) 1,031,000; lignite 780,000; gas: natural 504,000,000 cu.m., manufactured 1,584,000,000 cu.m.; electricity 24,684,000,000 kw.hr.; crude oil 8,200 metric tons. Raw materials (metric tons, 1950): iron ore 442,000; pig iron 572,000; steel ingots and castings 2,364,000; lead ore 63,000; lead, smelter production 37,400; zinc ore 180,000; zinc, smelter production 38,200; bauxite 153,000; aluminum 37,000; manganese ore 16,000; raw marble 247,000. Manufactured goods (metric tons, 1950): cement 5,504,000; cotton yarn 180,000; cotton piece goods 118,100; rayon filament yarn 50,300; rayon staple fibre 52,900; paper 538,000, including newsprint 92,000; motor cars 115,000 and commercial vehicles 13,400. Index numbers of industrial production (1938 = 100, 1950): general index 120; mining 101, of which solid fuels 199; manufacturing 115, of which food 134; textile 103; timber 58; paper 106; rubber 132; chemicals 121; oil and coal by-products 208; metallurgy 104; electricity and gas 159.

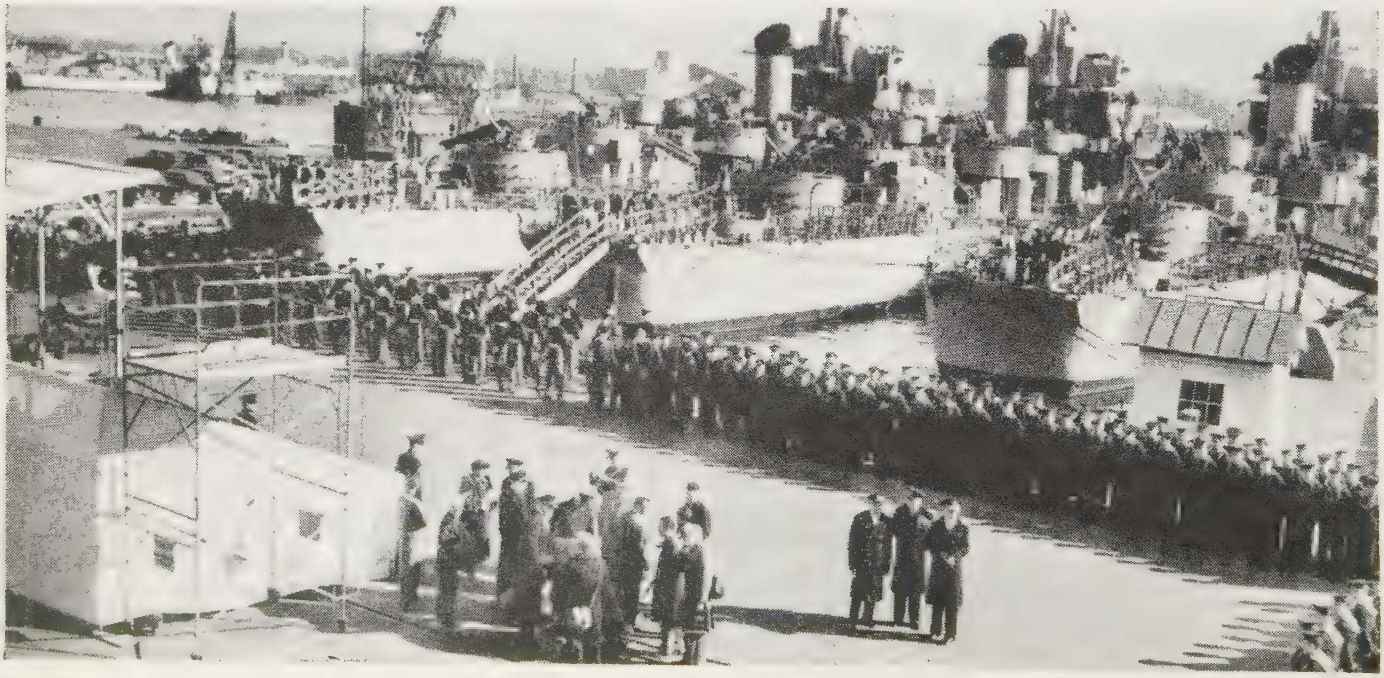
See also E. R. Lingemann, *Italy: Economic and Commercial Conditions* (London, H.M.S.O., 1951); A. J. B. Whyte, *Evolution of Modern Italy* (Oxford, 1951).

FILMS OF 1951.—*Italian Culture Series* (3 films): *Rome, Venice, Florence* (Cornell Film Co.); *Pompeii and Vesuvius, Rome—City Eternal, Venice—Queen City of the Adriatic* (Encyclopædia Britannica Films Inc.).

Ivory Coast: *see* FRENCH UNION; FRENCH WEST AFRICA.

Jamaica. A British colony and dependencies in the Caribbean sea. Dependencies: Cayman Islands (100 sq.mi.; pop. 7,000) and Turks and Caicos Islands (166 sq.mi.; pop. 7,000), with local legislatures and a large degree of internal autonomy. Area (colony): 4,411 sq.mi. Pop.: (1943 census) 1,237,063; (1950 est.) 1,396,000, mainly of African descent. Chief towns (pop., 1943 census): Kingston (cap., 201,911); Spanish Town (12,007); Montego Bay (11,547). Governors (1951): Sir John Huggins and (from April) Sir Hugh Mackintosh Foot.

History.—A severe hurricane struck the island in Aug. 1951 killing 168 persons and doing damage to property estimated conservatively at £15,000,000. Emergency relief measures were put in hand on the following day, and the royal Welch fusiliers



TRANSFERRING three U.S. destroyer escorts to the Italian navy, under the terms of the Military Aid program. The ceremony took place at the naval shipyard in Norfolk, Va., early in 1951

GEN. MATTHEW B. RIDGWAY leaving his Tokyo headquarters three steps at a time after early staff discussions on the proposal for a truce in Korea. Ridgway succeeded Gen. Douglas MacArthur as Allied commander in Japan on April 11, 1951

gave assistance in feeding the destitute and opening communications to parts of the island which had become isolated. The British government gave £250,000 to the governor's relief fund which eventually exceeded £600,000 and included subscriptions from many colonial governments. Later, the British government gave £3,100,000 and a loan of £1,500,000 to assist in agricultural and housing reconstruction.

Sir Hugh Foot, the new governor, announced in opening the legislature in May that the government intended to establish agricultural and industrial development corporations. He emphasized that industrial harmony was required if the external capital that Jamaica needed for its development was to be attracted.

The Labour party, led by W. A. Bustamante, retained its working majority in the house of representatives. The legislature affirmed its acceptance of the desirability of federation of the British West Indies and recommended that a conference be held early in 1952 in London to examine financial and other implications. It also appointed a joint committee of both chambers to advise on the extent to which the federal form of government recommended by the standing closer association committee should be accepted. The governor held discussions with representatives of political interests on further constitutional changes in the colony.

Development of the bauxite industry proceeded. A third company, the Permanente Metals Incorporated, representing United States interests, made plans for extensive construction.

Education.—*Colony:* schools in 1950, 425 denominational and 253 government primary (208,500 pupils); 25 secondary (5,800 pupils). *Cayman Islands:* 13 primary (952 pupils). *Turks and Caicos Islands:* 12 primary (964 pupils); 1 government senior school.

Finance and Trade.—Currency: pound sterling with local notes. Budget (1951–52 est.): *Colony:* revenue £10,462,286; expenditure £10,049,129. *Dependencies:* revenue £85,000; expenditure £95,000. Foreign trade (colony, 1950): imports £20,813,000; exports £16,424,000. Principal exports: sugar, bananas, rum, cigars, pimento, ginger, coffee, citrus and cocoa. Sugar crop (1951) 268,000 tons; bananas 5,773,000 stems for export, rum 2,219,000 gal. Export from Turks and Caicos Islands, salt. (P. H-My.)

Japan. An island nation in the western Pacific, Japan was occupied by the Allied powers after its defeat in 1945, and was to resume full sovereignty when the peace treaty signed in 1951 should come into force. Japan consists of four principal islands, Honshu, Kyushu, Hokkaido and Shikoku (total area: 146,690 sq.mi.), and minor adjacent islands. Total population: (census, Oct. 1, 1950) 83,199,637; (Aug. 1951 est.) 84,400,000. Chief cities (1950 census): Tokyo (cap., 5,385,071); Osaka (1,956,136); Kyoto (1,101,854); Nagoya (1,030,635); Yokohama (951,189); Kobe (765,435). Principal religions: Buddhism, Shintoism. Emperor: Hirohito; prime minister in 1951: Shigeru Yoshida.

History.—*Inter-Allied Policies.*—During 1951 Japan continued under Allied military occupation. In April Gen. Douglas MacArthur, supreme commander for the Allied powers, was relieved by Pres. Harry S. Truman and replaced by Lieut. Gen. Matthew B. Ridgway. This step caused some initial uneasiness in Japan, which was later allayed by assurances that no changes in U.S. policies toward Japan were contemplated.

The signature of a Japanese peace treaty on Sept. 8 at San Francisco, Calif., represented the climax of a year of diplomatic effort by the United States. The terms of the treaty had been worked out by consultation with the United States' allies and with the Japanese government, during which Ambassador John Foster Dulles visited Japan, the Philippines, Australia, New Zealand, Great Britain and France. The United States sought a treaty of reconciliation, minimizing punitive and restrictive features, which would encourage Japan to make a positive and voluntary contribution to the strength of the non-Communist world. Many of Japan's neighbours were, however, concerned over the possible revival of Japanese militarism, aggression and economic competition. Agreement was eventually reached on a treaty which in general was satisfactory to the United States. Although denounced by the soviet delegate at San Francisco as a U.S. attempt to "enslave" Japan economically and to draw it into "aggressive military coalitions" directed against the U.S.S.R. and China, the treaty was signed by Japan and 48 other nations. The U.S.S.R., Czechoslovakia and Poland attended the San Francisco conference but did not sign the treaty. India and Burma declined to attend the conference, but were expected to conclude separate treaties with Japan. Because of disagreement among the other Allied powers, some of which recognized the nationalist government of China and some the Communist, neither Chinese government was invited to sign the treaty, in which, however, provision was made for protection of China's interests. (For an account of the conference and the full text of the treaty, *see* JAPANESE PEACE CONFERENCE.)

All occupation forces were to be withdrawn from Japan within 90 days after the treaty came into force. However, a supplementary treaty between Japan and the United States, also signed on Sept. 8, permitted U.S. forces to be stationed in Japan after this date, as a provisional measure for Japan's protection, with the expectation that Japan itself would increasingly assume responsibility for its own defense. The treaty contained no restrictions on Japan's domestic political institutions, economy or military establishment (though the maintenance of armed forces was still prohibited by the constitution of 1947). The treaty would come into force when ratified by Japan and by a majority, including the United States, of 11 principal Pacific countries.

On Aug. 30 the United States concluded a mutual defense treaty with the Philippines, and on Sept. 1 a similar treaty was signed with Australia and New Zealand. These served to allay apprehensions in these countries over a possible future threat by Japan to their security.

During 1951 the occupation continued its policy of gradually turning over more authority to the Japanese in preparation for the impending treaty, though it still kept close watch on Japanese government policies. This was especially true in the economic field, where the occupation urged the adoption of sound policies to curb inflation. During the year a number of Japanese trade and other missions visited various countries, and Japan became a member of the International Labour organization, the World Health organization and the United Nations Educational, Scientific and Cultural organization. United States economic aid to Japan, which since 1945 had totalled about $1,800,000,000, was terminated on June 30. The resulting strain on Japan's balance of payments was largely offset by the United States' assumption of part of the occupation forces' expenses in Japan, previously borne by the Japanese government. However, the cessation of direct U.S. aid precluded further additions to the Japanese counterpart fund, which had been set up with the proceeds from sales of goods supplied by the United States and used to finance long-term industrial development. It also meant that Japan would have to purchase materials on its own behalf, possibly on less favourable terms.

Domestic Affairs.—The Liberal party government headed by Prime Minister Shigeru Yoshida continued in office throughout the year, although the cabinet was reorganized in July and December. In November party strength in the lower house of the diet was: Liberal 284, People's Democratic 63, Right Socialist 29, Communist 22, Left Socialist 16, Farmers' Cooperative 8, Daisan club 7, Labour-Farmer 4, Social Democratic 4, Independent 4, with 25 vacancies. In local elections held in April the Liberal party gained at the expense of the Socialists, polling 25% of the vote for prefectural assemblymen against 15% for the Socialists. Although the Communist party was not formally outlawed, continuing arrests of its members diminished its strength and forced it to operate largely underground.

In May General Ridgway authorized the Japanese government to review ordinances issued by it since 1945 to carry out occupation directives. This aroused wide interest as it seemed to permit the termination or modification of various reform programs introduced by the occupation. The Japanese government acted promptly to review the "purge" orders, under which nearly 200,000 "militarists and ultranationalists" had been barred from positions in government, politics, business, labour and the press. By the end of the year about 160,000 of these had been "depurged," including Ichiro Hatoyama, former head of the Liberal party. Their re-entry into politics was expected to strengthen the forces of conservatism. The government was also working on new legislation to modify other measures inspired by the occupation. Reports that it intended to institute stricter control over labour unions and the press, to lower labour standards and to modify laws designed to prevent monopoly and assure free competition led to widespread public comment, both favourable and unfavourable. In October a United States official, while indicating that some occupation measures had served their purpose or proved impracticable, warned that the Japanese government should "proceed with the utmost care" in the economic field. During the year about 80% of the town and village police forces, set up under an occupation-sponsored reform in the interests of decentralization, were absorbed into the centrally controlled rural police force.

JAPANESE CHILDREN bowing low as the funeral cortege of the dowager empress Sadako, mother of Emperor Hirohito, passed by. The empress died in Tokyo on May 17, 1951

On Oct. 26 the Japanese house of representatives voted to ratify the peace treaty by 307 to 47, and the Japanese-U.S. security pact by 289 to 71. No Liberals, and very few Democrats, opposed either treaty. The Socialists were almost solidly against the security pact, but their vote on the peace treaty was divided; this issue, in fact, caused a formal split in the party. The somewhat smaller majority favouring the security pact reflected uncertainty as to whether the conditions on which U.S. troops would remain in Japan would be such as to impair Japan's sovereignty. The question of rearmament was much debated, some Democratic party leaders demanding an army of 200,000 or more, while Socialist and labour spokesmen opposed rearmament. The Liberals took no clear position, but Prime Minister Yoshida expressed the opinion that Japan could not under existing conditions afford to maintain armed forces, and stated in November that the government was not considering rearmament at that time.

Under the stimulus provided by the Korean war, industrial activity expanded rapidly in 1951, especially in metals and machinery; textiles remained below pre-World War II levels. The resulting inflationary pressures were only partially curbed by government measures. Demands for higher wages led to strikes in coal, electric power and other industries. Imports more than doubled during the first eight months of the year, as Japan had to purchase raw materials from abroad at prices inflated by world rearmament. Exports increased much more slowly, leaving a large passive balance of merchandise trade. The cessation of U.S. economic aid was cushioned in 1951 by dollar payments for maintenance of the occupation forces and by procurement orders for the Korean war, but United States advisers warned that Japan could compete successfully in world markets only by adjusting its domestic prices downward to international levels.

Education.—Nearly all Japanese adults are literate. Nine years of schooling are compulsory and free for boys and girls. Under the Allied occupation the schools were reorganized on the six-three-three system; *i.e.*, six years of primary school, three of junior high and three of senior high school. Above these are a four-year university course as well as various colleges and vocational schools. In 1948–49 expenditures on education were: national and local governments, 78,307,896,877 yen; private, 6,917,291,278 yen; total, 85,225,188,155 yen. In April 1951 there were 21,313 elementary schools, with 315,216 teachers and 11,419,267 pupils; 14,301 secondary schools, with 302,191 teachers and 7,319,978 pupils; 422 colleges and universities, with 44,570 teachers and 420,634 students.

Finance.—National government expenditures (general account) were budgeted for 1951–52 at 657,400,000,000 yen, a decrease of 7,200,000,000 yen from the previous year. The principal items, aside from general administration, were 110,000,000,000 yen for local government, 102,700,000,000 yen for war termination expenses and 100,100,000,000 yen for public works. Revenues were expected to balance expenditures, with 444,500,000,000 yen coming from taxes and stamp revenues and 151,500,000,000 yen from government enterprises. Total expenditures including the special accounts (government enterprises, etc.) were set at 1,506.300,000,000 yen, against 2,070,000,000,000 yen in the previous year. Supplementary appropriations later in the year brought the total ordinary budget up to 793,700,000,000 yen.

The Bank of Japan's outstanding note issue at the end of Aug. 1951 stood at 414,706,000,000 yen against 324,618,000,000 yen a year earlier. In the same period the bank's holdings of government securities decreased from 203,828,000,000 yen to 172,258,000,000 yen, while total deposits of commercial banks rose from 817,293,000,000 yen to 1,184,680,000,000 yen. The official value of the yen continued at 360 to the U.S. $1. Both prices and wages advanced during the year, as shown in Table I.

Trade and Transport.—Japanese imports shot upward in the first eight months of 1951, while exports rose more slowly, bringing the unfavourable trade balance to an unprecedented height. The position was eased somewhat, however, by United States procurement orders for the Korean war, which were paid for in dollars, and which from January through mid-Sept. 1951 amounted to about $258,000,000. The volume of Japanese exports was still far below prewar. In 1950 the United States provided 44% of Japan's imports, against 62% in 1949. Other leading suppliers in 1950, in order of importance, were Australia (8%), China (including Formosa), Malaya, the Philippines, India, Korea, Canada and Indonesia. Exports were more widely distributed, with the United States taking 22% of the total (against 15% in 1949); China (including Formosa) and Indonesia each 6%; the United Kingdom and Australia each 3%; and India, the Philippines, Korea and Malaya each 2%. Imports consisted chiefly of food and raw materials, notably textile fibres, while exports were mainly manufactured products, with textiles forming nearly half of the total.

Traffic on Japanese government railways was as follows in 1950 (monthly averages): passenger-kilometres, 5,750,295,000; revenue freight ton-kilometres, 2,559,582,000. Corresponding monthly averages for Jan.–Aug. 1951 were 6,264,062,000 and 2,869,738,000, respectively. In addition, private railways carried a monthly average of 40,586,000 ton-km. of freight in 1950 and 47,756,000 ton-km. in Jan.–Aug. 1951. Japan's merchant fleet was about half its prewar size, though it had increased by 53% since 1945. In Aug. 1951 the country had 2,338,693 gross tons of steel vessels of 100 tons or more. In the first eight months of 1951 approximately 30% of Japan's imports and 16% of its exports were carried in Japanese vessels.

Food and Agriculture.—Crops were good in 1951, although the output of staple foods was slightly below that of 1950. Production of staple foods in 1951 exceeded by nearly 10% the 1931–41 average, but population had increased by about 15% since 1940, and even before the war Japan produced only about 80% of its own food requirements. Food imports since the war accounted for a large part of its trade deficit (25% of total imports in the first half of 1951).

Table I.—*Price and Wage Indexes in Japan*

	Wholesale prices (1934–36 = 100)	Consumer prices (1948 = 100)	Wages in manufacturing (1934-36 = 100)
1948	12,790	104.5	9,200
1949	20,880	137.9	14,770
1950	24,550	128.4	17,940
1951, Jan.-Aug.	33,870	148.2	21,560

Table II.—*Japanese Trade*

(In thousands of U.S. dollars)

	Imports	Exports	Balance
1948	684,220	258,271	−425,948
1949	904,844	509,700	−395,144
1950	974,188	820,055	−154,133
1951, Jan.-Aug.	1,637,851	877,627	−760,224

Table III.—*Agricultural Production in Japan*

	Area (in hectares)		Production (in metric tons)	
	1951*	1950	1951*	1950
Rice	3,012,000	2,994,000	9,435,000	9,652,000
Wheat	735,000	764,000	1,487,000	1,338,000
Barley	420,000	429,000	896,000	1,053,000
Naked barley	559,000	591,000	1,111,000	1,062,000
Sweet potatoes	375,000	398,000	5,020,000	6,292,000
Spring white potatoes	194,000	188,000*	2,536,000	2,363,000*

*Preliminary.

Table IV.—*Industrial Production in Japan*

Monthly Average	1951 Jan.–Aug.	1950	1949
Coal (thousand metric tons)	3,449	3,205	3,172
Crude petroleum (kl.)	32,182	27,372	18,129
Gas (million cu. m.)	120.4	95.5	80.9
Electricity (million kw.hr.)	4,000	3,741	3,415
Pig iron (metric tons)	246,451	186,075	129,057
Steel ingots and castings (metric tons)	537,387	403,210	259,284
Refined copper (metric tons)	7,451	7,062	6,170
Cement (thousand metric tons)	520.4	371.9	273.1
Motor vehicles (units)	8,763	6,265	5,538
Ships (gross tons)	27,647	19,674	14,639
Cotton yarn (metric tons)	27,347	19,861	13,124
Rayon staple fibre (metric tons)	8,868	5,658	2,253
Cotton fabrics (thousand sq. m.)	148,801	107,425	68,611
Raw silk (kg.)	809,040	752,501	819,341
Wheat flour (metric tons)	113,408	140,622	146,434

Manufacturing and Mining.—Industrial activity continued to expand in 1951. By Aug. 1951 the index of industrial activity (utilities, mining and manufacturing), based on 1932–36 as 100, stood at 146.9, against 109.7 in Aug. 1950. Other Aug. 1951 indexes, on the same base, were as follows (Aug. 1950 figures given in parentheses): utilities 187.3 (175.7), mining 124.2 (106.0), all manufacturing 140.2 (94.6), metals 185.3 (132.4), machinery 216.2 (110.3), textiles 54.0 (43.3), chemicals 148.4 (122.4), food, beverages and tobacco 100.0 (90.7). Nonagricultural employment in Aug. 1951 was 20,120,000, a gain of 2,200,000 over Aug. 1950. In the same period the number of persons reported as totally unemployed decreased from 200,000 to 150,000. Average monthly wages in manufacturing, after dropping from an unusually high seasonal peak in Dec. 1950, rose to 12,257 yen in June 1951, then fell to 11,572 yen in August.

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(M. S. F.)

Japanese Peace Conference.

In formal ceremonies on Sept. 8, 1951, concluding the Japanese Peace conference in San Francisco, Calif., 48 Allied powers and Japan signed the 27-article treaty designed to terminate the state of war in the Pacific and to restore to Japan that country's full sovereignty. The Japanese Peace conference (Sept. 4–8, 1951) was convened by the United States, as co-sponsor with the United Kingdom, on the basis of invitations circulated to 54 Allied powers (excluding China) on July 20, 1951. Three invited states (Burma, India and Yugoslavia) declined the invitation. Of the states actually participating, only the Soviet Union, Czechoslovakia and Poland refused to accept the Anglo-American draft laid before the conference. The failure to invite China was explained by special circumstances, but Japan was left free to conclude separate bilateral treaties on substantially the same terms as the basic multilateral treaty with any Allied power nonsignatory to the San Francisco treaty.

On Aug. 13, 1951, the United States and the United Kingdom circulated the final text of a draft treaty of peace with Japan which reflected the results of extensive diplomatic negotiations conducted, on the initiative of the United States, by John Foster Dulles. The invitation extended by the United States stipulated that the conference in San Francisco was being convened "for Conclusion and Signature of a Treaty of Peace with Japan *on the terms of that text*" (italics supplied). The significance of this restricted definition of the purpose of the Japanese Peace conference was clarified when the Soviet Union unexpectedly accepted the invitation to attend. In a note to the Soviet Union on Aug. 16, the United States welcomed the Soviet participation, but "that there should be no possibility of subsequent misunderstanding," the note recalled the terms of the invitation and categorically declared: "The San Francisco Conference is not a Conference to reopen negotiations on the terms of peace. The terms of the prospective treaty have been arrived at by intensive multi-partite negotiations which, in effect, have constituted an eleven-month peace conference which began in mid-September 1950. . . . The Soviet Union has participated in this process both through oral exchanges of views and through the exchange between our Governments of not less than ten drafts or memoranda. . . . [It] has had an equal opportunity with the other Allies to shape the various revisions which have now resulted in the final August 13, 1951 text. . . . The United States will welcome the opportunity to explain fully at San Francisco the nature of the Treaty, and every nation represented will have opportunity for exposition and statement." The rules of procedure of the conference, drafted jointly by the United States and the United Kingdom, and formally adopted by the conference in its first plenary session on Sept. 5, 1951, were designed to ensure that its purposes and objectives as thus defined would not be nullified in the course of the deliberations.

The Japanese Peace conference was opened in the San Francisco Opera House on Tuesday evening, Sept. 4, 1951, with welcoming ceremonies during which Pres. Harry S. Truman delivered the principal address. Eight plenary sessions were held in the next three days, during which the conference (1) adopted its rules of procedure; (2) elected its officers: Dean G. Acheson (United States), president, and P. C. Spender (Australia), vice-president; and (3) heard statements on the treaty from the chief delegates of all but two of the participating states. A final signature ceremony concluded the deliberations of the conference on Saturday morning, Sept. 8. All conference proceedings were televised over a national television network inaugurated on that occasion, and were widely viewed throughout the United States.

The principal activities of the conference centred around the effort of the Soviet Union, supported by Czechoslovakia and Poland, (1) to prevent or delay adoption of the draft rules of procedure; and, when this effort failed, (2) to disrupt the conference order of business defined in article 17 of the rules. In challenging the draft rules of procedure, Andrei A. Gromyko, the chief Soviet delegate, (1) attempted to debate the propriety of excluding the Chinese People's republic from the conference, and (2) proposed the appointment of a conference committee to draft an alternate set of rules. These manoeuvres were defeated principally by rulings of the chair which were frequently challenged but sustained by overwhelming majorities. Subsequently, Gromyko attempted to force the conference to consider 13 specific Soviet amendments relating to the substantive terms of the draft treaty. This tactic, which would have reopened the preliminary diplomatic negotiations and might well have endangered the progress already attained, was defeated by the unwavering enforcement by the chair of article 17 of the rules. When the conference supported the chair by an overwhelming vote (46–3) on this critical issue, the last obstacle to the signature of the treaty was removed.

"JOE DECIDED TO ATTEND THE PARTY AFTER ALL," a 1951 cartoon by Justus of the *Minneapolis Star* (Minn.)

The Japanese Peace conference was doubly significant. Substantively, its endorsement of a treaty of peace with Japan recognized the postwar progress of that country, acknowledged its silent contribution to the United Nations efforts in Korea and opened the way to the establishment of a new political dispensation in the western Pacific. Procedurally, the unique and imaginative departure from the standard practices of conference diplomacy demonstrated that countries desiring to concert their political action in the face of Soviet opposition were entirely capable of devising suitable methods and measures.

(H. A. St.)

Japanese Peace Treaty.—The official text of the Treaty of Peace with Japan is set out below.

Treaty of Peace with Japan

Whereas the Allied Powers and Japan are resolved that henceforth their relations shall be those of nations which, as sovereign equals, cooperate in friendly association to promote their common welfare and to maintain international peace and security, and are therefore desirous of concluding a Treaty of Peace which will settle questions still outstanding as a result of the existence of a state of war between them;

Whereas Japan for its part declares its intention to apply for membership in the United Nations and in all circumstances to conform to the principles of the Charter of the United Nations; to strive to realize the objectives of the Universal Declaration of Human Rights; to seek to create within Japan conditions of stability and well-being as defined in Articles 55 and 56 of the Charter of the United Nations and already initiated by post-surrender Japanese legislation; and in public and private trade and commerce to conform to internationally accepted fair practices;

Whereas the Allied Powers welcome the intentions of Japan set out in the foregoing paragraph;

The Allied Powers and Japan have therefore determined to conclude the present Treaty of Peace, and have accordingly appointed the undersigned Plenipotentiaries, who, after presentation of their full powers, found in good and due form, have agreed on the following provisions:

Chapter I
PEACE
Article 1

(a) The state of war between Japan and each of the Allied Powers is terminated as from the date on which the present Treaty comes into force between Japan and the Allied Power concerned as provided for in Article 23.

(b) The Allied Powers recognize the full sovereignty of the Japanese people over Japan and its territorial waters.

Chapter II
TERRITORY
Article 2

(a) Japan, recognizing the independence of Korea, renounces all right, title and claim to Korea, including the islands of Quelpart, Port Hamilton and Dagelet.

(b) Japan renounces all right, title and claim to Formosa and the Pescadores.

(c) Japan renounces all right, title and claim to the Kurile Islands, and to that portion of Sakhalin and the islands adjacent to it over which Japan acquired sovereignty as a consequence of the Treaty of Portsmouth of September 5, 1905.

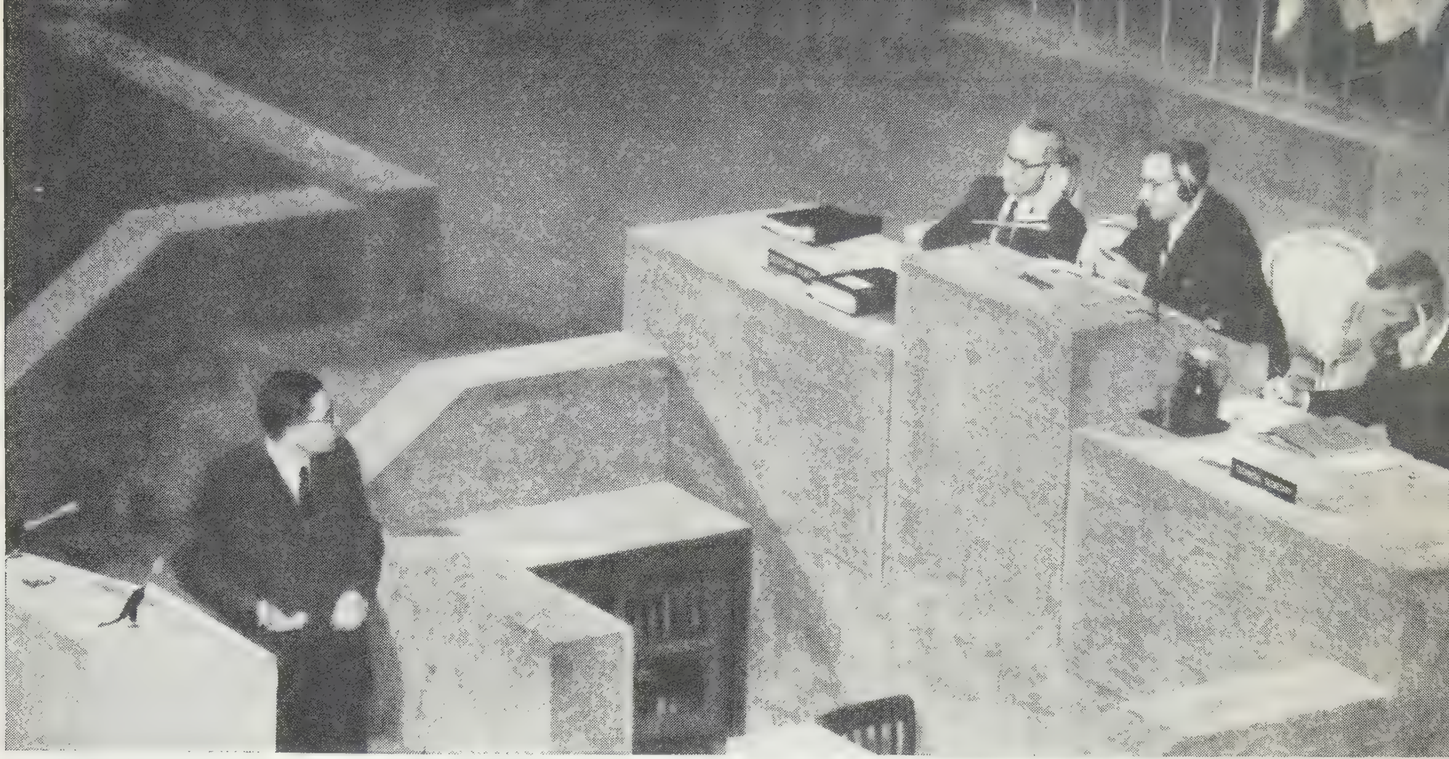
(d) Japan renounces all right, title and claim in connection with the League of Nations Mandate System, and accepts the action of the United Nations Security Council of April 2, 1947, extending the trusteeship system to the Pacific Islands formerly under mandate to Japan.

(e) Japan renounces all claim to any right or title to or interest in connection with any part of the Antarctic area, whether deriving from the activities of Japanese nationals or otherwise.

(f) Japan renounces all right, title and claim to the Spratly Islands and to the Paracel Islands.

Article 3

Japan will concur in any proposal of the United States to the United Nations to place under its trusteeship system, with the United States as the sole administering authority, Nansei Shoto south of 29° north latitude (including the Ryukyu Islands and the Daito Islands), Nanpo Shoto south of Sofu Gan (including the Bonin Islands, Rosario Island and the



ANDREI GROMYKO, soviet delegate to the Japanese Peace conference, clarifying a point with the chairman during his main address. The conference was held in San Francisco, Calif., in Sept. 1951

Volcano Islands) and Parece Vela and Marcus Island. Pending the making of such a proposal and affirmative action thereon, the United States will have the right to exercise all and any powers of administration, legislation and jurisdiction over the territory and inhabitants of these islands, including their territorial waters.

Article 4

(a) Subject to the provisions of paragraph (b) of this Article, the disposition of property of Japan and of its nationals in the areas referred to in Article 2, and their claims, including debts, against the authorities presently administering such areas and the residents (including juridical persons) thereof, and the disposition in Japan of property of such authorities and residents, and of claims, including debts, of such authorities and residents against Japan and its nationals, shall be the subject of special arrangements between Japan and such authorities. The property of any of the Allied Powers or its nationals in the areas referred to in Article 2 shall, insofar as this has not already been done, be returned by the administering authority in the condition in which it now exists. (The term nationals whenever used in the present Treaty includes juridical persons.)

(b) Japan recognizes the validity of dispositions of property of Japan and Japanese nationals made by or pursuant to directives of the United States Military Government in any of the areas referred to in Articles 2 and 3.

(c) Japanese owned submarine cables connecting Japan with territory removed from Japanese control pursuant to the present Treaty shall be equally divided, Japan retaining the Japanese terminal and adjoining half of the cable, and the detached territory the remainder of the cable and connecting terminal facilities.

Chapter III
SECURITY

Article 5

(a) Japan accepts the obligations set forth in Article 2 of the Charter of the United Nations, and in particular the obligations

(i) to settle its international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered;

(ii) to refrain in its international relations from the threat or use of force against the territorial integrity or political independence of any State or in any other manner inconsistent with the Purposes of the United Nations;

(iii) to give the United Nations every assistance in any action it takes in accordance with the Charter and to refrain from giving assistance to any State against which the United Nations may take preventive or enforcement action.

(b) The Allied Powers confirm that they will be guided by the principles of Article 2 of the Charter of the United Nations in their relations with Japan.

(c) The Allied Powers for their part recognize that Japan as a sovereign nation possesses the inherent right of individual or collective self-defense referred to in Article 51 of the Charter of the United Nations and that Japan may voluntarily enter into collective security arrangements.

Article 6

(a) All occupation forces of the Allied Powers shall be withdrawn from Japan as soon as possible after the coming into force of the present Treaty, and in any case not later than 90 days thereafter. Nothing in this provision shall, however, prevent the stationing or retention of foreign armed forces in Japanese territory under or in consequence of any bilateral or multilateral agreements which have been or may be made between one or more of the Allied Powers, on the one hand, and Japan on the other.

(b) The provisions of Article 9 of the Potsdam Proclamation of July 26, 1945, dealing with the return of Japanese military forces to their homes, to the extent not already completed, will be carried out.

(c) All Japanese property for which compensation has not already been paid, which was supplied for the use of the occupation forces and which remains in the possession of those forces at the time of the coming into force of the present Treaty, shall be returned to the Japanese Government within the same 90 days unless other arrangements are made by mutual agreement.

Chapter IV
POLITICAL AND ECONOMIC CLAUSES

Article 7

(a) Each of the Allied Powers, within one year after the present Treaty has come into force between it and Japan, will notify Japan which of its prewar bilateral treaties or conventions with Japan it wishes to continue in force or revive, and any treaties or conventions so notified shall continue in force or be revived subject only to such amendments as may be necessary to ensure conformity with the present Treaty. The treaties and conventions so notified shall be considered as having been continued in force or revived three months after the date of notification and shall be registered with the Secretariat of the United Nations. All such treaties and conventions as to which Japan is not so notified shall be regarded as abrogated.

(b) Any notification made under paragraph (a) of this Article may except from the operation or revival of a treaty or convention any territory for the international relations of which the notifying Power is responsible, until three months after the date on which notice is given to Japan that such exception shall cease to apply.

Article 8

(a) Japan will recognize the full force of all treaties now or hereafter concluded by the Allied Powers for terminating the state of war initiated on September 1, 1939, as well as any other arrangements by the Allied Powers for or in connection with the restoration of peace. Japan also accepts the arrangements made for terminating the former League of Nations and Permanent Court of International Justice.

(b) Japan renounces all such rights and interests as it may derive from being a signatory power of the Conventions of St. Germain-en-Laye of September 10, 1919, and the Straits Agreement of Montreux of July 20, 1936, and from Article 16 of the Treaty of Peace with Turkey signed at Lausanne on July 24, 1923.

(c) Japan renounces all rights, title and interests acquired under, and is discharged from all obligations resulting from, the Agreement between Germany and the Creditor Powers of January 20, 1930, and its Annexes, including the Trust Agreement, dated May 17, 1930; the Convention of January 20, 1930, respecting the Bank for International Settlements; and the Statutes of the Bank for International Settlements. Japan will notify to the Ministry of Foreign Affairs in Paris within six months of the first coming into force of the present Treaty its renunciation of the rights, title and interests referred to in this paragraph.

Article 9

Japan will enter promptly into negotiations with the Allied Powers so desiring for the conclusion of bilateral and multilateral agreements providing for the regulation or limitation of fishing and the conservation and development of fisheries on the high seas.

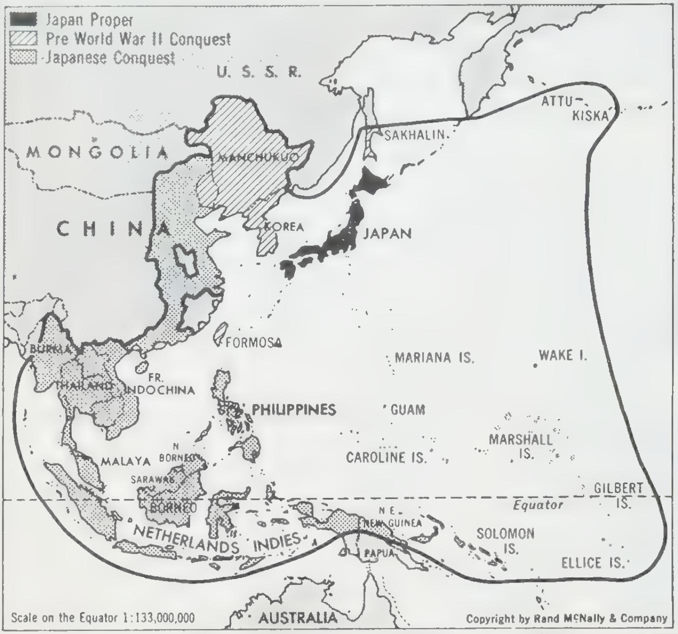
Article 10

Japan renounces all special rights and interests in China, including all benefits and privileges resulting from the provisions of the final Protocol signed at Peking on September 7, 1901, and all annexes, notes and documents supplementary thereto, and agrees to the abrogation in respect to Japan of the said protocol, annexes, notes and documents.

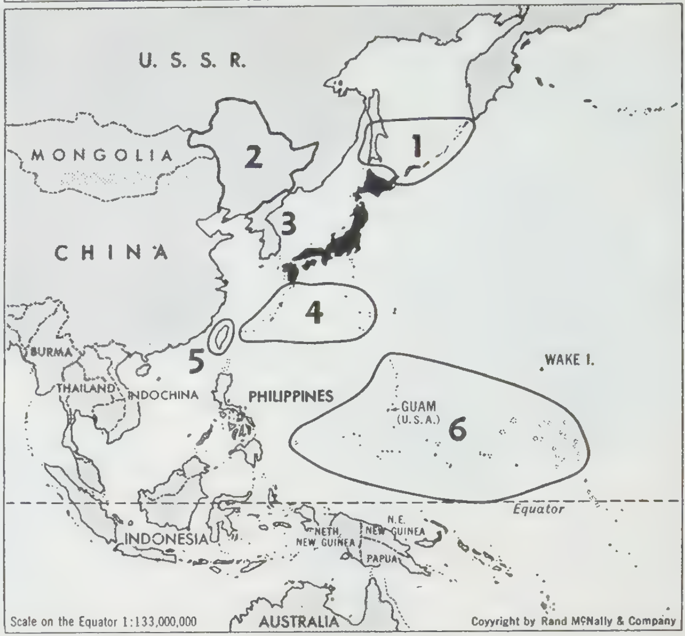
Article 11

Japan accepts the judgments of the International Military Tribunal for the Far East and of other Allied War Crimes Courts both within and outside Japan, and will carry out the sentences imposed thereby upon Japan-

JAPANESE EMPIRE & WORLD WAR II CONQUESTS



JAPAN UNDER THE PEACE TREATY-1951



DISPOSITION OF FORMER JAPANESE EMPIRE

1. Southern Sakhalin and Kuril Islands to U. S. S. R.
2. Manchuria to China (Communist)
3. Korea—Site of 1950-51 Conflict, to be unified, Independent State.
4. Ryuku and Bonin Islands to be under U. N. Trusteeship, administered by the United States.
5. Formosa, occupied by Chinese Nationalists, future undetermined.
6. Former Japanese mandate of Marianas and Marshall islands to be under U. N. Trusteeship, administered by the United States.

ese nationals imprisoned in Japan. The power to grant clemency, to reduce sentences and to parole with respect to such prisoners may not be exercised except on the decision of the Government or Governments which imposed the sentence in each instance, and on the recommendation of Japan. In the case of persons sentenced by the International Military Tribunal for the Far East, such power may not be exercised except on the decision of a majority of the Governments represented on the Tribunal, and on the recommendation of Japan.

Article 12

(a) Japan declares its readiness promptly to enter into negotiations for the conclusion with each of the Allied Powers of treaties or agreements to place their trading, maritime and other commercial relations on a stable and friendly basis.

(b) Pending the conclusion of the relevant treaty or agreement, Japan will, during a period of four years from the first coming into force of the present Treaty

(1) accord to each of the Allied Powers, its nationals, products and vessels

(i) most-favored-nation treatment with respect to customs duties, charges, restrictions and other regulations on or in connection with the importation and exportation of goods;

(ii) national treatment with respect to shipping, navigation and imported goods, and with respect to natural and juridical persons and their interests—such treatment to include all matters pertaining to the levying and collection of taxes, access to the courts, the making and performance of contracts, rights to property (tangible and intangible), participation in juridical entities constituted under Japanese law, and generally the conduct of all kinds of business and professional activities;

(2) ensure that external purchases and sales of Japanese state trading enterprises shall be based solely on commercial considerations.

(c) In respect to any matter, however, Japan shall be obliged to accord to an Allied Power national treatment, or most-favored-nation treatment, only to the extent that the Allied Power concerned accords Japan national treatment or most-favored-nation treatment, as the case may be, in respect of the same matter. The reciprocity envisaged in the foregoing sentence shall be determined, in the case of products, vessels and juridical entities of, and persons domiciled in, any non-metropolitan territory of an Allied Power, and in the case of juridical entities of, and persons domiciled in, any state or province of an Allied Power having a federal government, by reference to the treatment accorded to Japan in such territory, state or province.

(d) In the application of this Article, a discriminatory measure shall not be considered to derogate from the grant of national or most-favored-nation treatment, as the case may be, if such measure is based on an exception customarily provided for in the commercial treaties of the party applying it, or on the need to safeguard that party's external financial position or balance of payments (except in respect to shipping and navigation), or on the need to maintain its essential security interests, and provided such measure is proportionate to the circumstances and not applied in an arbitrary or unreasonable manner.

(e) Japan's obligations under this Article shall not be affected by the exercise of any Allied rights under Article 14 of the present Treaty; nor shall the provisions of this Article be understood as limiting the undertakings assumed by Japan by virtue of Article 15 of the Treaty.

Article 13

(a) Japan will enter into negotiations with any of the Allied Powers, promptly upon the request of such Power or Powers, for the conclusion of bilateral or multilateral agreements relating to international civil air transport.

(b) Pending the conclusion of such agreement or agreements, Japan will, during a period of four years from the first coming into force of the present Treaty, extend to such Power treatment not less favorable with respect to air-traffic rights and privileges than those exercised by any such Powers at the date of such coming into force, and will accord complete equality of opportunity in respect to the operation and development of air services.

(c) Pending its becoming a party to the Convention on International Civil Aviation in accordance with Article 93 thereof, Japan will give effect to the provisions of that Convention applicable to the international navigation of aircraft, and will give effect to the standards, practices and procedures adopted as annexes to the Convention in accordance with the terms of the Convention.

CHAPTER V

CLAIMS AND PROPERTY

Article 14

(a) It is recognized that Japan should pay reparations to the Allied Powers for the damage and suffering caused by it during the war. Nevertheless it is also recognized that the resources of Japan are not presently sufficient, if it is to maintain a viable economy, to make complete reparation for all such damage and suffering and at the same time meet its other obligations.

Therefore,

1. Japan will promptly enter into negotiations with Allied Powers so desiring, whose present territories were occupied by Japanese forces and damaged by Japan, with a view to assisting to compensate those countries for the cost of repairing the damage done, by making available the services of the Japanese people in production, salvaging and other work for the Allied Powers in question. Such arrangements shall avoid the imposition of additional liabilities on other Allied Powers, and, where the manufacturing of raw materials is called for, they shall be supplied by the Allied Powers in question, so as not to throw any foreign exchange burden upon Japan.

2. (I) Subject to the provisions of sub-paragraph (II) below, each of the Allied Powers shall have the right to seize, retain, liquidate or otherwise dispose of all property, rights and interests of

(a) Japan and Japanese nationals,

(b) persons acting for or on behalf of Japan or Japanese nationals, and

(c) entities owned or controlled by Japan or Japanese nationals, which on the first coming into force of the present Treaty were subject to its jurisdiction. The property, rights and interests specified in this subparagraph shall include those now blocked, vested or in the possession or under the control of enemy property authorities of Allied Powers, which belonged to, or were held or managed on behalf of, any of the persons or entities mentioned in (a), (b) or (c) above at the time such assets came under the controls of such authorities.

(II) The following shall be excepted from the right specified in subparagraph (I) above:

(i) property of Japanese natural persons who during the war resided with the permission of the Government concerned in the territory of one of the Allied Powers, other than territory occupied by Japan, except property subjected to restrictions during the war and not released from such restrictions as of the date of the first coming into force of the present Treaty;

(ii) all real property, furniture and fixtures owned by the Government of Japan and used for diplomatic or consular purposes, and all personal furniture and furnishings and other private property not of an investment nature which was normally necessary for the carrying out of diplomatic and consular functions, owned by Japanese diplomatic and consular personnel;

(iii) property belonging to religious bodies or private charitable institutions and used exclusively for religious or charitable purposes;

(iv) property, rights and interests which have come within its jurisdiction in consequence of the resumption of trade and financial relations subsequent to September 2, 1945, between the country concerned and Japan, except such as have resulted from transactions contrary to the laws of the Allied Power concerned;

(v) obligations of Japan or Japanese nationals, any right, title or interest in tangible property located in Japan, interests in enterprises organized under the laws of Japan, or any paper evidence thereof; provided that this exception shall only apply to obligations of Japan and its nationals expressed in Japanese currency.

(III) Property referred to in exceptions (i) through (v) above shall be returned subject to reasonable expenses for its preservation and administration. If any such property has been liquidated the proceeds shall be returned instead.

(IV) The right to seize, retain, liquidate or otherwise dispose of property as provided in sub-paragraph (I) above shall be exercised in accordance with the laws of the Allied Power concerned, and the owner shall have only such rights as may be given him by those laws.

(V) The Allied Powers agree to deal with Japanese trademarks and literary and artistic property rights on a basis as favorable to Japan as circumstances ruling in each country will permit.

(b) Except as otherwise provided in the present Treaty, the Allied Powers waive all reparations claims of the Allied Powers, other claims of the Allied Powers and their nationals arising out of any actions taken by Japan and its nationals in the course of the prosecution of the war, and claims of the Allied Powers for direct military costs of occupation.

Article 15

(a) Upon application made within nine months of the coming into force of the present Treaty between Japan and the Allied Power concerned, Japan will, within six months of the date of such application, return the property, tangible and intangible, and all rights or interests of any kind in Japan of each Allied Power and its nationals which was within Japan at any time between December 7, 1941, and September 2, 1945, unless the owner has freely disposed thereof without duress or fraud. Such property shall be returned free of all encumbrances and charges to which it may have become subject because of the war, and without any charges for its return. Property whose return is not applied for by or on behalf of the owner or by his Government within the prescribed period may be disposed of by the Japanese Government as it may determine. In cases where such property was within Japan on December 7, 1941, and cannot be returned or has suffered injury or damage as a result of the war, compensation will be made on terms not less favorable than the terms provided in the draft Allied Powers Property Compensation Law approved by the Japanese Cabinet on July 13, 1951.

(b) With respect to industrial property rights impaired during the war, Japan will continue to accord to the Allied Powers and their nationals benefits no less than those heretofore accorded by Cabinet Orders No. 309 effective September 1, 1949, No. 12 effective January 28, 1950, and No. 9 effective February 1, 1950, all as now amended, provided such nationals have applied for such benefits within the time limits prescribed therein.

(c) (i) Japan acknowledges that the literary and artistic property rights which existed in Japan on December 6, 1941, in respect to the published and unpublished works of the Allied Powers and their nationals have continued in force since that date, and recognizes those rights which have arisen, or but for the war would have arisen, in Japan since that date, by the operation of any conventions and agreements to which Japan was a party on that date, irrespective of whether or not such conventions or agreements were abrogated or suspended upon or since the outbreak of war by the domestic law of Japan or of the Allied Power concerned.

(ii) Without the need for application by the proprietor of the right and without the payment of any fee or compliance with any other formality, the period from December 7, 1941, until the coming into force of the present Treaty between Japan and the Allied Power concerned shall be excluded from the running of the normal term of such rights; and such period, with an additional period of six months, shall be excluded from the time within which a literary work must be translated into Japanese in order to obtain translating rights in Japan.

Article 16

As an expression of its desire to indemnify those members of the armed forces of the Allied Powers who suffered undue hardships while prisoners of war of Japan, Japan will transfer its assets and those of its nationals in countries which were neutral during the war, or which were at war with any of the Allied Powers, or, at its option, the equivalent of such assets, to the International Committee of the Red Cross which shall liquidate such assets and distribute the resultant fund to appropriate national agencies, for the benefit of former prisoners of war and their families on such basis as it may determine to be equitable. The categories of assets described in Article 14 (a) 2 (II) (ii) through (v) of the present Treaty shall be excepted from transfer, as well as assets of Japanese natural persons not residents of Japan on the first coming into force of the Treaty. It is equally understood that the transfer provision of this Article has no application to the 19,770 shares in the Bank for International Settlements presently owned by Japanese financial institutions.

Article 17

(a) Upon the request of any of the Allied Powers, the Japanese Government shall review and revise in conformity with international law any decision or order of the Japanese Prize Courts in cases involving ownership rights of nationals of that Allied Power and shall supply copies of all documents comprising the records of these cases, including the decisions taken and orders issued. In any case in which such review or revision shows that restoration is due, the provisions of Article 15 shall apply to the property concerned.

(b) The Japanese Government shall take the necessary measures to enable nationals of any of the Allied Powers at any time within one year from the coming into force of the present Treaty between Japan and the Allied Power concerned to submit to the appropriate Japanese authorities for review any judgment given by a Japanese court between December 7, 1941, and such coming into force, in any proceedings in which any such national was unable to make adequate presentation of his case either as plaintiff or defendant. The Japanese Government shall provide that, where the national has suffered injury by reason of any such judgment, he shall be restored in the position in which he was before the judgment was given or shall be afforded such relief as may be just and equitable in the circumstances.

Article 18

(a) It is recognized that the intervention of the state of war has not affected the obligation to pay pecuniary debts arising out of obligations and contracts (including those in respect of bonds) which existed and rights which were acquired before the existence of a state of war, and which are due by the Government or nationals of Japan to the Government or nationals of one of the Allied Powers, or are due by the Government or nationals of one of the Allied Powers to the Government or nationals of Japan. The intervention of a state of war shall equally not be regarded as affecting the obligation to consider on their merits claims for loss or damage to property or for personal injury or death which arose before the existence of a state of war, and which may be presented or re-presented by the Government of one of the Allied Powers to the Government of Japan, or by the Government of Japan to any of the Governments of the Allied Powers. The provisions of this paragraph are without prejudice to the rights conferred by Article 14.

(b) Japan affirms its liability for the prewar external debt of the Japanese State and for debts of corporate bodies subsequently declared to be liabilities of the Japanese State, and expresses its intention to enter into negotiations at an early date with its creditors with respect to the resumption of payments on those debts; to encourage negotiations in respect to other prewar claims and obligations; and to facilitate the transfer of sums accordingly.

Article 19

(a) Japan waives all claims of Japan and its nationals against the Allied Powers and their nationals arising out of the war or out of actions taken because of the existence of a state of war, and waives all claims arising from the presence, operations or actions of forces or authorities of any of the Allied Powers in Japanese territory prior to the coming into force of the present Treaty.

(b) The foregoing waiver includes any claims arising out of actions taken by any of the Allied Powers with respect to Japanese ships between September 1, 1939, and the coming into force of the present Treaty, as well as any claims and debts arising in respect to Japanese prisoners of war and civilian internees in the hands of the Allied Powers, but does not include Japanese claims specifically recognized in the laws of any Allied Power enacted since September 2, 1945.

(c) Subject to reciprocal renunciation, the Japanese Government also renounces all claims (including debts) against Germany and German nationals on behalf of the Japanese Government and Japanese nationals, including intergovernmental claims and claims for loss or damage sustained during the war, but excepting (a) claims in respect of contracts entered into and rights acquired before September 1, 1939, and (b) claims arising out of trade and financial relations between Japan and Germany after September 2, 1945. Such renunciation shall not prejudice actions taken in accordance with Articles 16 and 20 of the present Treaty.

(d) Japan recognizes the validity of all acts and omissions done during the period of occupation under or in consequence of directives of the occupation authorities or authorized by Japanese law at that time, and will take no action subjecting Allied nationals to civil or criminal liability arising out of such acts or omissions.

Article 20

Japan will take all necessary measures to ensure such disposition of German assets in Japan as has been or may be determined by those powers entitled under the Protocol of the proceedings of the Berlin Conference of 1945 to dispose of those assets, and pending the final disposition of such assets will be responsible for the conservation and administration thereof.

Article 21

Notwithstanding the provisions of Article 25 of the present Treaty, China shall be entitled to the benefits of Articles 10 and 14(a)2; and Korea to the benefits of Articles 2, 4, 9 and 12 of the present Treaty.

Chapter VI

SETTLEMENT OF DISPUTES

Article 22

If in the opinion of any Party to the present Treaty there has arisen a dispute concerning the interpretation or execution of the Treaty, which is not settled by reference to a special claims tribunal or by other agreed means, the dispute shall, at the request of any party thereto, be referred for decision to the International Court of Justice. Japan and those Allied Powers which are not already parties to the Statute of the International Court of Justice will deposit with the Registrar of the Court, at the time of their respective ratifications of the present Treaty, and in conformity with the resolution of the United Nations Security Council, dated October 15, 1946, a general declaration accepting the jurisdiction, without special agreement, of the Court generally in respect to all disputes of the character referred to in this Article.

CHAPTER VII

FINAL CLAUSES

Article 23

(a) The present Treaty shall be ratified by the States which sign it, including Japan, and will come into force for all the States which have then ratified it, when instruments of ratification have been deposited by Japan and by a majority, including the United States of America as the principal occupying Power, of the following States, namely Australia, Canada, Ceylon, France, Indonesia, the Kingdom of the Netherlands, New Zealand, Pakistan, the Republic of the Philippines, the United Kingdom of Great Britain and Northern Ireland, and the United States of America. The present Treaty shall come into force for each State which subsequently ratifies it, on the date of the deposit of its instrument of ratification.

(b) If the Treaty has not come into force within nine months after the date of the deposit of Japan's ratification, any State which has ratified it may bring the Treaty into force between itself and Japan by a notification to that effect given to the Governments of Japan and the United States of America not later than three years after the date of deposit of Japan's ratification.

Article 24

All instruments of ratification shall be deposited with the Government of the United States of America which will notify all the signatory States of each such deposit, of the date of the coming into force of the Treaty under paragraph (a) of Article 23, and of any notifications made under paragraph (b) of Article 23.

Article 25

For the purposes of the present Treaty the Allied Powers shall be the States at war with Japan, or any State which previously formed a part of the territory of a State named in Article 23, provided that in each case the State concerned has signed and ratified the Treaty. Subject to the provisions of Article 21, the present Treaty shall not confer any rights, titles or benefits on any State which is not an Allied Power as herein defined; nor shall any right, title or interest of Japan be deemed to be diminished or prejudiced by any provision of the Treaty in favor of a State which is not an Allied Power as so defined.

Article 26

Japan will be prepared to conclude with any State which signed or adhered to the United Nations Declaration of January 1, 1942, and which is at war with Japan, or with any State which previously formed a part of the territory of a State named in Article 23, which is not a signatory of the present Treaty, a bilateral Treaty of Peace on the same or substantially the same terms as are provided for in the present Treaty, but this obligation on the part of Japan will expire three years after the first coming into force of the present Treaty. Should Japan make a peace settlement or war claims settlement with any State granting that State greater advantages than those provided by the present Treaty, those same advantages shall be extended to the parties to the present Treaty.

Article 27

The present Treaty shall be deposited in the archives of the Government of the United States of America which shall furnish each signatory State with a certified copy thereof.

IN FAITH WHEREOF the undersigned Plenipotentiaries have signed the present Treaty.

DONE at the city of San Francisco this eighth day of September, 1951, in the English, French and Spanish languages, all being equally authentic, and in the Japanese language.

(There follow the signatures of the plenipotentiaries of these states):

Argentina
Australia
The Kingdom of Belgium
Bolivia
Brazil
Cambodia
Canada
Ceylon
Chile
Colombia
Costa Rica
Cuba
The Dominican Republic
Ecuador
Egypt
El Salvador
Ethiopia
France
Greece
Guatemala
Haiti
Honduras
Indonesia
Iran
Iraq
Laos
Lebanon
Liberia
The Grand Duchy of Luxembourg
Mexico
The Kingdom of The Netherlands
New Zealand
Nicaragua
The Kingdom of Norway
Pakistan
Panama
Paraguay
Peru
The Republic of the Philippines
Saudi Arabia
Syria
The Republic of Turkey
The Union of South Africa
The United Kingdom of Great Britain and Northern Ireland
The United States of America
Uruguay
Venezuela
Viet Nam
Japan

Java: *see* INDONESIA.

Javelin Throw: *see* TRACK AND FIELD SPORTS.

Jerusalem. The capital of former Palestine, revered as a Holy City by Christians, Moslems and Jews alike, was divided by a demarcation line established in the Israel-Jordan armistice agreement of April 3, 1949. Pop. (1950 est.): Israel-held new city, 130,000; Arab-held old city, 30,000.

The two cities of Jerusalem, Arab and Jewish, remained rigidly divided in 1951. The growth of Jewish Jerusalem, outside the walls of the old city, proceeded rapidly. New quarters were springing up on the west and northwest and on the south, and by August the Jewish population was nearly double the number after the first cease-fire in 1948. The main immigration during the year was of oriental Jews from Iraq, Yemen and North Africa, and they were being settled in the former Arab and the new suburbs.

The Israeli government and the national bodies promoted a Jerusalem Economic corporation for the development of industries. New factories were erected in the Sanhedria quarter on the northwest. The most important of them was a shoe factory which would provide the needs of the country and also produce for export.

In Arab Jerusalem the most notable event was the murder in July of King Abdullah of Jordan in the Haram, the Moslem sacred area, as he was entering the mosque for prayers. The acting mayor of the Arab city in 1951 was Anton Atallah, a Christian Arab.

The 23rd Zionist congress, the first held in Jerusalem, gathered in August, and was attended by more than 300 delegates from all parts of the world. It took place in an assembly hall which was provisionally completed for the congress and became part of a convention centre for international gatherings.

The Zionist congress had as its main topic a fresh program for the world movement, proposing to define the aim as the ingathering of the exiled Jewish people in the land of Israel. The U.S. Zionists, who were second in number of delegates, objected, because they did not regard American Jews as in exile. In the end the resolution about aims was dropped. But it was agreed that the practical task of Zionism was to bring into Israel all those Jews who wished to live there.

Municipal elections were held in Jewish Jerusalem in Dec. 1950. They were fought with fierce party feeling. The system of proportional representation by lists, used for the election to the Israel parliament, was adopted and each of the chief parliamentary parties had its list. The election showed a swing to the right. The General Zionists (conservatives), the more right-wing Freedom party (Herut) and the Religious party gained at the expense of the Labour and Progressive parties. Daniel Auster, who had been mayor since 1949 and acting mayor for many years, elected as a Progressive, was unable to form a coalition; a new combination of General Zionists and the religious bloc elected as mayor S. Z. Shragai, an Orthodox Jew.

BIBLIOGRAPHY.—*Jerusalem Economy*, published by the Jerusalem Chamber of Commerce (Jerusalem, 1950); Paul Mohn, *Jerusalem and the United Nations* (1951).

FILMS OF 1951.—*Jerusalem—The Holy City* (Encyclopædia Britannica Films Inc.). (No. B.)

Jet Propulsion. Ten years of jet progress was marked on May 15, 1951, a decade having elapsed since the Gloster E28/39 experimental fighter type aircraft took to the air for 17 min. powered by the Whittle W1 turbine jet engine. At that time only a handful of men realized the tremendous implications involved in this technical revolution. By the end of World War II considerable headway had been gained for the new type of aircraft propulsion, but the great majority of experts still felt that the jet turbine engine was only suitable for high-speed, relatively short-range fighter aircraft. During 1951, however, a wide variety of jet-powered aircraft types were in operational service, quantity production or advanced development by the major air forces of the world. These included more than a dozen types of interceptor-fighters and fighter-bombers, several radar-equipped all-weather fighters, a medium-range bomber escort fighter, a high-speed four-engine reconnaissance bomber, a twin-engine attack bomber, several medium-range high-altitude four- or six-engine bombers, two eight-engine long-range strategic bombers and a large cargo plane. In the civil field, Oct. 19, 1951, saw the conclusion of a six-month program of proving flights of the de Havilland Ghost-powered Comet air liner by the British Overseas Airways corporation.

Turbojets.—In late 1949 the U.S. air force expressed a requirement for axial-flow turbojet engines of much greater thrust but with the same over-all dimensions as the engines it was then using. These included various models ("dash numbers") of the Allison J-35 and General Electric J-47, in the 5,000- to 6,000-lb. thrust bracket. The first to be completed was the Allison J35-AL-23 (actually planned by the company in 1948), which had the same diameter as earlier models, but was longer and weighed 50% more. Thrust was in the 9,000- to 10,000-lb. class, and designation was changed to J-71. The G.E. "advanced" J47-GE-21 was also accepted by the air force during 1951, and was designated J-73. Although the length was kept practically the same as in the earlier J-47s, the thrust was increased to more than 9,000 lb.

Definitely larger turbojets in the 9,000- to 12,000-lb. class were in limited production during 1951. These included the Westinghouse J40-WE-6 Goliath and the Pratt and Whitney J-57, power plant for two U.S. air force strategic bombers, the Boeing B-52, which had its first engine run-ups in late 1951, and the Consolidated Vultee YB-60. The J-40 appeared to be a scaled-up version of the efficient Westinghouse J-34 engine which powered several navy and air force fighters, a more powerful version of which was the J-46. Another big engine in this class was the General Electric XJ-53 which was under advanced test in 1951. In general, it represented a scaled-up version of the J-47. This ability to scale up turbojets is a unique feature of gas turbine power plants. Wright Aeronautical corporation went into limited production of the 7,200-lb. thrust J-65, its version of the Metro-Vick/Armstrong Siddeley Sapphire, to power the F-84F version of the Thunderjet and other air force fighters and bombers.

Avro Canada's Orenda axial-flow jet engine in the 7,000-lb. thrust class was test-flown in a North American F-86E Sabre, a considerable number of which were being built in Canada. Solar Aircraft of California developed an afterburner for the Orenda to give it increased bursts of power for take-off and combat. The Orenda also powered the Avro Canada CF-100 high-speed twin-jet fighter, and a modified version of the C-102 Jetliner civil transport.

In Great Britain turbojets in the 3,500- to 4,000-lb. thrust class (Goblin and Derwent) and 5,000- to 6,250-lb. class (Ghost, Nene and Tay, the latter similar to the Pratt and Whitney J-48) were in production for military and naval aircraft. The 7,000- to 7,500-lb. thrust Rolls Royce Avon and Armstrong Siddeley Sapphire were being prepared for large-scale production in several plants. Larger turbojets in the 10,000- to 15,000-lb. thrust bracket were in advanced development, including the Bristol Olympus, a new Rolls Royce "river-named" model, and a reported new axial-type jet engine by the de Havilland enterprises.

At the 1951 Farnborough display three small, high-speed Delta-wing experimental jets were shown, the Avro 707, Boulton Paul P-111 and Fairey FD-1. This configuration was expected to be used on most of the next crop of supersonic fighters, and on one large bomber. In November the world's first twin-jet Delta-wing fighter, the Gloster GA-5 powered by two Sapphires, made an initial flight of 35 min. It was an all-weather day and night fighter, similar in mission to the de Havilland 110 twin-jet, twin-boom fighter (two Avons), also unveiled during 1951.

CAMERA PATTERN made by a Hiller-Hornet as it rose in the air after dark. The two-passenger jet helicopter had two hand controls and required no foot pedals; top speed was 80 m.p.h. and the ceiling 12,000 ft.

Despite its late start, France became in 1951 the fourth largest producer of jet engines in the world (U.S., the U.S.S.R. and England were the first three, probably in that order). These engines included the Hispano-Suiza Nene 104 (quantity production) and more powerful Tay in limited production, both under Rolls Royce licence. In service tests were the French designed ATAR 101, Rateau SRA-101 and TGAR 1008—all in the 5,000- to 7,000-lb. thrust class. Much smaller engines (250- to 750-lb. thrust) were the Turbomeca ducted fan type units, some of which would be produced in the U.S. by Fairchild and Continental Motors.

During 1951 the U.S.S.R. had three turbojets in their production program—the M-45 Chelomey-Nene (based on the 25 Nene 1's sold by England to the Soviet Union in 1947), the M-012 (based on the Junkers Jumo 012) and the M-018 (based on the BMW 018). These latter two were advanced German projects taken over in 1945, and during the following six years soviet and German engineers had made considerable progress with them. The Chelomey-Nene went into production in 1949 and by 1950 was rated at 5,000-lb. thrust; during 1951 it reached 5,500 lb. It was the power plant of the fleet of several hundred MIG-15s in North Korea, and technical intelligence reports indicated that it was as good as British and U.S. developed Nenes (J-42). Later modifications were reported to bring the M-45 to 6,000- to 6,500-lb. thrust, similar to the Rolls Royce Tay (J-48). The M-012 had a rating of 6,500-lb. thrust and powered the Lavochkin twin-jet night fighter (La-16 or La-15 bis); with afterburner, thrust might be around 9,000 lb. The M-018 was a still larger engine, probably approaching 8,000-lb. thrust, and was the ultimate power plant of the first soviet jet bomber, the Tu-10, identified as in service in east Germany, and powered by two M-45 Chelomey-Nenes. By concentrating on these three basic jet engines the Russians were getting results far quicker than if they scattered their efforts over a dozen models or more in various power brackets.

Turboprops.—Steady, if not spectacular progress was made in the turbine-propeller field during 1951. Tests continued on the navy R3Y flying boat with two Allison T-40 (5,500 h.p.) units, the Convair-Allison Turboliner with two Allison T-38s (2,750 h.p.), and the Douglas A2D Skyshark (one T-40). The U.S. air force ordered a number of turboprop versions of the Convair T-29 navigation trainer, to be powered by a more advanced T-38 (two units at 3,000 h.p. each). Development continued on the turboprop Lockheed R70 Super-Constellation for the navy, to be powered by four Pratt and Whitney T-34 engines rated at 5,700 h.p., but expected to produce 6,000 h.p. by the time the R70 was in operation. The navy's Douglas R6D (DC-6A type) development was continued (four T-38s) and the air force Douglas C-124A strategic cargo plane, with four Pratt and Whitney T-34s. In the small turboprop field the 175-h.p. Boeing 502 (T-50) was the power plant of a Kaman helicopter which was under development.

In England the Vickers Dart-Viscount 700 continued its operational service tests in preparation for air line service during 1952. Development of the coupled Bristol Proteus (6,400 h.p.) continued. Eight of these units were scheduled for the huge Saunders-Roe Princess flying boat, which in October was moved outside her hangar to be finished—three were being built for the royal air force for strategic troop carrier service.

Compound Engines.—Installations of the Wright Turbo-Cyclone 18 R-3350 equipped with auxiliary gas turbines were made in the latest Lockheed Neptune P2V-5 antisubmarine patrol bomber, and were scheduled for some commercial Super-Constellation 1049s and the navy version, R-70-1. Maximum rating on this compound or "power recovery" engine was 3,750 h.p.

In England, the Napier Nomad composite engine was shown at Farnborough 1951 and marked another milestone in the development of aircraft power plants. The lower part of the Nomad comprised a gas turbine unit with axial and centrifugal compressors, and the upper part consisted of a 12-cylinder horizontally-opposed diesel engine. Its specific fuel consumption of 0.36 lb. was very low, making it highly suitable for long range civil and military aircraft. Its rating was 3,000 h.p. plus 320 lb. of jet thrust.

Nonturbine-Type Jet Engines.—The Curtiss-Wright propeller division's rocket section developed a satisfactory set of controls for the XLR-25 rocket engine, power plant for the Bell X-2 special research plane project, and also specified as the tail booster unit for the Republic high altitude interceptor, XF-91. The XLR-25 was the first rocket engine capable of being throttled like a jet. Thrust of the earlier plane-powering rocket engine, Reaction Motors model 6000-C4, was controlled by the number of cylinders fired. This unit was the power plant of the Bell X-1, first supersonic aircraft, and of the second version of the Douglas D-558-2, which also exceeded the speed of sound and which in Aug. 1951 attained a new high altitude record for all types of aircraft. The figure was believed to be above 77,000 ft. (more than 14 mi.), exceeding the previous official record of 72,394 ft. set by a man-carrying balloon in 1935.

Armstrong Siddeley revealed details on the new Snarler liquid propellent rocket motor, which weighed 215 lb. and developed a 2,000-lb. thrust at sea level. Like the Curtiss XLR-25, it could be switched on or off at will, and was used for ultra-rapid climbing or for performance boosts in combat or pursuit, doubling the power of the fastest jet fighters at high altitude. It was extensively tested on the Hawker experimental P-1072. The de Havilland Sprite, jet booster unit for the Comet, continued in production.

Large, very high power ramjets for guided missiles continued in development for the U.S. air force and navy. Small ramjets were installed in helicopters, one by McDonnell Aircraft for the navy and the other, the Hiller-Hornet, described as the first practical, low-cost helicopter. (*See* also AVIATION, CIVIL; AVIATION, MILITARY; MUNITIONS OF WAR.) (N. F. S.)

Jewish Religious Life: *see* JUDAISM.

Jewish Welfare Board, National: *see* SOCIETIES AND ASSOCIATIONS, U.S.

John Simon Guggenheim Memorial Foundation: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Joint Chiefs of Staff: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Jordan.

An independent Arab kingdom of the middle east, Jordan is bounded west by Israel, north by Syria, east by Iraq and southeast and south by Saudi Arabia. Area (including Arab Palestine): about 37,110 sq.mi. Pop. (1950 est.): 500,000. Capital: Amman (pop., 1951 est., 200,000). Language: mainly Arabic. Religion: Moslem (chiefly Sunni), Christian about 8% (chiefly Arab-speaking Greek Orthodox). Kings in 1951: Abdullah ibn Hussein and, from Sept. 6, Talal I (*q.v.*); prime ministers in 1951: Samir Pasha el Rifai and, from July 25, Tewfik Pasha Abu-Huda.

History.—During 1951 there were a series of sporadic incidents between Jordan and Israeli forces up and down the armistice frontier; and on July 11 the Jordan government protested to the United Nations alleging that the Israeli authorities were damaging Jordan economy by reducing the supply of water in the Jordan valley by pumping schemes in the upper reaches of the river. In August the Israeli government expressed its readiness to the British and the U.S. governments to negotiate an agreement with Jordan to regulate the water of the River Jordan.

In September the Jordan government was represented in Paris at a meeting to discuss the proposals of the Palestine conciliation committee for a settlement. The proposals were rejected by the Arab delegates and in November the commission announced the failure of its efforts.

On March 3 an agreement was reached between the British and the Jordan governments on a series of financial questions connected with the termination of the Palestine mandate. By it £2,500,000 were released from the Jordan account; and in November a financial and economic mission from Jordan visited London to discuss the possibilities of financing certain projects in Jordan which would create employment for the thousands of Arab refugees still in exile there.

These projects included the development of Aqaba port and its road and air communications with the interior; the erection of an oil refinery at Amman and the development of cotton cultivation in northern Jordan and of rice in the larger desert oases. In April Jordan became the second Arab country (the first was Egypt) to respond to the U.S. Point Four offer of financial and technical assistance for local developments; and in June a trade agreement was signed with Egypt for an exchange of goods between the two countries via Aqaba.

From May 15 to 27 King Abdullah visited the Turkish government at Ankara to strengthen the friendship between the two countries and on May 31 the Amir Abdul-Ilah, regent of Iraq, accompanied by the Iraqi prime minister, Nuri Pasha es Said, visited Amman.

On July 16 Riad es-Solh, a former prime minister of the Lebanon, was assassinated in Amman; and on July 20 King Abdullah himself was shot dead by an assassin when entering a mosque in the old city of Jerusalem. The murderer was shot dead and subsequently a series of arrests were made and the prisoners brought to trial by military court. Four were con-

ARAB LEGIONNAIRE weeping at the funeral of King Abdullah ibn Hussein of Jordan, who was assassinated in Jerusalem on July 20, 1951

demned to death and executed. Two more were also sentenced to the death penalty in their absence in Egypt; but subsequently the Egyptian government refused their extradition. After the king's murder, his younger son, the Amir Naif, in the absence in Switzerland of his elder brother, the Amir Talal, was proclaimed regent, and the cabinet of Samir Pasha el Rifai was replaced by a new government under Tewfik Pasha Abu-Huda. At the end of August there were new elections and on September 6 the Amir Talal returned from Switzerland and was proclaimed king in succession to his father. On Oct. 29 a new senate was appointed by royal decree; and in his speech from the throne, on Nov. 1, King Talal announced his country's absolute support of and sincere sympathy with the national aspirations of the Arab states. On Nov. 7 the new parliament unanimously approved the amendations of the constitution whereby the cabinet became responsible to parliament. On Nov. 10 King Talal went to Saudi Arabia on a state visit to King Ibn Saud. On Nov. 16 there were large demonstrations in Amman in sympathy with Egypt's independence day ceremonies. (*See* also ISRAEL; UNITED NATIONS.) (O. M. T.)

Education.—Government schools (1950) 328, pupils 56,425, teachers 1,462.

Finance and Banking.—Budget: (1949–50) balanced at 3,400,000 dinars; (1950–51 est.) revenue 3,300,000 dinars, expenditure 3,800,000 dinars. Monetary unit: Jordan dinar at par with the pound sterling and with an exchange rate of 0.357 dinars to the U.S. dollar.

Foreign Trade.—(1950) Imports 10,767,000 dinars; exports, including re-exports, 1,982,000 dinars. Export figures include bullion (silver coins exported to the United Kingdom amounting to 409,650 dinars in 1950). Main sources of imports (1950): U.K. 26.1%; Syria and Lebanon 12.3%; Italy 8.7%; Iran 8.0%. Main destinations of exports (excluding bullion): Syria 95.3%; Egypt 2.1%. Main imports: textiles 11.3%; sugar 6.9%; building materials 5.9%; motor vehicles and spare parts 3.5%. Main exports (excluding bullion): cereals 29.3%; raw wool 14.1%; vegetables 13.6%; olive oil 9.9%; fruits 7.8%.

Transport and Communications.—Roads (on eastern bank of the Jordan, all-weather, 1950): 395 mi. Licensed motor vehicles (Dec. 1950): cars 2,150; commercial 1,800. Railways (1950): 280 mi. There were two air transport companies, Arab Airways association and the Air Jordan. Miles scheduled per week by Arab Airways association (1950): 5,268.

Agriculture.—Main crops (metric tons, 1950): wheat 106,000; barley 41,000; millet 14,000; lentils 8,100; kersennah 8,200; tobacco 200; dry beans 2,000. Livestock (1949): goats 332,000; sheep 113,000; horses 3,000; asses 26,000; cattle 64,000; mules 2,000; camels 4,000.

Jouhaux, Léon (1879–), French trade union leader, was born at Paris, July 1. He started work at the age of 16 in a match factory at Pantin-Aubervilliers where his father was employed. In 1906 the Matchworkers' union selected him as delegate to the Confédération Générale du Travail (C.G.T.). In 1909 he was elected the C.G.T.'s treasurer and a few months later secretary general. From an ardent revolutionary he changed during World War I into a supporter of evolutionary socialism. In May, 1920 he organized a general strike aiming at the nationalization of industry and banking but failed. In 1936 Jouhaux declined a portfolio in the first Blum cabinet but joined the board of directors of the nationalized Bank of France. He was removed from this post by Edouard Daladier in 1938 because as secretary general of the C.G.T. he was responsible for a 24-hr. general strike organized against the introducing of the 48-hr. week in factories necessary for national defense. After the 1940 capitulation the Vichy government dissolved the C.G.T. and Jouhaux was interned at Evaux-les-Bains (Creuse) in Dec. 1941; later he was handed over to the Germans and interned at the Buchenwald concentration camp. He returned to France in May 1945 and became one of the secretaries general of the C.G.T., the other being Benoit Frachon, a Communist. In Dec. 1947 an anti-Communist C.G.T.-F.O. (Force Ouvrière) was formed and Jouhaux became its leader. From its inception he was a member of the administrative council of the International Labour office and from 1945 to 1948 vice chairman of its governing body. He was also active in the international trade union movement. After the schism within the Communist-led World Federation of Trade Unions, he was one of the founders of the International Confederation of Free Trade Unions (London, Nov. 1949). On Nov. 5, 1951, the Nobel committee of the Norwegian parliament awarded him the Nobel Peace prize.

Joy, Charles Turner (1895–), U.S. naval officer, was born in St. Louis, Mo., on Feb. 17. He graduated from the U.S. naval academy, Annapolis, Md., in 1916, and served throughout World War I on the battleship "Pennsylvania," flagship of the U.S. Atlantic fleet. He studied ordnance engineering at the University of Michigan, Ann Arbor, for two years ending in 1922. In 1937 he returned to the naval academy, first as executive officer and later as head of the ordnance and gunnery department.

Adm. Joy saw active service in the Pacific during most of World War II, ending as senior officer present afloat in Buckner bay in the Okinawa landings, March 25–June 8, 1945. He was made a rear admiral in 1944 and vice admiral in Aug. 1949, at which time he was assigned to command of the U.S. naval forces in the far east. He was senior member of the United Nations delegation that during the last half of 1951 engaged in negotiations with the Communists for a truce in the Korean fighting. (*See* KOREAN WAR.)

Judaism. The outstanding event in Orthodox circles in the United States during 1951 was the announcement of a $60,000,000 medical school of the Yeshiva university, New York, N.Y., which was to be integrated with the city's hospitals. Its significance religiously was that it would enable its students and teaching personnel to observe the Sabbath, the festivals and the practices of Judaism, and would foster in them an appreciation for religious values.

The erection and dedication of the House of Living Judaism in New York city spelled the intensification and expansion of the religious and educational program of liberal Judaism.

The favourable response of the World Union for Progressive Judaism to the request of the liberal Jews of Bombay, Ind., for rabbinical assistance for a brief period was noteworthy. It indicated a sense of obligation which groups of Jews were beginning to show for the spiritual development of their less fortunate kin.

In Israel the High Synod (Beth Din Hagadol) was named and was attempting to deduce how particular actions made necessary by contemporary life and conditions could be brought within the scope of biblical and talmudic stipulations and succeeding rabbinic authorities.

There was not much change in the over-all picture of the status of Jewish religious life and thought in various countries. In the western hemisphere and in Europe progress was reported by all groups. The evidence, however, was inconclusive. The criteria used were membership increases, greater contributions and the erection of more and costlier edifices for worship. A measurement of religious traits, such as the genuineness of articulated religious beliefs, the extent of one's awareness of the presence of the Divine in life, and the feeling of at-homeness in a cosmos which scientists aver is indifferent to man's fate and destiny had not only not been devised but was not even envisaged.

In European lands the fear of an outbreak of war and the past experience of the added impact which it always had on the Jewish minority was so disturbing to the Jews of all countries (except Switzerland) that whatever time and thought could be spared by the multitudes from their preoccupation with earning a livelihood was given to the speculation of discovering a haven should the storm break out. The reaction of others to such a possibility was to live in and enjoy the present.

In Israel was observed a notable manifestation of prophetic religion. It was evidenced not in punctilious observance of rites and ceremonies, but in willingness to share the little which the inhabitants had, shelter and food, with coreligionists, no matter from what backward countries they hailed, how broken in body they were or how different their colour and culture were from those of the older inhabitants. (*See* also RELIGIOUS EDUCATION.) (B. H.)

See also Leon Poliakov, *Bréviaire de la haine: le Troisième Reich et les Juifs* (Paris, 1951); Solomon M. Schwarz, *The Jews in the Soviet Union* (1951).

Jugoslavia: *see* YUGOSLAVIA.

Jumping: *see* TRACK AND FIELD SPORTS.

Junior Colleges: *see* UNIVERSITIES AND COLLEGES.

Justice, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Juvenile Delinquency.

The significant fact in the field of treatment of the child delinquent in 1951 was the lowered population in correctional institutions for both girls and boys. Massachusetts reported for girls a decrease of 40%. New Jersey closed two cottages in the Trenton State Home for Girls. California's decrease for its institution for delinquent girls at Ventura was 17%. The New England states and New York and Pennsylvania showed similar decreases for boys. As the number appearing before juvenile courts in 1951 was approximately the same as for 1950, the rate of lowered commitments to state institutions must be explained by change of policy and the increased activity of voluntary community agencies for the care of wayward youth.

The outstanding event of the year for consideration of the treatment of juvenile delinquents was the Berkshire International forum held in Canaan, N.Y. Fifty specialists in child welfare met for a week in June, under the chairmanship of Leonard W. May. Twelve members of the United Nations secretariat took part. The conference represented the approaches of psychiatry, case work, sociology, education, juvenile court, the law and institutional and government administration. A statement of policy and principles was formulated as "a progressive guide to the development of treatment practice by institutions for juvenile delinquents." The complete text was published in *Focus,* the magazine of the National Probation and Parole association, Nov. 1951. Professionally skilled diagnostic study of the needs and nature of the individual child was declared essential. "We unanimously condemn any philosophy of taking social vengeance upon delinquent children, as any reliance upon a philosophy of punishment." Research and public information were stressed.

The National Council of Juvenile Court Judges in 1951 presented in their *Year Book* a 47-page review of the significant decision affecting juvenile courts by Judge Bernard J. Roetzel of Akron, O.

Reviewing the regional conferences of probation officers held throughout the country, in Virginia, Connecticut, Michigan and other places, the significant trend was the use of scientific method and trained personnel to solve the problems of child behaviour. (*See* also RELIGIOUS EDUCATION.)

FILMS OF 1951.—*Crossroads of Life* (United Nations, Film Division). (M. V. W.)

Kansas.

Kansas was admitted to the union as the 34th state on Jan. 29, 1861. It is frequently called the "Sunflower state." The total area is 82,276 sq.mi. of which 82,108 sq.mi. are land. Kansas is located in the geographical centre of the continental United States and is the geodetic centre of the North American continent, from which all geodetic surveys are made. The population was estimated by the U.S. census bureau in 1951 at 1,942,060, the highest ever recorded in the state. The 1950 census showed a population of 1,905,229. The population was about equally divided between urban and rural. Capital: Topeka, pop. 78,791 (1950). The two largest cities in 1951 were Wichita, 168,279 and Kansas City, 129,553.

History.—The principal state officials in 1951 were: Edward F. Arn, governor; Fred Hall, lieutenant governor; Paul R. Shanahan, secretary of state; George Robb, auditor; Adel Throckmorton, superintendent of public instruction; Frank Sullivan, insurance commissioner; Harold R. Fatzer, attorney general; Ferdinand Voiland, state printer; Richard Fadely, treasurer. The 1951 legislature provided for a new commission to reorganize the fiscal policies of the state budget.

Education.—As of Sept. 30, 1950, there were 2,558 one-teacher schools in operation with an enrolment of 28,046. The enrolment (1950) in elementary and secondary schools was 336,871 (90,018 in secondary schools). There were 17,563 teachers employed in the state. The combined enrolment of the four state colleges and one university was 15,181. The populations of other state institutions were as follows: school for the blind 85; school for the deaf 238; Kansas technical institute (Negro) 208.

Social Insurance and Assistance, Public Welfare and Related Programs.—The populations of the state's welfare institutions in 1951 were as follows: hospitals for epileptics 721; state training school 1,401; hospitals for tuberculars 373; orphans and receiving home 165; hospitals for insane 4,703; industrial school for girls 99; industrial school for boys 135; state penitentiary 1,418; industrial farm for women 41; reformatory for boys 428. The 1951 legislature appropriated approximately $21,263,000 for public welfare institutions and correctional institutions. Public assistance expenditures of all types in 1950 totalled $33,290,248.44 including old-age assistance $24,233,894; needy blind $427,949; dependent children $5,178,762. There were 41,188 persons receiving public welfare assistance in 1950.

Communications.—As of June 30, 1951, the total length of primary and secondary roads in the state was 133,197 mi. The state maintained 9,425 mi. of rural and 512 mi. of urban highways, the remainder being controlled by the respective municipalities. The total highway expense for 1950 was $34,864,674 and highway expenditures to Sept. 1951 totalled $22,601,915. Kansas had 8,415 mi. of railroads. There were 74 privately owned and 1 Civil Aviation administration airports.

Banking and Finance.—The budget for the biennium 1952 and 1953 to-

GAS COMPANY EMPLOYEE at Kansas City, Kan., after diving in flood waters in an attempt to reach a shut-off valve in July 1951. Partial gas service could not be restored without endangering flooded areas unless the valves for those areas were first shut off

talled $65,167,483, an increase of $7,124,677 over the previous budget of 1950 and 1951. Sales tax (2%) collected for 1951 fiscal year totalled $44,813,256. The income tax for 1951 totalled $13,946,274. The bonded indebtedness (soldier's bonus) totalled $3,250,000 as of June 30, 1951.

At the same period of the year there were 174 national banks, 437 state banks and 3 trust companies. The deposits in the national banks and insured state banks totalled $1,447,813,334.11 as of that date.

Agriculture.—Kansas agricultural production during 1951 was below that of 1950 and below the average of recent years. Livestock production, particularly meat animals, was higher than in 1950, but aggregate crop production was sharply less than a year earlier. The wheat crop was the poorest in more than a decade, and the corn, oats and barley crops were also below average. The livestock inventory numbers on Jan. 1, 1951, were: cattle and calves 3,917,000; hogs 1,504,000; sheep and lambs 694,000; chickens 14,749,000.

Manufacturing.—In 1951 there were nearly 3,000 manufacturing and processing plants engaged in the production of more than 1,000 items. The total value added by the manufacturer was approximately $500,000,000.

(Ed. F. A.)

Mineral Production.—Table II shows the tonnage and value of those minerals produced in the state in 1949 whose values exceeded $100,000, and the corresponding data for 1950, so far as they were available.

Table I.—*Principal Crops of Kansas*

Crop	1951	1950	Average 1940–49
Wheat, bu	126,113,000	178,060,000	193,512,000
Corn, bu.	58,296,000	89,495,000	68,239,000
Sorghum grain, bu.	57,310,000	44,689,000	22,479,000
Oats, bu.	14,346,000	20,160,000	34,735,000
Barley, bu.	1,547,000	3,683,000	12,132,000
Soybeans, bu.	5,814,000	7,146,000	2,050,000
Hay, tons	3,467,000	3,316,000	2,729,000
Potatoes, bu.	368,000	896,000	1,824,000
Alfalfa seed, bu.	57,000	57,000	208,100
Red clover seed, bu.	11,200	61,000	34,370
Flaxseed, bu.	82,000	168,000	950,000
Apples, bu.	837,000	390,000	579,000
Grapes, tons	2,000	2,200	2,250

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Kansas*

(Short tons, except as noted)

Mineral	1949 Quantity	1949 Value	1950 Quantity	1950 Value
Cement (bbl.)	7,640,540	$16,880,156	8,759,103	$19,400,068
Clays	302,208	260,318	351,756	320,869
Coal	2,031,117	7,968,140	2,124,980	8,233,527
Lead	9,772	3,087,952	9,487	2,561,490
Natural gas (000 cu.ft.)	294,078,000	15,910,000	363,000,000	19,602,000
Natural gasoline (gal.)	78,953,000	4,772,000	105,522,000	6,120,000
Petroleum (bbl.)	101,868,000	262,820,000	107,586,000	276,500,000
Petroleum gases (gal.)	32,235,000	1,164,000	48,321,000	1,474,000
Salt	832,442	5,217,844	846,374	5,914,514
Sand and gravel	6,186,719	3,327,920	9,781,123	6,782,285
Stone	5,978,420	7,951,490	7,630,300	8,920,207
Zinc	29,433	7,299,384	27,176	7,717,984
Other minerals	....	502,347	....	?
Total		337,161,551		?

Kashmir.

Kashmir is a native state in the Indian subcontinent, bounded northwest, northeast and east by Afghanistan, Sinkiang province of China and Tibet respectively. Area (including Jammu and frontier districts): 82,258 sq.mi. Pop.: (1941 census) 4,021,616; (1950 est.) 4,370,000. Ruler, Lieut. Gen. Maharaja Sir Hari Singh.

History.—The endeavours of Sir Owen Dixon in 1950 to arrive at an agreed settlement over Kashmir between India and Pakistan had met with the same fate as those of his predecessors. The United Nations security council, however, was determined not to give up the attempt without a further effort, and it appointed in his place Frank Graham, who had been in charge of defense and manpower in the U.S. department of labour during World War II. His instructions were "to proceed to the subcontinent and after consultation with the governments of India and Pakistan to effect the demilitarization of Kashmir on the basis of the U.N. Commission for India and Pakistan resolutions of Aug. 13, 1948, and Jan. 1949."

Meanwhile, Sheikh Abdullah, the *de facto* prime minister of Kashmir, was acting as though the ultimate fate of the country was already a *fait accompli.* A drive for the expropriation of feudal holdings had resulted in the confiscation of about 9,000 landlord's estates without compensation. In the future no individual was to hold more than 22½ ac., to be cultivated in person, and in this way about 30,000 peasants obtained titles to their lands. In October orders were issued for convening a constituent assembly of 74 members, which claimed to be a sovereign body representing the people of Kashmir. Its primary duty would be to draw up a constitution, though Jawaharlal Nehru declared that it would not be competent to make a valid decision on the question of accession to the Indian union. These proceedings aroused intense resentment in Pakistan; in the words of the foreign minister, Zafrullah Khan, "the proposal to convene a constituent assembly was not only a prejudicial act, but it was deliberately designed to bypass the United Nations and to prevent the holding of a free and impartial plebiscite." As a preliminary to the holding of a plebiscite, Sheikh Abdullah demanded the evacuation of the whole of the Pakistan army of occupation and the liquidation of the Azad Kashmir forces; only after this had been done would the bulk of the Indian troops be withdrawn, the minimum necessary to maintain order and ward off invasion being retained.

Under the circumstances, there was little that Graham could do, and he returned about a month before the time originally fixed to report upon the situation to the security council. The council, however, instructed him to continue his efforts, and it was understood that he would make a further endeavour to bring them together during the forthcoming meeting of the United Nations. Both sides agreed that the question of the future of Kashmir was one that could only be settled by the people of that country themselves; the difference of opinion between them was upon the question of the procedure to be adopted in order that these views might be impartially ascertained.

(H. G. Rn.)

Kefauver, Estes

(1903–), U.S. senator, was born on July 26 in Madisonville, Tenn. He attended the University of Tennessee, Knoxville, and Yale law school, where he received a law degree in 1927. He practised law in Chattanooga for about ten years, and in 1939 was appointed state commissioner of finance and taxation. In May of that year he was elected to fill out an unexpired term in the U.S. congress, left vacant by a death, and he eventually served five terms in the house of representatives. In congress he was increasingly concerned with modernizing the machinery of government. He introduced measures to curb monopoly, and in foreign affairs was generally an administration supporter. He campaigned for the U.S. senate in 1948 in spite of opposition from the regular Democrats under "Boss" E. H. Crump, and won the Democratic nomination and the election.

Senator Kefauver gained unusual attention during 1951 as chairman of the U.S. senate crime investigation committee, whose hearings, which were televised, attracted such huge metropolitan audiences that the daily routines of whole cities were affected. The committee's reports gave detailed evidence of political-criminal alliances reaching into city, state and federal offices; described gambling as a $20,000,000,000-a-year industry; urged laws to curb rackets; and asked for a permanent nonpartisan commission to police the crime-corruption situation. Senator Kefauver himself, however, indicated a desire to turn from this investigation to devote more attention to foreign affairs. He was mentioned from time to time as a possible presidential candidate for 1952.

Kefauver Committee: *see* Betting and Gambling; Crime; Municipal Government.

Kellogg Foundation: *see* Societies and Associations, U.S.

Kentucky. An east south-central state of the United States admitted to the union on June 1, 1792, Kentucky is popularly called the "Blue Grass state." Area: 40,395 sq.mi., of which 531 sq.mi. are water. The population by the 1950 official census was 2,944,806, a gain of 3.5% in a decade. The per cent urban in 1950 was 33.5 by the old definition and 36.8 by the new definition. The capital, Frankfort, had a population of 11,916. Other large cities included: Louisville (369,129), Covington (64,452), Lexington (55,534), Owensboro (33,651), Paducah (32,828), Ashland (31,131), Newport (31,044).

History.—As a result of the election of Nov. 6, 1951, Gov. Lawrence W. Wetherby scored a decisive victory over his opponent, Republican Eugene Siler. The Democrats also won all other state-wide races and clinched a three to one majority for the 1952 general assembly. The state officers elected in 1951 for four-year terms, in addition to Governor Wetherby, were: lieutenant governor, Emerson Beauchamp; secretary of state, Charles K. O'Connell; attorney general, J. D. Buckman; auditor, T. Herbert Tinsley; treasurer, Pearl F. Runyon; superintendent of public instruction, Wendell P. Butler; commissioner of agriculture, Ben S. Adams; and clerk, court of appeals, Acree Austin. In the 1951 election the voters overwhelmingly defeated an amendment providing that more than two amendments could be submitted at any one election.

Education.—Public schools in 1950–51 numbered 4,550 elementary schools, 113 high schools and 427 combined elementary and high schools. Total public-school pupils numbered 563,398, and full-time teachers, exclusive of principals, supervisors, helping teachers, etc., numbered 18,000. The state per capita fund was $20,212,500 and the equalization fund was $4,287,500. The per capita expenditure was $152 for all purposes per pupil in average daily attendance.

Social Insurance and Assistance, Public Welfare and Related Programs.—Unemployment insurance paid for the 1951 fiscal year amounted to $10,568,314, or an average of $16.05 for 666,462 weeks. Old-age assistance went to an average of 67,689 monthly for a yearly total of $16,709,771. Aid to dependent children amounted to $10,756,152 for an average monthly number of 60,952. Aid to the blind amounted to $693,160 for a monthly average of 2,438 recipients. The population of the correctional institutions on Sept. 30, 1951, was: reformatory, 1,917; penitentiary, 1,046; women's prison, 64; houses of reform: boys, 305, girls, 75.

Communications.—As of June 30, 1951, the Kentucky department of highways had under maintenance 14,192 mi. of road. During the fiscal year it placed 87 new bridges costing $6,780,000 under contract. On June 30 two toll bridges—Owensboro and Newport—were operated by public authority. Four other toll bridges over the Ohio river—Louisville, Covington, Portsmouth and Greenup—were privately owned. Road fund receipts for the fiscal year ending June 30, 1951, amounted to $61,977,840. Expenditures for that period amounted to $63,674,440. The surplus as of June 30, 1951, was $2,157,608.

Table I.—*Principal Crops of Kentucky*

	1951	1950	Average 1940–49
Corn, bu.	80,662,000	78,810,000	76,584,000
Winter wheat, bu.	3,568,000	3,720,000	5,401,000
Oats, bu.	2,136,000	2,277,000	2,311,000
Barley, bu.	1,192,000	1,679,000	1,799,000
Rye, bu.	204,000	242,000	375,000
All hay, tons	2,277,000	2,426,000	2,334,000
Soybeans (for beans), bu.	2,470,000	2,205,000	1,293,000
Tobacco, all types, lb.	444,094,000	363,525,000	395,536,000
Potatoes, Irish, bu.	1,960,000	2,002,000	3,546,000
Potatoes, sweet, bu.	462,000	651,000	1,228,000
Apples, bu.	304,000	290,000	290,000
Peaches, bu.	88,000	179,000	656,000

Source: U.S. Department of Agriculture.

Banking and Finance.—On June 30, 1951, there were 92 national banks in Kentucky with total assets of $660,272,000 and 293 state banks and trust companies with resources of $1,002,285,106.04. Preliminary returns indicated a total tax revenue for the fiscal year ending June 30, 1951, of $121,943,904.96, and a nontax revenue of $58,086,997.68. The general fund increased about 17% over the previous year and the road fund increased 11.9%. The individual income tax yielded $14,789,331 and the corporation income tax brought $9,399,527. The distilled spirits production tax revealed the highest increase over the previous year, 66%, and amounted to $6,282,752. The two-cent a pack levy on cigarettes brought $5,110,037. The seven-cent a gallon tax on motor fuels yielded $39,568,059; of that amount $11,314,441 went to the rural-road program. The governor's budget recommendation assigned 54.5% of the general fund for 1950–51 to education, 31.5% to welfare and 12.4% to general government, including 3.9% to the judicial system.

Agriculture.—Preliminary reports indicated that Kentucky farms totalled 218,513 in 1950 as compared with 238,501 in 1945. With 1935–39 as a base Kentucky farms increased 222% in value, the highest increase in the country.

Manufactures.—From April 1, 1950, to March 31, 1951, 40 new industries were located or started construction of new plants. In a year, according to the state chamber of commerce, $1,054,059,404 were added to the industrial investment. In 1947 2,244 establishments averaged 129,504 employees who received $304,668,000 in salaries and wages. The value added by their efforts was $740,772,000. The leading groups in value added were: food and kindred products ($288,814,000), metals, lumber, machinery, chemicals, tobacco, apparel, printing, publishing and paper, petroleum and coal, stone, clay and glass and textile-mill products ($12,774,000). (W. W. Js.)

Mineral Production.—Table II shows the tonnage and value of those mineral commodities produced in the state in 1949 whose values exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of Kentucky*

(Short tons, except as noted)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Clays	571,427	$ 2,902,661	660,550	$ 3,552,718
Coal	62,583,264	315,472,327	78,495,603	393,637,526
Fluorspar	63,438	2,018,209	80,137	2,554,668
Iron, pig*	627,435	?	753,855	?
Natural gas (000 cu. ft.)	51,851,000	9,888,000	66,000,000	12,276,000
Natural gasoline (gal.)	8,479,000	595,000	10,432,000	684,000
Petroleum (bbl.)	8,803,000	24,300,000	10,301,000	28,430,000
Petroleum gases (gal.)	59,575,000	1,591,000	64,751,000	1,664,000
Sand and gravel	2,375,906	2,168,626	2,382,672	2,262,964
Stone	7,100,160	8,586,402	7,417,200	8,865,913
Zinc	935	231,880	731	207,604
Other minerals	—	4,474,563	—	?
Total		$372,228,668		?

*Values for processed materials are not included in the totals.

Kenya: *see* British East Africa.

Kimball, Dan A. (1896–), U.S. secretary of the navy, was born on March 1 in St. Louis, Mo. He served as an army air pilot in World War I, and in 1920 went to California where he joined the General Tire and Rubber company. He supervised that company's contracts for such aviation auxiliary material as life rafts and essentials in the field of rocket and jet propulsion. In 1942 he was made director of the Aerojet Engineering corporation at Azusa, Calif., a General Tire subsidiary; the firm manufactured JATO (jet-assisted take-off) equipment and helped develop high-altitude research rockets, and Kimball was in charge of the development program.

He was named assistant secretary of the navy for air on Feb. 11, 1949, a few months later became undersecretary, and on June 28, 1951, Pres. Harry S. Truman nominated him to be secretary of the navy. He succeeded Francis P. Matthews, who had been made ambassador to Ireland. The appointment was confirmed by the senate on July 27 and on July 31 he was sworn into office.

Kimpton, Lawrence Alpheus

(1910–), chancellor of The University of Chicago and sixth of its chief executives, was elected April 12, 1951, to succeed Robert Maynard Hutchins, who had resigned, effective upon the election of a successor, to become associate director of the Ford Foundation.

Kimpton was born on Oct. 7 in Kansas City, Mo. He attended public schools in Kansas City, entered Stanford university, Stanford, Calif., in 1927, where he made a distinguished academic record, and took his Ph.D. degree at Cornell university, Ithaca, N.Y., in 1935.

He was appointed a teacher of philosophy, English and German at Deep Springs (Calif.) school, and in 1936 was named dean and director, his responsibilities including management of the school's large ranch.

In the autumn of 1942, Kimpton became dean of the college of liberal arts and professor of mathematics and philosophy at the University of Kansas City, and in 1943 he joined the Metallurgical laboratory, atomic bomb project at The University of Chicago, as associate chief administrative officer, shortly thereafter being appointed chief. In 1944 he became dean of students and professor of philosophy and education at The University of Chicago, and on July 1, 1946, he was elected vice-president and dean of faculties. He accepted an appointment as dean of students, Stanford university, in 1947, returning to The University of Chicago on Aug. 1, 1950, as vice-president in charge of development, the position he held when elected chancellor. He was formally inaugurated as chancellor on Oct. 18, 1951.

(W. V. M.)

Kiwanis International: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Knights of Columbus: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Koerner, Theodor

(1873–), Austrian army officer and statesman, was born at Komárno, Hung. (now Czechoslovakia), April 24. He was a colonel on the general staff of the Austro-Hungarian army when World War I started. In May 1915, when Italy declared war on Austria-Hungary, he was appointed chief of staff and later commander of the Isonzo (Soča) army and was successful in stemming the Italian offensives. After the dissolution of Austria-Hungary in Nov. 1918 he was appointed inspector general of the new Austrian army. He retired in 1920, joined the Social Democratic party and sat from 1925 to 1934 as a delegate for Vienna in the *bundesrat* (upper chamber of the federal diet). After the *Anschluss* the nazis tried vainly to enlist his support; they arrested him twice. He reappeared on the political scene after World War II and in Aug. 1945 the soviet military authorities appointed him burgomaster of Vienna. However, he made clear that he was strongly opposed to communism. As Socialist candidate for the presidency of the republic Koerner was elected on May 27, 1951, by 2,172,806 votes to the 2,004,290 which went to Heinrich Gleissner, his Christian Democratic opponent.

Korea.

Korea is a peninsula extending from Manchuria and the U.S.S.R. southward, 525 mi. long and from 125 to 200 mi. wide. It is bounded on the north by the Yalu and Tumen rivers, on the south by the Straits of Korea, on the east by the Yellow sea, and on the west by the Sea of Japan. Area: 85,225 sq.mi. Population (1950 est.), 29,000,000, of which 20,000,000 were in South Korea (below the 38th parallel) and 9,000,000 in North Korea. In Aug. 1951 about 3,700,000 South Koreans were refugees, having left their homes because of the hostilities which began on June 25, 1950, with the invasion of South Korea by North Korean troops.

"RED TAPE," a 1951 cartoon by Justus of the *Minneapolis Star* (Minn.)

The Republic of Korea was established on Aug. 15, 1948, and assumed authority in the southern zone while the Democratic People's Republic of Korea was established on Sept. 9, 1948, in the northern zone.

The president of the Republic of Korea in 1951 was Syngman Rhee, who was chairman of the national assembly before being elected president by the national assembly on July 20, 1948; the vice-president was Kim Sung Soo, elected on May 16, 1951; and the prime minister was John Myun Chang, former Korean ambassador to the U.S., who was appointed on Nov. 23, 1950. Kim Il Sung was the head of the North Korean government.

The capital of South Korea is Seoul, population (1950 est.) 2,000,000; as a result of hostilities, Pusan, with population of about 500,000, became the temporary capital. The capital of North Korea is Pyongyang with population of about 500,000. Major religions: Buddhism, Confucianism and a native religion, Tonghak. There were about 500,000 Christians in Korea before the war.

History.—The intervention of Communist China on the side of the North Koreans toward the close of 1950 resulted in the United Nations general assembly declaring Communist China as an aggressor on Feb. 1, 1951, by a vote of 44–7 with 9 abstentions. The United Nations had established the United Nations Commission for the Unification and Rehabilitation of Korea on Oct. 7, 1950, to represent the U.N. in bringing about "the establishment of a unified, independent, and democratic government of all Korea." The U.N. had also established the United Nations Korean Reconstruction agency on Dec. 1, 1950, to provide for rehabilitation and relief in Korea. J. Donald Kingsley was appointed director-general of the agency on Feb. 7, 1951.

The inflationary situation that had plagued the Republic of Korea from its inception was aggravated by the conflict in Korea, which necessitated the financing of war expenditures and caused a shortage of goods. The index of retail prices for all commodities in Pusan (1947=100) rose from 329 on June 23, 1950, to 2,974 on Nov. 23, 1951.

The Joint Korean-American Economic Stabilization committee, established in 1950 to help stabilize the economy, helped the Republic of Korea to prepare a budget for the 1951–52 fiscal year that provided for increased revenue through increased taxes, and for reduced government expenditures.

Economic assistance was furnished to South Korea by the U.S. government beginning in 1945. The program was the responsibility of the department of the army until Jan. 1, 1949, when responsibility was transferred to the Economic Cooperation administration. On April 7, 1951, ECA disestablished its Korean mission and temporarily transferred its supply functions to the department of the army. The amount of economic aid which the United States made available through the army and ECA to the Republic of Korea totalled about $500,000,000 for the six years ending Aug. 31, 1951. The Republic of Korea was required to establish a counterpart fund to reflect U.S. aid that totalled $172,000,000 (126,000,000,000 won) in August. 1951. (*See* also UNITED NATIONS.)

Education.—In South Korea, 12 years of elementary and secondary education are offered, with entrance to secondary education based on competitive examinations. Seoul National university and several other universities and colleges offer courses in higher education. Under the educational exchange provisions of the Fulbright act and the Smith-Mundt act, the U.S. and the Republic of Korea signed an agreement in April 1950 providing for the training of Koreans in the U.S. The literacy rate for the native Korean script was about 25%–30% in 1951; for Chinese ideographs, substantially less.

Finance.—The budget of the Republic of Korea for the fiscal year ending March 31, 1951, was approximately balanced when originally adopted with 317,000,000,000 won in expenditures and the same amount in anticipated revenues. However, with the outbreak of hostilities, six supplementary budgets caused actual expenditures to total about 612,000,000,000 won and revenues to total about 472,000,000,000 won. Currency in circulation increased from 60,000,000 won at the end of May 1950 to 229,000,000 won at the end of Dec. 1950 and 496,000,000 won at the end of Oct. 1951. The official foreign exchange rate was 2,500 won = U.S. $1 in March 1951; the black market rate at the same time was 7,600 won = U.S. $1.

Trade.—In 1949 South Korea had imports valued at $109,000,000 and exports at $14,000,000. In the first quarter of 1950, imports totalled $26,000,000 and exports $7,000,000. Most imports came from the U.S. with Japan the second most important supplier; the major destination of South Korea's exports was Hong Kong, with Japan of secondary importance. Eighty-five per cent of South Korea's imports were financed through U.S. aid. Chief imports were fertilizer, cotton and cotton products and fuel; chief exports were foodstuffs and ores and minerals. North Korea's trade is chiefly with Communist China and the Soviet Union.

Transportation and Communications.—Korea had about 3,500 mi. of railroads, with the principal line extending from Pusan to Sinuiju at the Manchurian border, connecting Seoul and Pyongyang. Gross tonnage hauled by the South Korean railroads totalled 5,700,000 metric tons in 1949. There are about 21,000 mi. of roads. On Jan. 1, 1950, South Korea had 9,700 trucks, 1,000 buses, 2,600 passenger vehicles and 1,500 taxicabs. Korean National Airways began operations in Nov. 1949. Northwest Airlines provided international air service to Seoul before the Korean conflict began in June 1950, and in 1951 was serving Pusan. In 1949 there were about 38,000 telephone lines, 50,000 telephone stations and 175 telegraph offices in South Korea. Submarine cables connect Korea with Japan, and international radiotelegraph and radiotelephone service, originally operated by the Radio Corporation of America, was purchased by the Republic of Korea in Dec. 1948.

Agriculture.—The Korean economy is basically agricultural with more than two-thirds of the population depending upon farming for their livelihood. Two of the major factors adversely affecting 1951 food production were a shortage of commercial fertilizers and a loss of farm animals. Agricultural production in 1949 included rice (brown) 81,600,000 bu.; barley 24,600,000 bu.; wheat 4,200,000 bu.; naked barley 9,400,000 bu.; rye 1,200,000 bu.; millet 5,800,000 bu.; sorghum 600,000 bu.; corn 900,000 bu.; buckwheat 1,900,000 bu.; soybeans 7,200,000 bu.; tobacco 13,600,000 lb.; cotton (unginned) 184,000,000 lb.; silk cocoons, 14,000,000 lb. Fish and marine production totalled 299,964 metric tons. In 1951 South Korea had an estimated 350,000 work cattle, 250,000 hogs, 15,000 horses, 30,000 goats and 800,000 chickens.

Manufacturing.—North Korea is more predominantly industrial than South Korea with important chemicals, textile, iron and steel, machinery and cement facilities. The ravages of war had caused damage to much of these industries. South Korea's manufacturing industries were primarily for the production of consumers' goods. Industrial production in South Korea in 1949 included (in metric tons): paper 8,419; cement 24,132; bricks 112,800; pottery and porcelain 20,936; cotton cloth 58,218 m.; cotton yarn 12,900; and rubber shoes 29,000,000 pairs. Electric power output in 1951, which had been a factor limiting industrial output in South Korea from the end of World War II, was only about 40% of the preinvasion level. Electric power output in South Korea in 1949 totalled 660,000,000 kw. hr. South Korean electric power capacity in 1951 totalled 230,000 kw., much of which was not in operating condition.

Mining.—The major mineral resources of Korea are found north of the 38th parallel where there are important iron ore, copper, lead, zinc, pyrites, coal and magnesite deposits. South Korea has coal, tungsten, copper, lead, zinc, molybdenum and amorphous graphite deposits. Mineral production in South Korea in 1949 included (in metric tons): anthracite coal and lignite 1,128,000; tungsten 1,342; amorphous graphite 39,863; electrolytic copper 308; lead (metal content) 80; salt 189,900; gold (metal content) 106 kg.; and silver 589 kg.

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Korean War.

When Lieut. Gen. Matthew B. Ridgway assumed command of the U.S. 8th army as a result of the death of Gen. Walton H. Walker on Dec. 23, 1950, the military situation looked grim for the United Nations.

United Nations forces were engaged in reorganizing in defensive positions near the 38th parallel in preparation for an anticipated enemy attack. At the end of the year 1950, it was evident that the Communist forces were preparing for an all-out assault against United Nations positions.

On Jan. 1, 1951, a Communist offensive directed toward Seoul in the west, and Wonju in the centre, achieved penetrations of 10 to 12 mi., forcing a United Nations withdrawal. By Jan. 4 Seoul was occupied by the Communist forces and United Nations forces were organized on a line south of the Han river. The Wonju salient made the Han river line untenable, and on Jan. 7 new defensive positions were established on a line extending from Pyongtaek northeast to Wonju. About Jan. 12 United Nations lines were generally stabilized. For the remainder of 1951, U.N. front lines were to the north of this line which ran generally from the west coast at Pyongtaek northeast to Wonju, southeast to Chechon, east to Yongwal, northeast to Chongson and to Samchok on the east coast.

With the final stabilization of the front line about Jan. 24, the third phase of the Korean war, which had begun with the Chinese Communists' intervention in force on Nov. 3, 1950, came to a close.

During the period, United Nations naval forces conducted constant patrolling and reconnaissance operations, denying Korean waters to Communist warships and shipping. Surface units executed gunfire missions in support of troops, especially along the east coast and in the Inchon area. Minesweeping operations continued, mostly in the areas in which gunfire support ships were operated.

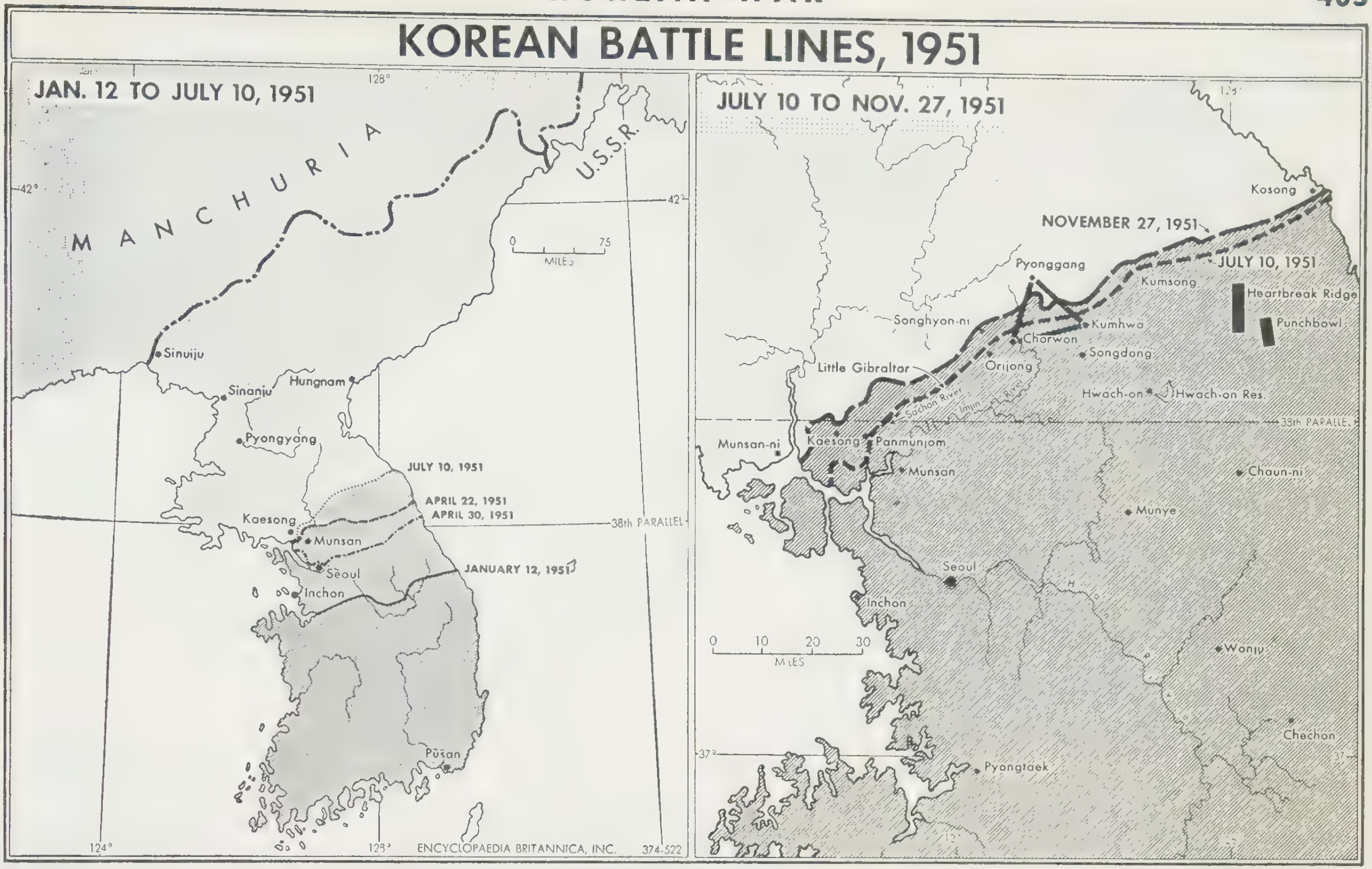
On Jan. 13, 1951, units of the United Nations air forces completed 200 consecutive days of operation and 100,000 sorties. Troops, tanks and artillery were the primary targets of aircraft in close support. Armed reconnaissance and night intruder missions comprised the bulk of the other flights. North of the battle area, communication centres and airfields were continually attacked. Limited objective attacks and reconnaissance in force by United Nations ground forces forced Communist troops into the open, and United Nations ground support aircraft inflicted heavy casualties on them.

United Nations Counteroffensive—Jan. 25 to April 22, 1951.—During this period, United Nations forces in a series of limited objective attacks moved northward from the Jan. 12 line to positions across the 38th parallel and approximately 50 mi. N. of the stabilized January line. Seoul was retaken by United Nations forces on March 14. U.N. units crossed the 38th parallel in force on April 3.

During this phase, United Nations efforts were directed toward "killing Chinese," as General Ridgway put it; the United Nations was not so interested in gaining ground as it was in local counteroffensives and air punishment aimed at prevention of the build-up for large-scale Communist offensive action.

The U.N. plan consisted of constant movement, keeping the enemy off balance and limiting his initiative.

Intelligence reports indicated that Chinese units on the cen-



Left: Battle lines at significant stages: Jan. 12, 1951—end of Chinese Communist offensive which began Nov. 3, 1950; April 22—end of United Nations offensive which began Jan. 25; April 30—end of Chinese Communist offensive which began April 22; July 10—battle line on which United Nations offered to settle as cease-fire position. Right: Armistice line of Nov. 27 was agreed to by both sides. Area between lines was lost by Communists through failure to agree to U.N. offer of July 10. Truce talks were held in neutral zones at Kaesong, later at Panmunjom

tral front had been relieved and replaced by at least three refurbished armies. At the same time, a powerful reserve force was built up including 12 fresh North Korean divisions plus 15 Chinese Communist divisions and 12 additional Chinese Communist divisions recently withdrawn from combat. Thus, total Communist forces deployed on the front, plus reserve forces, totalled more than 60 divisions.

Communist resistance throughout the period had been strong in most areas and was characterized by greater use of artillery and the construction of strong entrenchments. At the close of the period, marked increase in activity in the Communist rear, accompanied by a continued deployment of combat forces into forward areas, gave warning of an imminent attack.

United Nations air dominance continued despite challenges by an increasing number of soviet-built MIG jet aircraft. The first big air battle took place on April 12 when approximately 220 United Nations and Communist planes clashed near Sinuiju, on the Manchurian border.

Both sea forces and air forces concentrated on an interdiction program designed to prevent the Communist forces from building up sufficient personnel and matériel for a large-scale attack. In this program, bombardment from the sea and the air intercepted supplies and men on the long trip from the Manchurian border to the front lines. Rail traffic was bombed and shelled, forcing the Communists to rely upon truck transport which was then taken under fire by U.N. aircraft.

On April 11, 1951, Gen. Douglas MacArthur was relieved by U.S. Pres. Harry S. Truman as United Nations commander and replaced by Gen. Matthew B. Ridgway. (*See* also MACARTHUR INVESTIGATION.)

Chinese Spring Offensive—April 22 to 30.—Chinese Communist forces, composed primarily of fresh troops massed along the western half of the front, launched the initial assault of a general offensive on April 22. By April 25 they had launched heavy attacks along the entire front from the Hwach-on reservoir west to Munsan-ni in a large-scale offensive effort designed primarily to pinch off Seoul in the west and in the centre to sever the east-west road from Seoul to Kansong, on the east coast.

U.N. ground forces with the assistance of ground support aircraft fought a determined defensive battle for the city of Seoul. By the end of April, the Communist thrust had been halted, and the U.N. line had been pushed back from 10 to 35 mi. on various parts of the front. Approximately 600,000 North Korean and Chinese soldiers had been employed by the Communists in the west, the maximum forces available to them in Korea.

The front lines at the end of April ran almost due east from the Han river, passing 3 mi. N. of Seoul to Munye and northeast through Chaun-ni and Sori to Habond near the east coast.

Operations from May 1 to End of Year.—On May 9 more than 300 United Nations fighters and bombers delivered the most concentrated attack of the war on air installations at Sinuiju on the south bank of the Yalu river.

On May 16, 21 Chinese Communist divisions launched an attack down the centre of the peninsula on a 75-mi. front. United Nations forces withdrew 12 mi., but by May 20 the attack had been contained with the Communists suffering heavy casualties.

A powerful counteroffensive was launched by the United Nations forces on May 19 on the left side of the line, and on May 21 on the right. By the end of the month Communist forces were driven 20 mi. to the north. The front lines again approximated those of Jan. 1, 1951, near the 38th parallel.

In the period from May 15 to 30 the Communists suffered more than 100,000 casualties, and lost 12,000 prisoners. Their forces available for combat were reduced from 80 infantry divisions to less than 70, of which 16 were seriously depleted.

In the first two weeks in June, U.N. pressure forced the slow withdrawal of Communist forces. Heavy resistance in the "iron triangle" area (Kumhwa-Chorwon-Pyonggang) caused severe fighting, but by June 12 U.N. forces had seized the southern portion of the area. All along the line Chinese Communist forces gave up ground, varying from 5 to 12 mi. in different sectors. On June 13 U.N. forces entered Pyonggang, the northern tip of the "iron triangle."

On June 23 Jacob Malik's surprise "peace feeler" alerted the world to the possibility of an end to the fighting. From this point on until the end of the year, truce negotiations and combat shared the headlines. The ground fighting, though very heavy in such places as Heartbreak ridge, Little Gibraltar and the Punchbowl, was conducted mainly, so far as the U.N. was concerned, to secure dominating terrain features and to make the battle line as defensible as possible.

In August, though the front was only moderately active, U.N. patrols and front lines again felt the impact of an increased strength in hostile artillery and mortars. By the end of the month, front lines remained virtually unchanged.

September's action was largely vigorous patrolling with a short aggressive drive by the Communist forces from Sept. 6 to 9. In October the Communists continued on the defensive with aggressive U.N. attacks centred in the western part of the front. Bitter fighting for high ground took place south and east of Orijong as commanding hills became of greater importance.

Front lines changed only slightly during November, and on Nov. 27 both sides ratified an agreement on the establishment of a demilitarized zone, providing for a definite demilitarized zone if the armistice were signed within 30 days.

Ground action in December followed the pattern of October and November, with few engagements larger than company size. Patrol action was continuous, and probing attacks by the Communists and U.N. forces met with sharp resistance in all sectors.

The 30-day deadline, which had been agreed to by both sides, passed on Dec. 27 without either side attempting any significant offensive. Front lines at the close of 1951 remained at the same position agreed to on Nov. 27.

Table I.—*U.S. Battle Casualties in the Korean War through Dec. 28, 1951*

	Total	Army	Navy	Marine corps	Air force
1. Total casualties (sum of items 3, 4 and 5)	103,739	85,101	1,193	16,490	955
2. Total deaths (sum of items 3, 4a and 5a)	17,754	14,944	230	2,260	320
3. Killed in action—total	15,879	13,498	171	1,907	303
4. Wounded in action—total	75,080	59,836	926	14,274	44
a. Died of wounds	1,688	1,314	12	353	9
b. Other (current wounded, returned to duty, evacuated to the U.S., etc.)	73,392	58,522	914	13,921	35
5. Missing in action—total	12,780	11,767	96	309	608
a. Died	187	132	47	0	8
b. Returned to military control	1,392	1,330	2	20	40
c. Current captured	174	171	0	0	3
d. Current missing	11,027	10,134	47	289	557

Source: U.S. Department of Defense.

Peace Negotiations.—At the conclusion of a U.N. radio address in New York city on June 23, 1951, Jacob Malik made the statement ". . . the Soviet people believe that, as a first step, discussions should be started between the belligerents for a cease-fire and an armistice providing for the mutual withdrawal of forces from the 38th parallel . . ." Adm. Alan G. Kirk, U.S. ambassador to the U.S.S.R., after a conference with soviet deputy Foreign Minister Andrei Gromyko in Moscow, cabled the state department that the peace feeler seemed authentic. President Truman instructed General Ridgway to make preliminary arrangements for the talks.

On June 30 General Ridgway repeatedly broadcasted the following radio message to the Communists: "As Commander in Chief of the United Nations Command, I have been instructed to communicate to you the following: I am informed that you may wish a meeting to discuss an armistice providing for the cessation of hostilities and all acts of armed force in Korea, with adequate guarantee for the maintenance of such armistice.

"Upon receipt of word from you that such a meeting is desired, I shall be prepared to name my representative. I would also at that time suggest a date at which he could meet with your representative. I propose that such a meeting could take place aboard a Danish hospital ship in Wonsan Harbor."

On July 1 Peking radio broadcasted a reply to General Ridgway's message from Gen. Kim Il Sung of the North Korean army and Gen. Peng Teh-huai of the Chinese Communist army, stating that the Communist representatives would meet with United Nations representatives for the conduct of talks concerning the cessation of military action. After a number of messages back and forth regarding details of the site, liaison officers of the two forces met at Kaesong on July 8 to discuss arrangements for the first conference to be held on July 10. The United Nations delegation included Vice Adm. C. Turner Joy (*q.v.*), Maj. Gen. L. C. Craigie, Maj. Gen. Henry I. Hodes, Rear Adm. A. A. Burke and Republic of Korea Maj. Gen. Paik Sun Yup. The chief negotiator for the Communists was Lieut. Gen. Nam Il, North Korean army chief of staff.

In the opening talks the U.N. delegation stressed that it was empowered to discuss only military matters, and no political or economic matters or military matters unrelated to Korea.

When the Communists refused to allow U.N. newsmen at the conference, Admiral Joy announced that 20 newsmen would henceforth be part of the U.N. delegation. On July 12, however, Communist guards refused to allow newsmen to proceed into Kaesong with the U.N. convoy.

The conference was recessed by the U.N. delegation, and the Communists were informed that talks would remain in recess until assurances were received (1) that restrictions would be lifted on the movement of U.N. delegates, including newsmen, and (2) that Communist guards would be kept out of the neutral zone around Kaesong.

This assurance was received on July 14, and on July 15 talks were resumed.

The Communist delegation insisted upon including an item in the agenda calling for the withdrawal of foreign troops from Korea. After Admiral Joy indicated that this was a political matter and not appropriate to a military conference, the Communists asked for a four-day adjournment.

On July 25 Gen. Nam Il submitted a new agenda which was agreed to by both parties. It included: (1) adoption of agenda; (2) fixing a military demarcation line between both sides so as to establish a demilitarized zone as a basic condition for a cessation of hostilities in Korea; (3) concrete arrangements for the realization of a ceasefire and armistice in Korea, including the composition, authority and functions of a supervising organization for carrying out the terms of a cease-fire and armistice; (4) arrangements relating to prisoners of war; (5) recommendations to the governments of the countries concerned on both sides.

Once the agenda had been agreed upon, the discussions turned to the second point and immediate disagreement resulted on the question of fixing a military demarcation line for a neutral zone. The point of issue became the 38th parallel. The United Nations delegation proposed a buffer zone 20 mi. deep in front of the Allied line, while the reds proposed a buffer zone 10 km. wide on each side of the 38th parallel. United Nations insistence upon a line based on the existing battle positions was based primarily on the lack of military significance of the 38th parallel, the greater length of the line required if the 38th parallel was used (210 mi. as opposed to 125 mi.), the fact that acceptance of the 38th parallel would have required a major withdrawal by U.N. forces and South Korean opposition to permanent use of a line originally adopted only for the surrender of Japanese forces.

The negotiations remained stalled for the entire month of August on this question, since the Communists would consider no other item on the agenda until a line of demarcation had been agreed upon.

A company of armed Communist infantry was observed by the United Nations delegation not more than 100 yd. from the conference room. General Ridgway immediately protested this violation of the conference zone neutrality agreement and, after investigation, the Communists admitted the violation and promised to adhere to the original neutrality agreement. In the succeeding days United Nations liaison officers were called upon to investigate alleged violations by the United Nations of the neutrality area. In each of these particular instances the investigation proved to the satisfaction of the United Nations commander that the charges were false, and that evidence of violation had been manufactured by the Communists.

Six subcommittee meetings of lower-ranking officers of both sides were held between Aug. 17 and 22, but no progress was made. More alleged violations of the neutral zone were put forth by the Communists without substantiation, and on Aug. 23 the Communists suspended negotiations entirely.

On Sept. 6 General Ridgway proposed that liaison officers of the two forces meet at Panmunjom to discuss the selection of a new site where negotiations could be continued without interruption. After several exchanges concerning alleged violations of the neutral zone, General Ridgway proposed that both delegations meet approximately midway between the battle lines in the vicinity of Songhyon-ni.

One United Nations violation of the neutral zone occurred on Sept. 10 when a B-26 strafed in the neutral zone. United Nations regrets were immediately published. On Oct. 12 a United Nations jet aircraft made two ground strafing attacks in the Kaesong area. General Ridgway apologized for the attacks and the United Nations command accepted responsibility.

On Oct. 22 liaison officers of the two forces signed an agreement specifying terms for the resumption of armistice negotiations. Ratification of the agreement followed by senior delegates on both sides. The conference site was a circular area with a radius of 1,000 yd. in the vicinity of Panmunjom. No armed personnel except designated military police of either side were permitted in the conference site area, nor were hostile acts of any kind to be carried out within the conference area. Both delegations and their parties had free entrance to and free movement within the conference area. The Communists were responsible for suitable joint facilities for a meeting place of the delegation. Except for this installation, each delegation provided its own facilities.

The meeting of the complete delegation on Oct. 25 was the first since the Communists suspended the negotiations on Aug. 23. Agreement was soon reached to resume regular delegation meetings for the purpose of

Above, left: U.N. TROOPS at a medical clearing station in Korea after release from a Chinese Communist prisoner-of-war camp

Above, right: KOREANS preparing to board a U.S. navy transport during the evacuation of more than 2,000 refugees from Pusan, South Korea, early in 1951

Left: GEN. NAM IL (left foreground), chief of the North Korean delegates to the U.N. truce negotiations in the Kaesong neutral zone, crossing a courtyard to meet with U.N. representatives in July 1951

Below: U.S. MARINES moving up after knocking out an enemy-held bunker "somewhere in Korea" during June 1951

Table II.—*U.N. Military Participation in Korea by Country and Service, Exclusive of United States and Republic of Korea, Dec. 1951*

Country	Participation
Australia	Ground troops 3 destroyers Fighter squadron
Belgium	Ground unit Air transport
Canada	Brigade group 3 destroyers Air transport squadron Canadian Pacific Airlines passenger facilities
Colombia	Infantry battalion Frigate "Almirante Padilla"
Costa Rica	Sea or air bases
Cuba	Infantry company
Denmark	Hospital ship "Jutlandia"
Ethiopia	Ground force Contingent of 1,069 officers and men
France	Unit of ground forces
Greece	Unit of ground forces 6 transport aircraft with crews
India	Field ambulance unit
Italy	100-bed field hospital unit
Luxembourg	Infantry unit
Netherlands	Army contingent of 2 to 3 infantry companies One destroyer
New Zealand	One artillery unit Two frigates
Norway	Merchant ship tonnage 100-bed mobile surgical hospital
Philippines	Regimental combat team of 5,000 officers and men 17 Sherman tanks, 1 tank destroyer
Sweden	Field hospital unit
Thailand	Regimental combat team Two corvettes and navy transport 3 C-47 aircraft and 4 crews
Turkey	Combat force of 4,500 men
Union of South Africa	Fighter squadron
United Kingdom	Infantry brigade and other ground units Naval forces in Japanese waters

discussing agenda item (2), the demilitarized zone.

The controversy which arose in subsequent meetings centred about a fundamental divergence of views as to whether the cease-fire should be put into effect immediately or whether it should wait until agreement had been reached on other items of the agenda.

The United Nations position was that a cease-fire should not go into effect until all items on the agenda had been agreed to by both sides. This position was based primarily on possible jeopardy to the United Nations efforts in the event of long drawn-out peace conferences, giving the Communists an opportunity to build up ground and air strength in close proximity to the battle line under protection of a cease-fire. Further, it was considered necessary to continue pressure upon the Communists in order to maintain a willingness on their part to conclude an early acceptable armistice.

On Nov. 27 both delegations ratified an agreement on the establishment of a demilitarized zone.

"1. The principle is accepted that the actual line of contact between both sides will be made the military demarcation line and that at the time specified in the signed armistice agreement both sides will withdraw 2 kilometers from this line so as to establish the demilitarized zone for the duration of the military armistice.

"2. If the military armistice agreement is signed within 30 days after the 2 delegations approve in the plenary session this agreement and the specific location of the military demarcation line and demilitarized zone determined by the sub-delegations on the basis of the above stated principle and in accordance with the present line of contact, the military demarcation line and demilitarized zone shall not be changed, regardless of whatever changes may occur in the actual line of contact between both sides.

"3. In view of the fact that hostilities will continue until the signing of the armistice agreement, if the military armistice agreement is not signed within 30 days after the 2 delegations approve in the plenary session this agreement and the specific location of the military demarcation line and the demilitarized zone as determined in paragraph 2 above, the sub-delegations shall revise, immediately prior to the signing of the military armistice agreement the above military demarcation line and the demilitarized zone in accordance with the changes which have occurred in the actual line of contact between both sides, so that the revised military demarcation line will coincide exactly with the line of contact between both sides immediately prior to the signing of the military armistice agreement and will constitute the military demarcation line for the duration of the military armistice."

The agreed line of the contact ran in general from the Sachon river on the west, northeast to a point about 6 mi. N. of Chorwon, then generally east to a point north of Kumhwa, northeast to Kumsong, then generally east to a point north of the Punchbowl region, then northeast to a point on the coast a few miles south of Kosong.

By dropping their insistence upon the 38th parallel as an armistice line, the Communists gave U.N. negotiators a real indication that an armistice could be achieved by agreement. Thus, with the 30-day agreement, negotiations could turn to the next item on the agenda.

On Nov. 30 discussions began on agenda item (3), and controversy arose about the composition, authority and functions of a supervising organization for carrying out the terms of a cease-fire and armistice. The U.N. command proposed that:

"A. Both sides shall designate an equal number of members to form a Military Armistice Commission which shall be responsible for supervising the execution of an adherence to the whole armistice agreement. The Military Armistice Commission shall be provided with, and assisted by, observer teams which shall be responsible to, shall report to, and shall be subject to the direction and supervision of the Military Armistice Commission only. The observer teams shall be composed of representatives of nations neutral in the Korean War, such nations to be mutually agreed to by both sides.

"B. Observation outside the Demilitarized Zone will be performed only by neutral observer teams. Observation within the Demilitarized Zone may be performed by neutral teams, by joint teams selected by the Military Armistice Commission, or by the Military Armistice Commission itself.

"C. Neutral observer teams shall be located at such land, sea, and air ports of entry and communication centers as are mutually agreed to by both sides. These observer teams shall be permitted freedom of movement over principal lines of communication throughout all of Korea and each side shall afford these teams full assistance in the execution of the duties assigned them by the Armistice Commission. In addition, such periodic aerial reconnaissance and observation and photographic flights as are mutually agreed to by both sides will be performed by neutral teams.

"D. Neither side shall increase the level of military units, military personnel, war equipment, or war material existing in Korea at the time the armistice becomes effective. The rehabilitation, expansion, and improvement of existing airfields and aviation facilities and construction of new airfields and new aviation facilities shall not be permitted."

On Dec. 3 two proposals were submitted by the Communists on agenda item (3):

"1. In order to ensure the stability of the military armistice so as to facilitate the holding by both sides of a political conference of a higher level, both sides shall undertake not to introduce into Korea any military forces, weapons and ammunition under any pretext.

"2. In order to supervise the strict implementation of the stipulation of Paragraph (1), both sides agree to invite representatives of nations neutral in the Korean War to form a supervisory organ to be responsible for conducting necessary inspection, beyond the Demilitarized Zone, of such ports of entry in the rear as mutually agreed upon by both sides, and to report to the Joint Armistice Commission the result of inspection."

The Communist proposals would have stopped the U.N. rotation program, stopped training programs for lack of equipment and ammunition replacement, and, with respect to the second proposal, would have confined inspection to the demilitarized zones and "ports of entry" (not to include airfields).

In submitting a new "end of the year" proposal, the U.N. made several important concessions.

1. The behind-the-lines inspection after the armistice would be by teams of neutrals instead of the U.N.-red teams originally proposed.
2. There would be limited, rather than unlimited, troop rotation.
3. There would be two groups for inspection purposes, one in the demilitarized area, another behind the lines.
4. There would be no U.N. air observation of North Korea.
5. Certain North Korean airfields could be rehabilitated for civilian use. In return, the Communists were asked to agree not to construct or use North Korean airfields for military purposes.

On agenda item (4), arrangements pertaining to prisoners of war, the Communists agreed, after continued U.N. recommendations, to open negotiations before item (3) had been agreed upon. Consequently, from Dec. 11 when discussions on item (4) started until the end of the year, two items were being discussed concurrently.

On Dec. 18, after a Communist concession, prisoner lists were exchanged—names of 132,474 Communists and 11,559 U.N. troops. The U.N. protested the small number of names in view of the 88,000 South Korean and 11,000 U.S. troops carried as "missing in action," but the Communists would permit no inspection of their prison camps by the Red Cross, and no other means for verifying names or numbers of U.N. prisoners until after an armistice had been signed.

The negotiations for the exchange of prisoners, on an "all-for-all" basis as proposed by the Communists or "one-for-one" basis with voluntary repatriation as proposed by the U.N., continued to be argued for the remainder of the year.

At the year's end, the following points of controversy were still unresolved: on agenda item (3), the rehabilitation of certain North Korean airfields for civilian use (U.N.) *v.* no control of airfields in North Korea; and the replacement of matériel (U.N.) *v.* no replenishment of matériel. On agenda item (4), the exchange of prisoners on a one-for-one basis with right of individual choice regarding repatriation (U.N.) *v.* exchange on an all-for-all basis.

The Emergence of a Powerful Chinese Air Force.—The most significant development in air warfare in Korea during 1951 was the threat of the Chinese Communists' achieving air supremacy. Two things were making this possible: the superiority in certain respects of the MIG-15 over U.N. jets, principally the U.S. F-86; and the fact that the soviet planes were being distributed in quantity to the Chinese Communist air force.

On Nov. 1, 1950, in "MIG alley" between Sinanju and the Yalu river, U.N. pilots encountered soviet-built MIG-15 jet aircraft for the first time. In the succeeding months, it became necessary to escort B-29 aircraft on their bombing runs against bridges and rail facilities on the Yalu river because the MIG-15, capable of speeds up to and surpassing the speed of sound, could intercept and knock out unescorted B-29s.

The success of Operation "Strangle," the U.N. air interdiction program designed to prevent or delay the movement of Communist reinforcements and supplies, brought forth a violent reaction from the Chinese, and they rushed jet aircraft into action.

Intelligence reported that the Chinese Communist air force had more than 1,400 aeroplanes in north China and Manchuria of which approximately half were MIG-15s.

On the sea, the Communists had no real capability because of the tremendous superiority of the U.N. sea forces. On the ground, superior numbers of Communist troops were countered by U.N. fire power. In the air only was the Communists' numerical superiority accompanied by a corresponding advantage in fire power. A serious challenge to U.N. air supremacy had arisen—a challenge which could well affect the fortunes of the United Nations command. (*See* also Armies of the World; Aviation, Military; Prisoners of War.) (C. V. C.; G. S. Bd.)

Kuwait: *see* ARABIA.

Labor, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Labour: *see* AGRICULTURE; CHILD LABOUR; EMPLOYMENT; INTERNATIONAL LABOUR ORGANIZATION; LABOUR UNIONS; LAW; NATIONAL LABOR RELATIONS BOARD; STRIKES; UNITED STATES; WAGES AND HOURS. *See* also under various states.

Labour Party, Great Britain: *see* SOCIALISM.

Labour Unions.

All branches of organized labour in the United States were concerned throughout 1951 with the operation of the defense mobilization program and with their share in its administration. From the beginning of the emergency created by the war in Korea, the spokesmen for union labour pressed for an extensive and effective system of economic controls to be exercised by the federal government. They wanted severe price and rent controls, but flexible wage regulation; they demanded increased taxes on business and the higher incomes; they opposed compulsory allocation of manpower; and they insisted on full, or equal, representation of organized labour on the government's emergency regulatory agencies. To make their influence felt, the American Federation of Labor (A.F. of L.), the Congress of Industrial Organizations (C.I.O.), the Railway Labor Executive association and the International Association of Machinists set up in Dec. 1950 the United Labor Policy committee.

By the turn of the year, the union representatives had decided that mobilization policies and administration were working against their interests. Their principal grievances appeared to be that an excessive share of the burden of rearmament was being imposed on labour, that price control was lax while wage control was firm and that unions were not adequately represented in making and applying mobilization policies. These issues were brought to a head in February by the mass resignation of labour representatives from all mobilization agencies. In March the United Labor Policy committee called a meeting of 1,000 union leaders in Washington, D.C., which devoted itself to strong public attacks on the handling of practically the entire program of rearmament.

This episode naturally proved most embarrassing to Pres. Harry S. Truman and his administration and steps were promptly taken to devise some means of conciliating the leaders of organized labour. The form conciliation finally took was the creation by the president of the National Advisory Board on Mobilization Policy, composed of representatives of farmers, business, labour and the public. This new agency, answerable directly to the president, initiated several of the reforms demanded by the unions and, more important, enhanced the prestige of organized labour. Consequently the representatives of labour returned to the agencies they had left a few months before. In addition they were granted a concession of considerable practical importance. The reconstituted Wage Stabilization board which was originally charged solely with making and interpreting wage policy was empowered to settle labour disputes and thus became an arbitration as well as a stabilization agency.

In view of the policy of the administration to restrain the inflationary influences of large and expanding military expenditures by preventing excessive increases in wages and prices, it was to be expected that public policy toward wages would become the leading labour issue of the year. It was, in fact, the attempt of organized labour to make wage control more flexible that led to its revolt against the Wage Stabilization board and other agencies. The upshot was that wage increases equal to the rise in living costs and an annual increase in productivity of roughly 2.5% were allowed. Wages went up during the year and by Nov. 1951 factory hourly earnings were 11 cents greater than in Nov. 1950—a rise not very different from that of the year before. In Dec. 1951, when the steel contract ended, the wage and related demands of the United Steel Workers, estimated to cost from 30 to 40 cents an hour, made the future of wage stabilization uncertain. This issue was, at the end of the year, in the hands of the Wage Stabilization board, from which no decision was expected until March 1952.

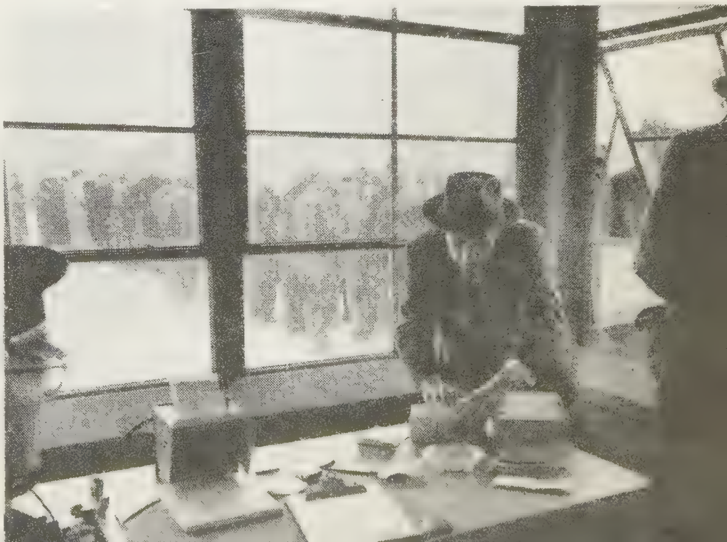
The second important issue was the union shop—a condition under which all employees of a shop, factory or company are required, after a specified lapse of time, to join the union. This issue rose to importance because of an amendment to the Railway Labor act, which for the first time in the history of that statute made it lawful for railway employees to bargain for the union shop, and an amendment to the Taft-Hartley act which removed the requirement of a poll of employees as a prerequisite to a union-shop demand. The result was a wave of union-shop negotiations, an increase in the number of such shops, a probable growth in membership and greater union security.

Of the two federations of labour, the A.F. of L. and the C.I.O., the A.F. of L. remained by a substantial margin the larger organization. Aside from a small growth in the membership of its affiliated unions, it gained 600,000 members by the reaffiliation of the machinists' union. The C.I.O., on the other hand, was still trying to recoup the heavy losses in membership it experienced from the expulsion in the past several years of about ten Communist-dominated organizations. It was most successful in the electrical manufacturing and farm implement industries, but elsewhere its progress was slow.

Throughout most of 1951, the C.I.O. and the A.F. of L. appeared to be harmonious with respect to both economic and political policies. They exhibited consistent unity in the affairs of the United Labor Policy committee and apparently entertained common political views. So close together did these federations seem that many observers were predicting their actual merger. In August, however, the A.F. of L., without previous notice, withdrew from the United Labor Policy committee. The only reasons it gave for this action were that the committee had served its purpose and that enduring and effective unity could be achieved only through outright merger of the two organizations.

It was clear, of course, that what the A.F. of L. called organic unity was faced with formidable, if not insuperable, difficulties. The effect of its action was to cause these organizations to drift apart. However, there was little in their behaviour to suggest that they would pursue radically different policies on wages and other labour questions, on the actions of the federal government or on the issues of the presidential

CHICAGO AUTO-PARTS WORKERS waiting for a short week's pay early in 1951. The plant was shut down during a freight tie-up when railroad switchmen on more than 40 lines went on a "sickness" strike for higher wages



campaign of 1952.

On balance, organized labour fortified its position in 1951. In its fight against wage stabilization policies, it won the support of the president and succeeded in minimizing the effects of existing wage controls. It stood to derive substantial gains from the decision which converted the Wage Stabilization board into a disputes board. The greater ease with which unions could demand and bargain for the union shop assured them a larger and more stable membership and more effective control over their members and over labour relations. (*See* also AUTOMOBILE INDUSTRY; LAW; NATIONAL LABOR RELATIONS BOARD; STRIKES.)
(L. Wo.)

Canada.—In August the federal government announced that on Jan. 1, 1951, there were 1,028,521 labour unionists in Canada (1949, 1,005,639) out of a labour force of about 5,000,000. The Trades and Labour congress had a membership of 470,926; the Canadian Congress of Labour, 312,532; the Canadian and Catholic Confederation of Labour, 86,164; the International Railroad Brotherhoods, 40,459. For the first time in Canadian labour history, representatives of those four largest union groups met (Jan. 1951) to formulate a common program on matters of mutual concern, out of which came a joint brief asking the federal government to reinstitute price controls and to retain rent controls (but the government turned down both proposals).

At its 66th annual convention in September the Trades and Labour congress decided to discontinue such co-operation with other labour organization. Other resolutions advocated a "determined and unremitting" drive for wage increases, demanded closed shop and checkoff of dues, urged higher income tax exemptions and called for contributory national health insurance. On the other hand, the Canadian Congress of Labour at its 11th annual convention decided to continue to work for a single organization for all Canadian workers. Other C.C.L. resolutions advocated that Canadian prices be fixed at the Jan. 1951 level, that locals seek wage increases and that federal action be taken to meet the housing shortage. The 30th annual convention of the Canadian Catholic Confederation of Labour issued a 16-point statement of principles, and adopted, as an article of its new constitution, the social doctrine of the Roman Catholic Church.

The fight to remove Communist elements from the large union congresses continued. The Canadian Congress of Labour expelled the international fur and leather workers' union, and the United Garment Workers' International (Trades and Labour Congress) threw out the leftist leadership of the 800-member Toronto local.
(C. Cy.)

International Movement.—Tension between the rival trade union internationals—the Communist-dominated World Federation of Trade Unions (W.F.T.U.) and the western-dominated International Confederation of Free Trade Unions (I.C.F.T.U.) increased during the year. In Europe there was little change in the relative strength of the rivals. The W.F.T.U. maintained its hold on the main bodies of French and Italian trade unionists, and the only notable change was the disaffiliation from it of the Finnish Trade Union federation, which sent observers to the Milan, It., conference of the I.C.F.T.U. in July 1951. In Jan. 1951 the French government decided to expel the headquarters organization of the W.F.T.U. from Paris; and in April new headquarters were opened in Vienna, Aus., in buildings requisitioned by the soviet military government, and without any consent being asked of the Austrian government or of the other occupying powers. It was announced that the move to Vienna had been made at the request of the Austrian workers but the Austrian Trade Union federation belonged to the I.C.F.T.U. In Feb. 1951 the Belgian government expelled the officials of the Miners' International attached to the W.F.T.U., and this body also moved its headquarters.

During 1951 the main fields of struggle between the W.F.T.U. and the I.C.F.T.U. were outside Europe; they lay especially in Asia and in the African colonial countries and among the transport workers in Australia, New Zealand and some of the American countries. In the middle of 1951 the W.F.T.U. claimed an affiliated membership of 78,000,000 in 56 countries, the great majority being in the Soviet Union and in China. To these must be added the trade unions in the soviet-controlled countries of eastern and central Europe, including eastern Germany, the French Confédération Générale du Travail (C.G.T.) and the Italian Confederazione Generale Italiana del Lavoro (C.G.I.L.), as well as a number of bodies of uncertain membership in a number of non-European countries.

The I.C.F.T.U. claimed at its Milan congress a membership of 52,000,000 in 66 countries, including the main bodies in the United States (both the American Federation of Labor and the Congress of Industrial Organizations), Great Britain, the Scandinavian countries, the Netherlands, Belgium, western Germany, Greece, India, Pakistan, Canada, New Zealand, South Africa, most of the Latin American countries except Argentina and a number of colonial countries. The Swiss and the Australian Trade Union federations joined the I.C.F.T.U. during 1951, as well as those of Iceland, Malaya, Thailand, Bolivia, Tunis, the Gold Coast, the Philippines, Libya, the Cameroons and certain other colonial areas.

The I.C.F.T.U. was engaged during 1951 in building up a series of regional federations in the main divisions of the world and in extending help to the growing trade unions of the less developed countries, both for their own benefit and in an attempt to detach them from connections with the W.F.T.U., which continued to appeal to colonial nationalism to shake off the yoke of "Anglo-American imperialism." In Europe the I.C.F.T.U. set up in Nov. 1950 a European regional organization with 20,000,000 affiliated members and with a regional secretariat in Brussels, Belg.

An Asiatic regional trade union conference was held under I.C.F.T.U. auspices at Karachi, Pakistan, in May 1951, and an Asiatic regional organization was set up. Twelve countries were represented.

In North Africa, attention was concentrated in the first instance on the French overseas territories. An I.C.F.T.U. delegation visited Tunisia, Morocco and Algeria in Dec. 1950 and helped to reorganize the trade unions in these areas. As a result the General Workers' union of Tunisia left the W.F.T.U. and joined the I.C.F.T.U. A similar delegation to western Africa in January-April 1951 visited Nigeria, the Gold Coast, Gambia, Sierra Leone, French Equatorial Africa and French West Africa. The West African Regional conference held at Douala, in the French Cameroun, in April 1951 called for the establishment of an African regional organization of the I.C.F.T.U., and a provisional regional organization was set up.

In the Americas, an Inter-American regional trade union conference was held in Mexico City, Mex., in Jan. 1951, and a regional organization representing 21,000,000 trade unionists in 21 countries was formally constituted (Organización Regional Interamericana de Trabajadores). Havana, Cuba, was chosen as the office centre. The conference was largely concerned with organizing opposition to totalitarian tendencies in Latin American countries, especially Argentina.

Great Britain.—For the second year in succession there was a small decrease in the affiliated membership of the British Trades Union congress—from 7,833,000 in 1950 to 7,827,000 in 1951. The fall was entirely in male membership, from 6,666,000 to 6,608,000, the number of women rising from 1,217,000 to 1,220,000.

The most important trade union event of 1951 was the abrogation of the system of compulsory arbitration that had been in force since World War II. The National Arbitration order (order 1305) was withdrawn on Aug. 2, 1951, and was replaced by a new Industrial Disputes order under which arbitration became entirely voluntary. An Industrial Disputes tribunal replaced the National Arbitration tribunal, but the minister of labour might not refer any dispute to it unless he was satisfied that full use had been made of any existing machinery for negotiation and conciliation. Awards of the tribunal became implied terms of contract between employer and workmen; but there was no prohibition of strikes or lockouts and no criminal penalty for disobeying an award.

The trade unions also ceased to accept any general responsibility for "wage restraint"; and many applications for wage advances to meet the increased cost of living were put forward during 1951.

The annual Trades Union congress, which met at Blackpool Sept. 3–7, was chiefly concerned with questions of defense policy and with wages and cost of living. The congress carried a resolution demanding more effective price control, reconsideration of the government's refusal to spend more on subsidies to keep down living costs, enquiry into costs and methods of distribution, stricter limitation of profits and removal of purchase tax from household necessities. It also demanded a more comprehensive system of government purchase and marketing of essential goods. A resolution moved by the Electrical Trades union deploring the rise in profits and demanding all-round wage increases at the expense of profits was defeated by 5,284,000 votes to 2,199,000. This was the principal trial of strength between the general council and its left-wing critics. A proposal to reduce the compensation paid to former owners of nationalized property was defeated by a similar majority. (*See* also STRIKES; WAGES AND HOURS.) (G. D. H. C.)

Labrador: *see* NEWFOUNDLAND AND LABRADOR.
Labuan: *see* BRITISH BORNEO.

Lacrosse. Finishing the 1951 season with only one defeat each in intercollegiate competition, Princeton and Army were rated as co-champions of the United States Intercollegiate Lacrosse association, with the University of Virginia and Duke sharing the next place in the national rankings. Army ruined the Tigers' hopes for an undefeated season on May 19 at West Point when it surprised highly-favoured Princeton, 15–12. Another feature of the campaign was provided by the Old Nassau team on April 21 at Baltimore, Md., where Princeton upset Johns Hopkins, 13–11, to end the defending titleholders' winning streak against college opposition in 31 games. Earlier in the campaign the Tigers had halted the Mount Washington Lacrosse club, the national open champions, who had not suffered defeat at home in ten seasons.

High scoring marked the tenth annual battle of the north and south all-stars at Troy, N.Y., on June 9, with the north coming from behind in the last period to gain a 12–11 decision. Tallies by Bob de Muth, Clint Gilbert and John Podbielski, all coming after 7 min. 20 sec. of the final quarter, brought victory to the north. Podbielski accounted for the deciding goal after 11 minutes of action in the session.

A squad of American stars visited the British Isles to provide the year's highlight in women's competition. The United States women, with Mrs. Bruce M. Donaldson of Unionville, Pa., as their captain, compiled a record of 20 victories in 27 contests. (T. V. H.)

Lagerkvist, Pär Fabien (1891–), Swedish writer was born at Växjö, May 23. After studying at the University of Uppsala, he went abroad for many years, but after 1930 lived outside Stockholm. The devout religious background of his childhood made a deep and lasting impression on him, and it remained the source of the naïve sincerity which, together with a neoplatonic humanism, characterized his work. An early contact with modern expressionistic art made him try to realize its parallel in literature, and his early writings were created in this vein. More deeply than any other Swedish writer he felt the tragedy of World War I; works from this period are *Ångest* (Anguish) and *Kaos* (Chaos). Very early his interest turned also toward dramatic art, and his plays, through their symbolism, linked up with the "dream plays" of Strindberg and decisively influenced Swedish drama.

In the early 1930s, when new creeds of violence were proclaimed, Pär Lagerkvist immediately realized their danger, and his writings from this period (an important work being *Bödeln* [The Hangman] 1939) showed a firm resistance to evil. In 1944 he published his first full-length novel, *Dvärgen* (The Dwarf), a story with a Renaissance setting, dealing with the evil in man. *Barabbas,* published in Sweden in 1950, also appeared in translation in Denmark, Norway, Finland, France, Germany, Switzerland, the Netherlands, England and the U.S. In 1951 Pär Lagerkvist was awarded the Nobel prize for literature. (A. L. BR.)

Lamb: *see* MEAT.
Laos: *see* FRENCH UNION; INDOCHINA.
Lard: *see* VEGETABLE OILS AND ANIMAL FATS.
Latin America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH UNION; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

Latin-American Literature. With the death of the Argentine writer and diplomat Manuel Ugarte in Dec. 1951 one of the last representatives of modernism passed away. That Ugarte's "modernist" world had become far, far removed from our modern world was clearly evidenced by the symbolic fact that throughout 1951 writers all over Latin America had been celebrating with a wide profusion of tributes and honours the 80th anniversary of Enrique González Martínez, the great Mexican poet who, as early as 1911, by making a strong plea for simplicity and sincerity in poetry, exposed all the artificialities and banalities of modernism.

The greatest surprise of the year was perhaps *Los pies descalzos,* a first novel by a renowned astronomer, 54-year-old Luis Enrique Erro of Mexico. Formerly a Harvard university research fellow, Erro was hitherto known among specialists for such treatises as *Variable Stars in High Latitude Fields* and for his activities in founding and organizing the Astrophysical observatory of Tenotzintla. In *Los pies descalzos* he emerged as a mature, extremely gifted novelist. In retelling the life story of a "barefooted" Indian girl, a mother at 20, and later wet nurse to a wealthy Spanish family, Erro presents a realistic picture of the exploitation of the underprivileged in the sugar cane plantations during Porfirio Díaz's regime. The "barefooted" girl becomes a real mother to the rich white boy, but when he grows older he leaves her and ignores her while she goes on seeking him, helplessly and hopelessly. The novel is dedicated to Emiliano Zapata whom, with the exception of José María Morelos, Erro considers the only genuine Mexican revolutionist.

Among other memorable works of fiction for 1951: a revised edition of the Venezuelan Antonio Arraiz's *Dámaso Velázquez,* retitled *El mar es como un potro* and published in Buenos Aires; *La Torre,* the last novel in one of Eduardo Mallea's brilliant cycles about life in Argentina today; and two posthumous Ecuadorian works: Miguel Angel Corral's *Las cosechas* and José de la Cuadra's *Los monos enloquecidos.* Dangling between the world of reality and the world of fiction, J. S. González Vera gave us a series of delightful autobiographical vignettes in *Cuando era muchacho,* all of them couched in that exquisite and flavoursome style which made him an undisputed master of prose and won for him Chile's National prize.

A Mexican young woman named Evelina Bobes Ortega was awarded the Lanz Duret prize for her warm and beautifully conceived *Otoño estéril,* a first novel. Since she was the fifth woman to have received that coveted award within recent years, this might prove to be symptomatic of the increasingly significant role that the feminine sex was playing in Mexican letters—or, rather, in Latin-American letters—for the authors of many of the most impressive works of fiction of 1951 were women. From Argentina came *La rosa no debe morir* by María de Villarino, and *Los espejos,* a first novel by the promising short story writer Carmen Gandara; from Uruguay, *Un jardín para la muerte,* by Paulina Medeiros; from Brazil, *O barco de tres lugares,* by María de Lourdes Teixeira; and from Mexico, *Retrato de una niña triste,* which won for Olivia Zúñiga, a newcomer, the State of Jalisco prize given by a distinguished awarding committee of three ranking writers: Mariano Azuela, Agustín Yañez and Enrique González Martínez.

In *Los que viven por sus manos,* published in Santiago, Chile, the Ecuadorian Jorge Fernández draws with almost clinical precision a picture of middle-class life; in *Espiridião,* the Brazilian Benedeto Valadares mirrors the political turbulence of Minas Gerais with a main character reminiscent of the leader Melo Viana; and in *Carnaval en Huchuetlán,* the Mexican Carlos Merino Fernández contrives to evoke with verve and Rabelaisian wit a rural community of his native country. The promising Antonio Magaña Esquivel (*El ventrílocuo,* 1944) fulfilled his promise with *La tierra enrojecida,* a colourful, panoramic fresco of insurrection-torn Yucatan. In his characteristically terse and brilliant style he unfolds a lusty saga of fast-moving action and volcanic passions. *La tierra enrojecida* won the Ciudad de Mexico yearly award. But it may be justly claimed that none of these novels surpassed in pathos and poignant intensity Juan R. Campuzano's *La sombra íntima,* portraying the trials and tribulations of a rural schoolteacher in a remote community somewhere by the Mexican gulf.

To the prose fiction crop the poetry output bears no comparison for either variety, or scope or depth. However, there were at least three notable exceptions: the forever fresh and exciting Jorge Carrera Andrade who in *Lugar de origen* produced a paean of beauty to his native country, Ecuador; the *Elegía a Jesús Menéndez,* by the great Cuban poet Nicolás Guillén, a deeply felt elegy to the murdered Negro labour leader; and *El hijo del guardabosque,* by Juvencio Valle, intense lyrical evocation of the Chilean landscape.

The most ambitious biography of the year was the 1,400-page, two-volume *Bolívar,* by the veteran Spanish critic and historian Salvador de Madariaga. W. H. Hudson was the subject chosen by Ezequiel Martínez Estrada for a keen appreciation of the Anglo-Argentine naturalist and writer. Among other noteworthy biocritical studies there were an *Oswaldo Cruz,* by Renato Sêneca Fleury, detailing the medical achievements of the great Brazilian physician; a colourful *San Martín,* by the Argentine Carlos Alberto Larumbe; and a rather perceptive *Eça de Queiroz,* by the Brazilian essayist Berilo Neves.

The major contributions in the field of literary history were *La novela mexicana,* a survey of 19th-century Mexican fiction, by the Cuban professor Pedro Manuel González; *El nuevo relato ecuatoriano,* by Benjamin Carrión, an authoritative study of the short story renascence in Ecuador during the 1930s; *Literaturas aborígenes,* anthology and commentary of America's earliest literature, by the Peruvian critic Abraham Arias Larreta; and, finally, *Los primeros cuentos de Rubén Darío,* a Ph.D. dissertation by Ernesto Mejía Sánchez analyzing the experiences of the great poet in using the short story as a medium of expression.

Among the most interesting works of 1951 were the *Memorias de un estudiante soldado,* in which Roberto Esquinazi Mayo, of Cuba, retells his parachutist adventures during World War II; the best seller *Pensamiento y dinamismo de la Revolución Mexicana,* by the statesman and political leader Ramón Beteta; and, finally, the ten-volume *Diccionario Enciclopédico Uteha,* the first encyclopaedic dictionary in the Spanish language produced in Latin America. The articles which fill its 13,000 pages were written by leading authorities and contain up-to-date information, enhanced by the extensive use of graphic material: 20,000 pictures, 400 maps, 400 colour plates. New definitive editions of classics published during 1951 were volume 1 of the *Obras completas de Sor Juana Inés de la Cruz,* in four volumes, edited and annotated by the Mexican scholar Alfonso Méndez Plancarte (1951 was the 300th anniversary of Sor Juana's birth); Fray Bartolomé de las Casas' three-volume *Historia de las Indias,* edited by the Mexican historian Agustín Millares Carlo, with a pithy critical introduction by Lewis Hanke of the University of Texas; and the most widely read sentimental novel of the 19th century, *María,* by the Colombian Jorge Isaacs (1837–95), edited by the Argentine critic Enrique Anderson Imbert. (A. FLO.)

Latter Day Saints: *see* MORMONS.

Latvia. From Nov. 18, 1918, to Aug. 5, 1940, when it was annexed by the U.S.S.R., Latvia, one of the Baltic states of northeastern Europe, was an independent republic. Area: 25,395 sq.mi. Pop.: (1939 est.) 1,994,500; (1950 est.) 2,100,000, but according to reliable estimates the purely Latvian population declined from 1,496,000 (75%) to 1,222,000 (58%) between 1940 and 1950. Chief towns (pop., 1935 census): Riga (cap., 1939 est., 393,211), Liepaja (57,098), Daugavpils (45,160). Language: Latvian and Russian. Religion: Lutheran, Roman Catholic and Greek Orthodox. Chairman of the presidium of the supreme soviet of the Latvian S.S.R. in 1951: August M. Kirchensteins; chairman of the council of ministers: Vilis T. Lacis.

History.—At the election on Feb. 18, 1951, of a new supreme soviet there were 38,639 more voters than in 1947, when the electorate amounted to 1,326,289, and the proportion of votes against official candidates was reduced between 1947 and 1951 from 0.87% to 0.05%. Although Communist party officials predominated, elected members included also a number of military personalities, headed by Gen. Ivan Khristoforovich Bagramian, commander of the Baltic military area (Latvia, Lithuania and the soviet part of former East Prussia).

The 750th anniversary of the foundation of Riga was celebrated on Nov. 24.

Many members of the government were dismissed during 1951 either for inefficiency or for employing "unreliable elements." In January Albert Sieks replaced August Eglits as minister of the interior and Zelma Chabe was appointed minister of light industry in place of Karlis Shics; in February Janis Vanags, deputy premier and minister of agriculture, was superseded as head of the ministry by Aleksandr Nikonov but retained his deputy premiership; in March Andrejs Jablonskis, minister of justice, was replaced by Mme. Emilia Veinberga and in May Fricis Deglavs was dismissed from his post of chairman of the State Planning commission. All the dismissed ministers were old Latvian Communists, while the newly appointed ministers were

Russians or Russified Latvians.

At the plenary session of the central committee of the Latvian Communist party, held in Riga on April 14–15, J. E. Kalnberzins, first secretary, reported that in six years the party had admitted 25,000 new members, including 5,000 from the ranks of the Youth (Komsomol) organization whose membership was about 85,000; grave mistakes, however, had been made in admitting new members.

Speaking in Moscow on March 9, at a session of the soviet of the union, Kalnberzins stated that Latvia had completed the industrial part of the postwar five-year plan in three years and ten months, and at the end of 1950 industrial output was more than double that of 1940. Agricultural production, however, was seriously in arrears and for four or five years Latvia would be unable to cover its grain needs. The merging of smaller *kolkhozy* or collective farms into bigger ones continued throughout the year and it was believed that by the end of 1951 there were fewer than 1,400 *kolkhozy* against 4,115 in March 1950.

At a "peace conference" at Riga in September, G. G. Turs, archbishop of the Latvian Lutheran Church, Mgr. Peter Strods, described by the soviet press as Catholic "deputy metropolitan" of Riga, and Philaret, Orthodox archbishop of Riga and all Latvia, signed the World Peace council's appeal for a five-power pact.

Broadcasts in Latvian begun on June 3 by the Voice of America aroused speculation as to the fate of such national heroes as Karlis Ulmanis, former president of the republic, and Gen. Janis Balodis, former commander in chief of the Latvian army, who with hundreds of others had been arrested and deported in June 1940. On July 26, however, *Izvestia* published a report from Riga that in the state archives of the Latvian republic documents had been found to prove that Ulmanis, Balodis and other Latvian politicians and army officers were mercenaries in the pay of "Anglo-American imperialists." (*See* also ESTONIA; LITHUANIA.)

Education.—In 1950 there were 282,000 pupils in elementary and secondary schools and 27,000 students in 66 technical schools and 10 institutions of higher education.

Finance.—Budget: (1951 est.) revenue 1,451,300,000 roubles; expenditure 1,405,700,000 roubles. (K. SM.)

Law.

The bulk of legislation enacted by the United States 82nd congress in 1951 was directed toward organizing the nation's economy and manpower for defense against Russian communism. Congress extended Selective Service, took the first step toward establishing universal military training, provided a system of civil defense, authorized a limited program of price, rent and wage control, provided free life insurance for all members of the armed forces, declared the war with Germany to be at an end on Oct. 19, appropriated more than $7,000,000,000 for military, economic and technical assistance to friendly nations and enacted a new revenue act which was expected to increase collections by $5,600,000,000.

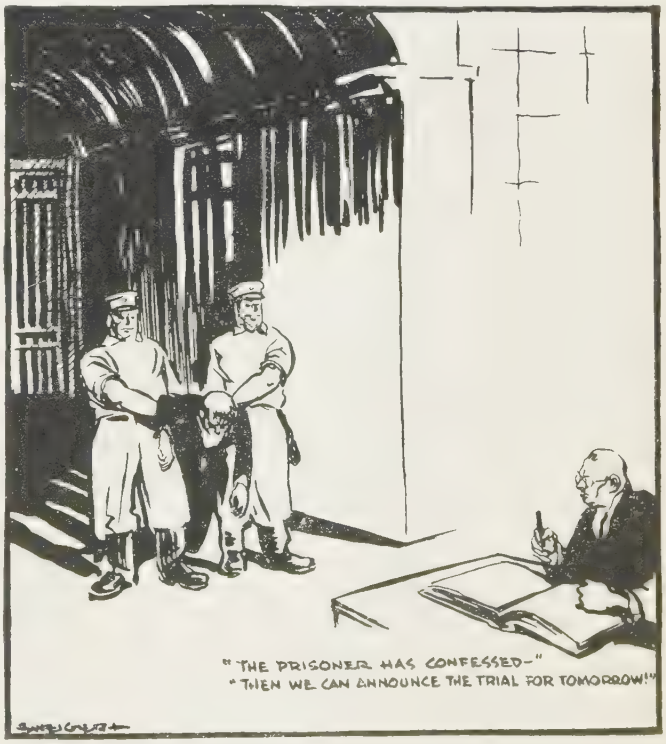
Nevada was the 36th state to ratify the 22nd amendment which thereby became part of the constitution of the United States. The amendment provided that no person may serve as president more than two elective terms, nor may a person who has held the office of president for more than two years of another president's unexpired term be elected president more than once. A special provision in effect exempted Pres. Harry S. Truman from the application of the amendment.

Only the more important legal developments of general interest are reported in this article.

Administrative Law.—Federal administrative law took a new turn in a supreme court decision which broadened the scope of judicial review of agency decisions. The court accepted what Justice Felix Frankfurter called a "mood" of congress in holding that the standard of proof required to support a National Labor Relations board decision under the Taft-Hartley act is the same as that which courts must exact in reviewing the rulings of other agencies under the Administrative Procedure act. Reviewing courts must take more responsibility for the reasonableness of NLRB decisions than some had done in the past. The test to be used is "whether on the record as a whole there is substantial evidence to support agency findings." The court, however, gave notice that it would not interfere with agency rulings except in rare instances where the standard seemed to have been grossly misapplied (*Universal Camera Corp.* v. *Labor Board,* 340 U.S. 474). The court, in fact, showed its reluctance to disturb agency findings by affirming decisions of the Federal Communications commission, the Securities and Exchange commission, the Interstate Commerce commission and of the NLRB in several other cases. Nevertheless the views expressed by the supreme court in the Universal Camera case broadened the scope of judicial review sufficiently to have far-reaching effects on administrative agency proceedings.

Aliens and Citizenship.—The supreme court approved the deportation of an alien who had twice been convicted of conspiring to defraud the United States of taxes on distilled spirits, which was a crime "involving moral turpitude" within the exclusion provisions of the Immigration act (*Jordan* v. *DeGeorge,* 341 U.S. 223).

Congress amended the Displaced Persons act of 1948 by providing that during the four fiscal years ending June 30, 1952, eligible displaced orphans, seeking to enter the United States as immigrants, may be issued visas without regard to the quota limitations for these years. Not more than 341,000 such visas may be issued, including those heretofore issued under the Displaced Persons act of 1948. Another amendment enabled former U.S. citizens who had lost their citizenship by voting in certain Italian elections to regain such status by taking an oath that they had done nothing to promote communism. Congress also tried to clarify the status of certain aliens whose legal position had been in doubt since the passage of the Internal Security act of 1950. Persons who nominally belonged to nazi or fascist groups before attaining the age of 16 years, or who had


"THE PRISONER HAS CONFESSED-"
"THEN WE CAN ANNOUNCE THE TRIAL FOR TOMORROW!"
SWEIGERT

"JUSTICE IN THE SATELLITES," a 1951 cartoon by Sweigert of the *San Francisco Chronicle* (Calif.)

been forced to join such organizations, were enabled to enter the United States upon a satisfactory showing of their present state of mind.

Armed Forces.—Congress enacted the Universal Military Training and Service act as an amendment to the Selective Service act of 1948. The new law required the registration of all males, citizen and alien, between the ages of 18 and 26, lowered the draft age from 19 years to 18½, increased the length of service from 21 months to 24 and set a ceiling of 5,000,000 persons in the armed forces until Jan. 31, 1954. Local draft boards were directed to exhaust the supply of eligible men in the 19- to 26-year-old bracket before taking any under 19. The act also contained elaborate provisions relating to deferment, exemption, re-employment rights after separation from service, reserves, enlistments and liquor control, and established a national security training commission composed of five members to be appointed by the president. The new commission was directed to report its recommendations for a program of universal military training to congress.

Congress authorized the issuance of free life insurance of $10,000 to every member of the armed forces, retroactive to June 27, 1950. The proceeds of such insurance are exempt from claims of creditors and from taxation. Beneficiaries are limited to the immediate family and a monthly installment plan of payment was set up.

Business Regulation.—In a decision of nation-wide interest the supreme court declined to interfere with an order of the Federal Communications commission approving a method of colour television transmission developed by Columbia Broadcasting system (CBS) and excluding the use of other systems. The court ruled that the FCC had not been arbitrary in finding that the CBS method was the best presently available, although its colour telecasts could not be received either in colour or in black and white on existing receivers without expensive changes, and in spite of the fact that the Radio Corporation of America (RCA) claimed to have a method of colour television transmission which could be received on existing receivers without any adaptation. In so technical a controversy the justices agreed to defer to the commission's special familiarity with the problem involved (*RCA* v. *U.S.*, 341 U.S. 412).

Another drastic decision of the high court whittled down the effectiveness of state "fair-trade" laws which authorize the fixing of minimum resale prices by agreement between producers and retailers. The court upheld the right of a New Orleans, La., liquor dealer to cut prices since he had not signed any price-fixing agreement. The Louisiana statute in so far as it purported to bind nonsigners was illegal. The Miller-Tydings act authorized the enactment of state laws which permit "price-fixing by contract but not price-fixing by compulsion" (*Schwegmann Bros.* v. *Calvert*, 341 U.S. 384). The supreme court also knocked out an agreement between affiliated corporations to fix maximum resale prices of their products. The fixing of maximum prices is a violation of the antitrust laws. "Such agreements . . . cripple the freedom of traders," the court said (*Kiefer-Stewart Co.* v. *Seagram*, 340 U.S. 211). The high court, however, upheld a price-fixing arrangement between an oil company and four Detroit jobbers by which they obtained gas at one and one-half cents a gallon lower than other filling stations in the same area. A showing that the price cut was made in good faith to meet the equally low price offered by a competitor was a complete defense against the charge of price discrimination in violation of the Robinson-Patman act (*Standard Oil Co.* v. *FTC*, 340 U.S. 231).

In two cases the supreme court approved injunctions restraining violations of the Sherman act. The refusal of an Ohio newspaper to accept advertising from merchants who sponsored programs on a local radio station was held to be an attempt to monopolize interstate commerce. A court order enjoining the continuance of this practice did not violate the freedom of the press (*Lorain Journal Co.* v. *U.S.*, 342 U.S. 143). The court also affirmed a lower court order directing a United States company and its foreign subsidiaries to terminate an agreement to allocate trade areas, fix prices and participate in cartels restricting imports to and exports from the United States, as a violation of the Sherman act (*Timken Co.* v. *U.S.*, 341 U.S. 593).

Civil Rights.—A young college student who made a rabble-rousing speech to a mixed crowd of Negroes and whites on a Syracuse, N.Y., street corner, urging the Negroes to "rise up in arms and fight for your rights," was properly arrested and convicted of disorderly conduct for refusing to stop when requested to do so by police (*Feiner* v. *N.Y.*, 340 U.S. 315). The high court, however, reversed the conviction of a Baptist minister for preaching on the streets of New York city without a police permit. The ordinance requiring police approval for street preachers was a violation of the first amendment, which forbids prior restraints on freedom of religion and speech. The right to speak on religious subjects on the city streets could not be controlled by officials without "appropriate standards" to guide them (*Kunz* v. *N.Y.*, 340 U.S. 290). The court also upheld an ordinance passed by the city of Alexandria, La., forbidding solicitors, pedlars and transient vendors from calling upon the occupants of private residences unless invited or requested by the occupant. Such ordinances (known as Green River ordinances because they originated in Green River, Wyo.) do not violate the constitutional guarantees of freedom of press, speech, religion or due process of law, nor do they unlawfully burden interstate commerce. A municipality has the legal right to defend "the tranquility of the fireside" against doorbell-ringing sellers of magazine subscriptions (*Breard* v. *Alexandria*, 341 U.S. 622). The conviction of two members of Jehovah's Witnesses for disorderly conduct in using a city park in Havre de Grace, Md., for religious meetings without a permit from the city council was set aside by the supreme court as a denial of the equal protection of the laws in the exercise of freedom of speech and religion. There was no ordinance regulating the use of the parks nor any standards for granting permits (*Niemotko* v. *Maryland*, 340 U.S. 268).

The supreme court affirmed the conviction of a private detective, who carried a police card, for depriving a victim of his civil rights by extracting a confession from him through third-degree methods. Since he acted "under colour of law," he was guilty of violating the federal civil rights acts (*Williams* v. *U.S.*, 341 U.S. 97). But the court showed no inclination to broaden the scope of these laws. It held that they had not abolished the immunity of state legislators from liability for acts done in "the uninhibited discharge of their legislative duty." A lower court was right in throwing out a suit brought against members of the un-American activities committee of the California legislature for $250,000 damages for violating the plaintiff's civil rights by smearing his reputation (*Tenney* v. *Brandhove*, 341 U.S. 367). Nor did the federal civil rights laws authorize a suit for damages against private individuals for breaking up a meeting of citizens who intended to adopt resolutions opposing the European Recovery program. Since the defendants had not been acting under colour of state law, they did not come within the category specified in the statute. Other remedies were, however, available to them (*Collins* v. *Hardyman*, 341 U.S. 651). By a four-to-four vote, the court in effect approved the dismissal of a government employee, suspected of disloyalty, without giving her a chance to confront and cross-examine her accusers. But by a shift of one vote the justices ruled five to three that listing of organizations by the attorney

OPENING CEREMONIES at the legal centre of Southern Methodist university, Dallas, Tex., in 1951. Modelled on the British Inns of Court, it was to be a legal laboratory where students would mingle with practising lawyers doing research at the centre

general as subversive, without a hearing, was an arbitrary abuse of power (*Joint Anti-Fascist Refugee Committee* v. *McGrath,* 341 U.S. 56).

In two cases the supreme court sanctioned state loyalty oath laws. It sustained the right of the Maryland legislature, under the state's subversive activities law, to require candidates for state offices to file affidavits as to their loyalty (*Gerende* v. *Board of Supervisors,* 341 U.S. 56). In a second decision the court upheld a Los Angeles, Calif., ordinance requiring all city office-holders and employees to sign affidavits disclaiming support of or participation in subversive activities, not only at the date of the affidavit but during the five years last past. Failure to sign would result in dismissal. The court termed this "No more than an employment requirement of loyalty to the state and the United States." The ordinance did not violate the constitutional provisions against bills of attainder and ex post facto laws, nor deprive employees of freedom of speech or assembly (*Garner* v. *Board of Public Works,* 341 U.S. 716). A different view was taken by the California district court of appeals, which invalidated a directive of the regents of the University of California requiring all faculty members to take a loyalty oath. Such a requirement violated several provisions of the state constitution, including one that the university should be entirely independent of political or sectarian influence (*Tolman* v. *Underhill,* 229 P.2d 447). The U.S. high court declined to disturb lower court decisions holding that a zoning ordinance was invalid which limited the use or occupancy of buildings in districts assigned to use solely by white or Negro persons; that segregation of Negro passengers in "Jim Crow" cars was against the constitutional bans on discrimination; that Louisiana State university must admit a Negro student to its law school, even though there was a Negro university to which such students could go; that the University of Maryland nursing school must admit a qualified Negro student even though the state offered to send her to a superior Tennessee nursing school; and that the Florida supreme court should reconsider its opinion upholding a Miami municipal golf course in limiting the use of the course by Negroes to Monday of each week.

Criminal Law.—The supreme court affirmed the 1949 conviction of 11 leaders of the Communist party for conspiring to advocate the overthrow of the U.S. government by force in violation of the Smith Sedition act. Chief Justice Frederick M. Vinson, speaking for himself and three other justices, said that the 16,000-page record of the trial showed that the defendants planned to overthrow the U.S. government by force as soon as possible. Their conspiracy to teach and advocate that objective constituted a clear and present danger to the government. The courts in such cases must ask "whether the gravity of the 'evil,' discounted by its improbability, justifies such invasion of free speech as is necessary to avoid the danger," which was the rule laid down by Judge Learned Hand in affirming the conviction in the circuit court of appeals. Justice Frankfurter in a long concurring opinion advocated the exercise of "judicial self-restraint" in dealing with legislation. Justice Robert H. Jackson, also concurring, believed that it was not realistic to try to apply the "clear and present danger" test to this sort of case. Justice William O. Douglas, dissenting, favoured the Brandeis view that a clear and present danger threatens only "when conditions are so critical that there will be no time to avoid the evil that the speech threatens." Justice Hugo L. Black, the other dissenter, termed the conviction of the Communists for conspiring to teach and advocate the violent revolution was "a virulent form of prior censorship of speech and press, which I believe the First Amendment forbids" (*Dennis* v. *U.S.,* 341 U.S. 494).

The high court also passed upon another aspect of the government's fight against Communists. A witness, who had admitted before a grand jury that she had been treasurer of the Denver Communist party, thereby waived her privilege against self-incrimination. She was properly held guilty of contempt of court when she refused to name the person to whom she had delivered the party books and records. Once she had admitted her party membership, further answers could not incriminate her further (*Rogers* v. *U.S.,* 340 U.S. 367). On the other hand, a witness who consistently refused to answer any questions as to her employment by the Communist party, on the ground that it might incriminate her, was not guilty of contempt. Answers to such questions might have been used effectively in a subsequent prosecution for violating the Smith Sedition act (*Blau* v. *U.S.,* 340 U.S. 159). The supreme court also reversed a contempt sentence imposed on a Philadelphia, Pa., gangster, tagged by the police as an "underworld character and racketeer," for refusing to answer questions relating to his connections with and the whereabouts of a fugitive witness in the same inquiry. As in the Blau case, the court said that "the privilege against self-incrimination guaranteed by the Fifth Amendment extends not only to answers that would in themselves support a conviction . . . but also to those which would furnish a link in the chain of evidence needed to prosecute" the witness for a federal crime (*Hoffman* v. *U.S.,* 341 U.S. 479).

The high court also dealt with aspects of due process in several other cases. It reversed the conviction of two Florida Negroes for rape on the sole ground that Negroes had been discriminated against in selecting the jury. Justice Jackson chided the majority of the court for relying on a technical point when the case should have been reversed because the inflamed state of public opinion, whipped up by newspaper and radio comment, had made a fair trial impossible (*Shepherd* v. *Florida*, 341 U.S. 50).

In two cases the supreme court considered the application of the McNabb rule, which makes a confession inadmissible in evidence if obtained during illegal detention of the defendant. The court held that this rule did not bar the use of a confession of murder made before a prisoner had been booked on that charge but while he was lawfully detained on another charge (*Garignan* v. *U.S.*, 342 U.S. 36). Nor is the McNabb rule applicable to proceedings in state courts (*Gallegos* v. *U.S.*, 342 US. 55).

Narcotics seized by officers without a search warrant should not have been admitted in evidence in a trial for violation of the federal Narcotics act. The fact that the seized property was contraband in which no legal property right existed and that the search was not made in defendant's own quarters but in a hotel room occupied by his aunt, where it had been stored by the defendant without her knowledge, made no difference (*U.S.* v. *Jeffers*, 342 U.S. 48). The supreme court also upheld an FBI agent who had refused to obey a subpoena directing him to deliver to the court records belonging to the department of justice (*Touhy, U.S. ex rel* v. *Ragan*, 340 U.S. 462). In an antitrust violation case the supreme court upheld the right of defendants to access to books, documents and papers obtained by the government by solicitation from a third person (*Bowman Co.* v. *U.S.*, 341 U.S. 214). The high court, however, would not intervene in state criminal proceedings to suppress evidence alleged to have been secured by unlawful search and seizure (*Stefanelli* v. *Minard*, 342 U.S. 117).

Labour.—In three companion cases the supreme court sustained orders of the National Labor Relations board directing unions to end "secondary boycotts," which were in violation of Sec. 8(a) (4) (A) of the Labor-Management Relations act. This provision declares it to be an unfair practice for a union to engage in a strike where an object thereof is forcing any employer or other person to cease doing business with any other person. The sponsors of this legislation considered such action to be a secondary boycott, although that term is not used in the text of the labour act. In each case a union had tried to force a building contractor to break his contract with a subcontractor who employed nonunion labour. The pressure used in the so-called Denver case (341 U.S. 675) was a strike; in the Greenwich case (341 U.S. 694) it was peaceful picketing; and in the Chattanooga case (341 U.S. 741) it was a work stoppage. In none of these cases did the high court find that the NLRB's cease and desist order amounted to an abridgment of freedom of expression guaranteed under Sec. 8(c) of the Taft-Hartley act and the federal constitution. In a fourth case the court ruled that the action of pickets on strike at a Louisiana rice mill in forcing a truck driver for a neutral customer to turn away without picking up a load of merchandise did not amount to a secondary boycott within the prohibition of the labour laws (*Labor Board* v. *Rice Milling Co.*, 34 U.S. 665).

Failure of the officers of the Congress of Industrial Organizations (C.I.O.) to file non-Communist affidavits with the NLRB barred one of its affiliates, the Textile Workers Union of America, from a hearing before the board. The Taft-Hartley act provides that no complaint can be heard by the labour board unless there is on file "an affidavit executed . . . by each officer of such labor organization and officers of any national or international labor organization of which it is an affiliate or constituent unit that he is not a member of the Communist Party. . . ." The supreme court held that the C.I.O. was "a national or international labor organization" subject to the affidavit requirement, brushing aside the contention that the C.I.O. was merely a federation of unions rather than a national or international union (*Labor Board* v. *Highland Park Mfg. Co.*, 341 U.S. 322). Subsequently the officers of the C.I.O. filed affidavits.

The Wisconsin Public Utility Anti-Strike law was nullified by the U.S. supreme court on the ground that it was in direct conflict with federal laws regulating labour-management relations. The Wisconsin law banned strikes and substituted compulsory arbitration whenever an impasse in collective bargaining was likely to cause an interruption in service. Such provisions were void, the high court said, because they abrogated the right of employees to strike, which is guaranteed under federal statutes (*Bus Employees* v. *Wisconsin Board*, 340 U.S. 383).

States' Rights.—The U.S. supreme court approved a Michigan regulation requiring a gas company engaged in interstate commerce to obtain a certificate of public convenience and necessity from the state's public service commission before selling gas directly to the consumers within the state (*Panhandle Eastern Pipeline Co.* v. *Michigan Public Service Comm.*, 341 U.S. 329); a compact between West Virginia and other states for the control of river pollution in the Ohio river basin (*Dyer* v. *Sims*, 34 U.S. 22); a New Jersey statute which provided that shares of stock in a domestic corporation and unpaid dividends declared thereon should escheat to the state against owners who had made no claims to such property within a period of 14 years (*Standard Oil Co.* v. *N.J.*, 341 U.S. 428); a 1951 amendment to the Florida "blue laws" which exempted from Sunday closing certain businesses including filling stations, restaurants, hotels, tourist attractions, drug stores, etc.; and an antipeddling ordinance of the city of Alexandria, La. (noted above).

The high court, however, held invalid an ordinance of the city of Madison, Wis., prohibiting the sale of milk unless it is processed and bottled within five miles of the city square. An out-of-state milk dealer, whose pasteurization plants were more than five miles away, could not be lawfully barred from selling his milk in the city. The ordinance placed an undue burden on interstate commerce (*Dean Milk Co.* v. *Madison*, 340 U.S. 349). The court settled another conflict of laws problem by ruling that the full faith and credit clause of the federal statutes required the courts of Wisconsin to recognize a law founded upon the Illinois wrongful death statutes where the death occurred in Illinois (*Hughes* v. *Fetter*, 341 U.S. 609).

The supreme court also applied the full faith and credit provision of the constitution in another decision which upheld a Florida divorce decree against contest in Vermont. A decree which is valid in the state where it was rendered cannot be collaterally attacked in another state (*Johnson* v. *Muelberger*, 340 U.S. 581).

A decision which would affect the tax laws of about 30 states was finally rendered by the supreme court. As Justice Tom C. Clark, who dissented, remarked, "It has taken eight years and eight courts to bring this battered litigation to an end." The majority of the judges rendered an opinion which knocked out a Connecticut tax on corporations "for the privilege of carrying on or doing business within the state." A state cannot tax the privilege of doing exclusively interstate commerce (*Spector Motor Service, Inc.* v. *McLaughlin*, 340 U.S. 602).

Taxation.—Employees felt the impact of the new Revenue Act of 1951 upon receipt of their first instalment of wages on or after Nov. 1, when the withholding rate went up from 18% to 20%. The new law increased individual income taxes by amounts that averaged 11.75% of the previous rates, as shown on new surtax tables. The new rates applied to tax years beginning after Oct. 31. About one-sixth of the increase affected 1951 income.

Some relief was given taxpayers in certain categories. Gains on the sale of homes were made not taxable, if the taxpayer, within a year before or after the sale, buys and uses another residence, unless the selling price of the old home exceeds that of the new, in which case he would have to report as a capital gain the difference between the two prices. A similar provision applied to the cost of building a new home, if the taxpayer moves in within one year before or within 18 months after the sale of the old one. All medical expenses were made fully deductible, if the taxpayer or his or her spouse is over 65 years old.

A new character known as "head of household" was created in an attempt to cure an apparent injustice. The head of household was granted about one-half the benefits formerly available to married couples by splitting their incomes in joint returns. To be classified as head of household, a taxpayer must be widowed, unmarried, divorced or legally separated. He must also have an unmarried child, stepchild or blood descendant or dependent (married or not) living with him, and he must furnish more than one-half the expense of maintaining the household. Another benefit to many taxpayers was an increase from $499.99 to $599.99 in the amount a dependent might earn and still be claimed as an exemption.

Changes in the capital gains provisions put a ceiling on long-term capital gains amounting to 26% effective for taxable years beginning after March 31, 1951, in the case of corporations and after Oct. 31, 1951, for other taxpayers.

The new Revenue act also contained provisions requiring professional gamblers (that is, persons engaged in the business of accepting wagers) to register with their local collector of internal revenue, keep books open for inspection, pay a tax of $50 per year and another tax of 10% of their gross receipts.

Excise tax changes included increases on cigarettes from 7 cents to 8 cents per package, on gasoline from 1½ cents to 2 cents a gallon, on automobiles from 7% to 10% of the manufacturer's price, on beer of $1 per barrel and on whiskey 30 cents per fifth.

(*See* also EDUCATION; NATIONAL LABOR RELATIONS BOARD; TAXATION; UNITED STATES.) (M. DN.)

United Kingdom Legislation.—Three examples of legislation to deal with the international crisis were the Reserve and Auxiliary Forces (Training) act, the Supplies and Services (Defense Purposes) act, and the Home Guard act. The first provided authority and laid down the broad administrative arrangements for the recall for short periods of certain classes of reservists, of which the most important in numbers was the army's Z reserve. The second extended the Supplies and Services (Transitional Powers) act, 1945, and defense regulations having effect by virtue of that act, by providing that the act should be deemed to include, and always to have included, powers for providing or securing supplies and services required for overseas defense, and for preventing supplies or services from being disposed of in a manner prejudicial to overseas defense. The retrospective aspect of this measure was strongly criticized on constitutional grounds by the Conservative opposition. Finally the Home Guard act, brought in by the new Conservative government, provided for the reconstitution of the home guard.

The British North America act amended the act of 1867 with the same title by authorizing the federal parliament of Canada to legislate on the provision of old-age pensions.

A measure which aroused a good deal of controversy was the National Health Service act of 1951, which authorized the making of charges for dentures and spectacles provided under the 1946 act.

The Fraudulent Mediums act, which repealed the Witchcraft act of 1735, provided for the punishment of fraudulent mediums.

The Leasehold Property (Temporary Provisions) act reflected both the differences of view which had been exposed by an inquiry into the future of leasehold property and the narrow majority in the house of commons by which Clement Attlee's government held power. Its main effects were, as to residential property, to prolong until two years from June 24, 1951, leases expiring during that period and, as to shops, to authorize tenants to apply to county courts for new tenancies where their old tenancies expired immediately before or during this period.

Two measures of considerable legal interest were the Courts Martial (Appeals) act and the Common Informers act. The former gave effect to one of the main recommendations of a strong committee appointed shortly after the end of World War II and put an end to an anomalous state of affairs wherein, while in civilian courts appeals from highly qualified judges of the high court and chairmen of quarter sessions lay to the court of criminal appeal, there was no appeal from courts-martial, much less expert tribunals, except by review (in effect, by the department of the judge advocate general). The courts-martial appeal court would consist of the English high court judges and their Scottish and Northern Ireland equivalents and of other persons appointed by the lord chancellor. The court might sit either in or outside the United Kingdom.

The effect of the Common Informers act was to abolish the common informer procedure under a number of specified acts, including the Sunday Observance acts.

Commonwealth Legislation.—*Canada.*—Among the measures framed to meet the international crisis was the Essential Materials (Defense) act, authorizing the governor general to make regulations in regard to the production, supply, distribution, use and prices of essential materials and services. The Defense Production act created a department of defense production under a minister to mobilize, conserve and co-ordinate Canada's economic and industrial resources to provide supplies and further projects for defense. The Emergency Powers act conferred on the government wide powers, notably in relation to the control of communications, trade and manufacture, in order to carry out defense preparations and to stabilize the economy of the country.

The Consumer Credit (Temporary Provisions) act was passed in the autumn of 1950 to empower the government to check inflation by limiting the amount of credit available to consumers. The Criminal Code Amendment act, passed in June 1951, related especially to the offenses of treason, sedition and sabotage; one of its most interesting provisions was to make it an indictable offense to advise or in any manner to cause insubordination, disloyalty, mutiny or refusal of duty by members not only of the royal Canadian mounted police or of the Canadian forces, but also of the naval, army or air forces of a state other than Canada that were lawfully present in Canada. This illustrated the importance attached to arrangements made or likely to be made for stationing the forces of one country on the territory of another.

The Petition of Right Amendment act abolished the necessity of securing the governor general's fiat before proceeding with a petition of right, making it possible to sue the crown in Canada for a breach of contract without obtaining leave, though the crown still could not be sued in respect of a civil wrong. In two of the provinces, Nova Scotia and Manitoba, legislation was passed that had broadly the effect of making it possible for the subject to sue the crown both in respect of civil wrongs and contracts.

Australia.—The Defense Preparations act, giving the commonwealth government powers in peace covering all aspects of preparation for defense, both military and economic, was yet another exemplification of the preparation for war which so many governments thought necessary; and the Constitution

PLAQUES of 4 of the 23 great lawgivers decorating the congressional chambers of the U.S. capitol, as they were remodeled for occupancy in Jan. 1951. Left to right: Jefferson, Moses, Solon and Justinian

Alteration (Powers to Deal with Communists and Communism) act, providing for a referendum to make a law in the terms of the Communist Party Dissolution act of 1950, which had been declared invalid by the high court of Australia, was another example of the tendency to make stringent laws against sedition that was a feature of the year. The subsequent referendum resulted in the rejection of the proposed change in the constitution.

The Commonwealth Bank act repealed much banking legislation, including the Bank Nationalization act, declared invalid by the high court and the judicial committee of the privy council. The main effect of the new act was to restore control of the Commonwealth bank to a board of ten members, in place of a governor responsible to parliament. The main objects of the Conciliation and Arbitration act, No. 2, were to strengthen the injunction powers of the arbitration court and to provide for secret ballots in trade unions.

New Zealand.—On Jan. 1, 1951, the Legislative Council Abolition act came into force, thus substituting a unicameral for a bicameral parliamentary system.

The Joint Family Homes act provided for the establishment of a matrimonial home owned by either spouse as a joint family home until both husband and wife died, unless both agreed to cancel the arrangement or the court so ordered, as on a divorce or separation; neither spouse could sell or mortgage the home without the consent of the other, and limited exemption from the claims of creditors was conferred. The Gaming Amendment act legalized off-course betting, eliminated bookmakers, prohibited credit betting and confined racing to Saturdays and public holidays. The Capital Punishment act restored capital punishment for murder, though exempting pregnant women and boys and girls under 18.

Union of South Africa.—The principal issue with which the legislature had to deal was one of the aspects of the perennial problem of colour, in the Separate Representation of Voters act. When this was first presented as a bill, J. G. N. Strauss, the leader of the opposition, argued that it had to be submitted to a joint sitting of both houses under sections 35 and 152 of the United Kingdom's South Africa act of 1909, but the speaker overruled this contention on the grounds of the legislative sovereignty of the Union parliament under the Statute of Westminster of 1931. The measure as finally enacted provided for the separate representation in parliament and in the provincial council of the Cape of Good Hope of Europeans and non-Europeans in that province; for the amendment of the law relating to the registration of Europeans and non-Europeans as voters for parliament and for the provincial council of Natal; and for the establishment of a board of coloured affairs.

India.—The main legislation arose from the need to amend some of the measures enacted in the first phase following the end of British rule. The Preventive Detention Amendment act liberalized the principal preventive detention act by providing that the cases of all *detenus* were to be referred to an advisory board within ten weeks of the persons' being detained. The Constitution (First Amendment) bill set out to qualify certain fundamental rights of the citizens of India, including freedom of speech and of the press; to further the educational, economic and social advancement of the backward classes; and to remove the questions of *zamindari* (system of land tenure) and land reforms from the purview of the courts. Examples of the kinds of problem with which this measure was intended to deal were that the citizen's right to freedom of speech and expression, guaranteed by article 19 (1) (a) of the constitution, had been held by some courts to be so comprehensive as not to render a person culpable even if he should advocate murder and other crimes of violence; and that the validity of measures of agrarian reform passed by the state legislatures had formed the subject matter of time-consuming litigation.

United Kingdom Case Law.—In the field of common law there were two interesting decisions by the house of lords in *Paris* v. *Stepney Borough Council* (1951 1 Times Law Reports 25) and *British Movietonews* v. *London and District Cinemas* (1951 Weekly Notes 451). In the first of these a one-eyed workman had lost the sight of his remaining eye and sued his employers for damages. The action resolved itself into deciding whether the employers owed a higher duty of care to protect the single eye of a one-eyed man than to protect either eye of a man enjoying the use of both eyes. The court of appeal had ruled that the duty was the same in each case. The house of lords, taking the view that the risk, involving total loss of sight, was essentially different, overruled this decision. *British Movietonews* v. *London and District Cinemas* was a case where the court of appeal, and especially Lord Justice Denning, had attempted to extend the accepted doctrine of the discharge of a contract by its frustration by holding it to apply where an unforeseen circumstance had come into being by the continuance of emergency regulations during peacetime. The house of lords, especially through Lord Simonds, restated the doctrine of frustration in its previously accepted terms and rejected the view that a mere mutually unforeseen circumstance could bring this doctrine into operation.

Cassidy v. *the Ministry of Health* (1951 1 All England Reports 574) decided that a patient in a hospital administered under the National Health Service acts could sue the ministry for the negligence of a surgeon and a nurse who were both on the salaried staff of the hospital.

Forbes v. *Kemsley Newspapers Limited* (1951 2 Times Law Reports 656) produced a decision on the law of copyright, the effect of which was that the property in a journalist's pseudonym vests in himself even where he has used it only in his contributions to one newspaper.

In the chancery division there were, as usual, a number of decisions on what constitutes a charity, perhaps the most notable of which was *Re Bland-Sutton's Will Trusts* (1951 1 All

England Reports 496), where a previous decision in this division that the Royal College of Surgeons was not a charity was held to bind the court. An appeal from the divorce division that aroused general interest was *Preston-Jones* v. *Preston-Jones* (1951 1 Times Law Reports 8), where the house of lords ruled that where an interval of 360 days had elapsed between the date when husband and wife had had intercourse and the birth of a child, the burden of satisfying the court that the child was conceived outside marriage was a light one. (*See* also AGRICULTURE; BANKING; BUSINESS REVIEW; CONSUMER CREDIT; EDUCATION; INTERNATIONAL COURT OF JUSTICE; INTERNATIONAL LAW; PATENTS; PUBLIC UTILITIES; RELIEF; TAXATION.)

(W. T. WE.)

Lawn Bowling.

The American Lawn Bowling association held its national tournament in Hartford, Conn., Aug. 6–10, 1951. The playing was of three types; viz., four-men teams or "rinks," doubles and singles.

In rinks, first place (Rettie Memorial trophy) was won by the team from the Fernleigh club of Hartford, Conn., skipped by Clinton Deming, with David Kidd as lead, John McNeil, second, and James Donaldson, third. Second place (Chicago trophy): Thistle club of Hartford; Robert Dickson, skip, Dave Ferguson, lead, Stewart Tulloch, second, and Robert Barclay, third. Third place (Wisconsin trophy): New York Lawn Bowling club, New York, N.Y.; John McPolland, skip, Percy Brearley, lead, Thomas Fairbain, second, and Herbert Howarth, third.

In the doubles, winners were: first place (California trophy), Hyde Park club, Niagara Falls, N.Y., team of Richard Auld and Thomas Stirrat; second place (Lakeside trophy), New York Lawn Bowling club, Herbert Howarth and John McPolland; third place (Western New York trophy), Essex County club, Bloomfield, N.J., James Wilson and Andrew Hood.

Singles winners were: first place (National Singles trophy), George Robbins, Thames Ford club, Thames Ford, Ont.; second place (Metropolitan New York trophy), Thomas Stirrat, Hyde Park club, Niagara Falls, N.Y.

The 1952 tournament was to be held at Seattle, Wash., July 28, 1952.

(L. PR.)

Lawn Tennis: *see* TENNIS.

Lead.

In 1950 the world lead production exceeded the 1940 peak for a new record high. The outputs of the major producing countries, as reported by the U.S. bureau of mines and listed in Table I, ordinarily account for about 90% of the world total.

United States.—The domestic mine output increased by 5%, refinery output by 7%, secondary recovery by 17% and imports by 11%, giving a total supply sufficient to cover a record consumption with only a minor drain on stocks.

Mine production in the first three quarters of 1951 was down to 295,078 tons, with progressive decreases each quarter.

Canada.—Lead in ores increased from 159,775 short tons in 1949 to 166,766 tons in 1950, and refined lead from 146,149 tons to 170,364 tons. Exports in 1950 included 115,167 tons of pig lead and 19,276 tons in ore. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. RO.)

Table I.—*World Smelter Production of Lead*

(Thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Argentina . .	21.1	23.3	17.8	19.6	19.5	30.1	38.6?
Australia . .	173.1	174.6	154.0	177.6	1 8.6	170.0	181.0
Belgium . . .	8.5	8.0	26.2	44.6	72.4	87.2	68.4
Canada . . .	142.6	162.5	165.8	162.0	160.1	146.2	170.4
France . . .	2.1	3.0	38.3	38.1	37.8	60.0	67.5
Germany . .	154.2	?	31.9	26.8	54.1	109.5	?
Italy	?	0.9	15.7	19.5	29.4	31.4	41.3
Japan. . . .	35.3	6.1	4.4	6.8	7.7	8.4	11.0
Mexico . . .	196.5	221.7	151.8	240.1	214.4	233.7	253.8
Peru	42.9	44.1	40.2	36.1	38.4	39.7	34.6
Spain	34.1	35.1	35.6	37.9	27.9	36.4	38.4
U.S.S.R. . . .	50?	44?	53?	69?	83?	99?	113?
U.S.	464.8	443.6	338.2	441.0	406.7	475.9	505.0
Total . . .	1,424	1,250	1,165	1,445	1,520	1,740	1,875

Table II.—*Data of Lead Industry in the U.S.*

(Thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Mine output . .	416.9	390.8	335.5	384.2	390.5	409.9	430.8
Refinery output .	464.8	443.6	338.2	441.0	406.7	477.3	508.3
Domestic ores	394.4	356.5	293.3	381.1	339.4	404.4	418.8
Foreign ores .	70.3	87.1	44.9	59.9	67.3	72.9	89.5
Imports	319.7	301.7	163.0	229.4	348.0	400.5	441.9
Exports	15.5	1.8	0.7	1.5	0.4	1.0	1.2
Secondary . . .	331.4	363.0	392.8	512.0	500.1	412.2	482.3
Consumption . .	1,119	1,052	956.5	1,172.0	1,133.9	957.7	1,238.0
Stocks, year-end							
Producers . .	125.1	161.8	189.7	128.0	146.8	201.5	137.7
Consumers . .	86.9	102.9	41.1	91.3	119.2	97.3	137.1

League of Women Voters of the United States: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Leather.

Leather production in the U.S. declined appreciably in 1951, with a levelling off of postwar demands, continued acceptance of substitute materials for many purposes, and virtual elimination of the long-held prewar favourable net import position of the U.S. industry. The attention of U.S. tanners was focused sharply on world trade developments throughout the year. The industry had always depended heavily upon imports of raw hides and skins and certain important tanning materials, domestic supplies being inadequate for the industry's needs. On the other hand, the U.S. had traditionally been a heavy exporter of finished leather to world markets.

Adverse world trade trends which began shortly before World War II developed in intensity after the close of the war. Some countries which were formerly important suppliers of raw stock to the U.S. developed tanning industries of their own, and much previously imported raw stock was diverted to those domestic industries.

In other countries, leather production had regained its prewar or higher levels.

With accumulated demands for finished leather pressing on all tanners in the years immediately following the war, there developed a scramble for world raw stock supplies, with U.S. tanners seriously hampered in this competition. Argentina is generally regarded as the most important supplier of raw stock and tanning materials imports to the U.S. leather industry, and before the war the U.S. was the leading market for Argentine exports.

For the first ten months of 1951 exports of hides and kips from Argentina were 5,577,000 pieces, a drop of 40.4% from the same period of 1950. Much of this export loss was absorbed by the Argentine leather industry, which before the war had been a relatively negligible consumer. October figures on Argentine exports reveal how small a proportion of Argentine hides and kips was going to the U.S. Scandinavia received 176,000 pieces from Argentina; Germany, 84,000; the Netherlands, 84,000; and Hungary, 66,000. The United States received only 18,000 pieces.

Raw material import conditions were similar in relation to many other important producing countries. The Tanners Council of America reported in one complaint that imported raw materials received in the U.S. still had tags attached indicating that they were originally purchased under the Marshall plan

Average U.S. Monthly Leather Production

(000's omitted)

	1951	1950	1949	1948	1947	1931–39 inclusive
All cattle hides (including kips for side leather)	1,947	2,032	1,994	2,173	2,402	1,628
Calf and whole kip	655	888	847	873	1,039	1,070
Goat and kid	2,790	3,100	2,898	3,164	3,099	4,000
All sheep and lamb.	2,157	2,617	2,387	2,794	3,045	2,800

1951 figures are based on an average of the first nine months' production. Compiled from data of the Tanners Council of America and the U.S. Bureau of the Census.

with funds provided by the U.S. to further economic recovery abroad.

Domestic hide and skin production increased through 1951, though not enough to offset the situation created by import declines. At the end of the year it was estimated that domestic supplies would be heavier in 1952, and it was hoped that foreign supplies would at least be equal to those of 1951.

Heavy demands for leather for military use during 1951, principally for footwear, were somewhat offset by a slow season in the civilian footwear industry. At the end of the year, shoe buying indicated a strong demand for shoe leathers (representing about 90% of leather production) in early 1952, with a possible tightening of supply if military requirements were increased.

Leather prices generally remained firm through 1951, with little change expected in the market in early 1952. (*See* also SHOE INDUSTRY.) (R. B. B.)

Lebanon.

An independent Arab republic, formerly under French mandate, Lebanon is situated on the eastern Mediterranean, bounded by Syria and Israel. Area: 3,470 sq.mi. Pop. (1950 est.) 1,257,000. Language: Arabic (90%), but Armenian, Greek and other languages are also spoken. Religion: Christian 52.8%; Moslem 45.3%. Chief towns (pop. 1948 est.): Beirut (cap., 247,000); Tripoli (86,400); Saida or Sidon (78,800); Zahle (78,000). President of the republic, Sheikh Bishari al-Khuri; prime ministers in 1951: Riad es Solh, (from Feb. 14) Hussein al-Oueni and (from June 7) Abdullah al-Yafi.

History.—On April 15, 1951, elections were held and returned the government Constitutionalist party (led by Selim al-Khuri, brother of the president) with a diminished though substantial majority; and on June 7 Abdullah al-Yafi became prime minister. On July 16, while on a visit to Amman, Jordan, Riad es Solh, a former prime minister, was assassinated. Demonstrations followed in Beirut, resulting in some casualties.

On Oct. 11 the chamber of deputies unanimously approved the Egyptian abrogation of the Anglo-Egyptian treaty and the Sudan Condominium agreement; but on Oct. 23 pro-Egyptian demonstrators were fired upon by the police in Beirut. On Oct. 29 the Lebanese national congress met and passed a resolution that the four powers' middle east defense proposals were contrary to international law. On the same day the Lebanese government was informed that the establishment of a middle east command would proceed irrespective of Egypt's action.

On Jan. 3 the projects for the improvement of the port of Tripoli and the harnessing of the Litani river for agricultural developments were reviewed. Both had been recommended by the Clapp commission of 1950 and later in the year a U.S. mission reported favourably on the Litani scheme.

On Jan. 1 the Trans-Arabian pipeline from the Saudi Arabian oil fields to Sidon, 30 mi. south of Beirut, was opened. By an agreement with the Lebanese government, its U.S. proprietors paid $126,000 for its police protection and $112,000 for transit rights; oil delivered at Sidon became subject to a Lebanese export tax of 3% and the government might purchase at cost price 200,000 tons of oil annually to be either exported or refined locally. However on Oct. 30 the chamber of deputies returned to committee a bill already ratified by it to create a reserve zone for the pipeline port, and also unanimously urged the revision of existing oil agreements as being contrary to Lebanese interests.

In June negotiations to resume the Lebanese-Syrian customs union (denounced by Syria in 1950) broke down, although in January there had been a temporary interchange of agricultural products. However in April during the Israeli-Syrian clashes on the upper Jordan, Lebanon offered its help to Syria and the marshal of the Lebanese army visited Damascus to discuss co-operation. (O. M. T.)

Education.—Schools (1949): primary 734, pupils 60,019; private 808, pupils 75,475; foreign 279, pupils 53,208; technical and trade 5, pupils 456; universities 2, students 2,147.

Finance and Banking.—Budget: (1950 est.) balanced at L.L.85,300,000; (1951 est.) balanced at L.L.85,300,000. Currency circulation (July 1951): L.L.210,000,000. Bank and government deposits (May 1951) L.L.198,000,000. Monetary unit: Lebanese pound, with an exchange rate (Nov. 1951) of L.L.2.21 to the U.S. dollar.

Foreign Trade.—Lebanese-Syrian customs union ended March 1950. (April-Dec. 1950): imports L.L.245,900,000; exports L.L.67,200,000. Main sources of imports (1950, including Lebanese-Syrian customs union in first quarter): France 20%; U.S. 13%; U.K. 13%. Main destinations of exports: France 13%; Saudi Arabia 13%; U.K. 7%; U.S. 7%.

Transport and Communications.—Roads (1949): 1,540 mi. Licensed motor vehicles (Dec. 1950): cars 10,723, commercial 3,698. Railways (1949): 475 mi. Telephones (Jan. 1949): 13,125. Radio receiving sets (1949) 31,000.

Agriculture.—Main crops (metric tons, 1949): wheat 50,000; barley 27,000; maize 13,000; oats 2,000; potatoes 40,000. Fruit production (metric tons, 1950): grapes (1949) 90,000; olives 5,000; olive oil 1,000; oranges and tangerines 39,000; lemons 13,000. Livestock (1949 est.): goats 400,000; sheep 25,000; cattle 20,000; horses 10,000; donkeys 20,000; mules 5,000. Wool production (including Syria, greasy basis, 1950) 6,000 metric tons.

Industry.—Production (metric tons, 1949): cotton yarn 6,800; cotton textiles 6,000; silk and rayon textiles 2,600; leather hides and skins 2,700; cement (1950) 262,800.

Leeward Islands.

This British colony is composed of four presidencies, a group of islands forming the northern part of the Lesser Antilles in the Caribbean: Antigua (with Barbuda), area 171 sq.mi., pop. (1950 est.) 45,611; St. Christopher-Nevis and Anguilla, 152 sq.mi., pop. 48,501; Montserrat, 32 sq.mi., pop. 13,535; Virgin Islands, 67 sq.mi., pop. 7,000; total area 422 sq.mi., total pop. 114,647. Population, mainly Negro. Religion: Christian. Principal towns: St. John's, Antigua (cap., 10,962), Basseterre, St. Christopher (12,201). Governor in 1951, K. W. Blackburne.

History.—The following constitutional changes in Antigua, St. Kitts-Nevis-Anguilla and Montserrat were announced in July 1951: the establishment of electoral districts, a majority of elected members in the legislatures, the election by unofficial members of the legislatures of members to serve on executive councils, and the introduction of a committee system in Antigua and St. Kitts of which the elected members on the executive councils would be chairmen. There would also be a majority of elected members on the general legislative council, the unofficial members of which would elect members to the federal executive council. The lives of the three presidency legislatures had to be extended for varying periods beyond Oct. 31 to permit the preparation and introduction of the necessary legislation. There was some opposition in St. Kitts to the proposed changes, which were not considered to go far enough.

Despite severe earthquakes in St. Kitts and Nevis, causing damage to government buildings amounting to £100,000, and despite serious labour troubles in Antigua, the year was one of consolidation and progress in planning and economic development. St. Kitts produced another record sugar crop (44,272 tons) though that of Antigua fell to only 18,511 tons. Cotton crops in Antigua and Montserrat were excellent. The development plans of St. Kitts and Montserrat were approved and a number of works undertaken. A development plan for the Virgin

	Budget (1951 est.)		Foreign trade, 1950	
	Revenue*	Expenditure*	Imports	Exports
Antigua	B.W.I.$3,278,487	£3,653,275	B.W.I.$6,406,931	B.W.I.$5,621,376
St. Kitts-Nevis	B.W.I.$2,706,800	B.W.I.$2,789,363	B.W.I.$5,933,270	B.W.I.$5,827,481
Montserrat	B.W.I.$ 552,427	B.W.I.$ 660,390	B.W.I.$ 724,704	B.W.I.$ 440,918
Virgin Islands	B.W.I.$ 132,141	B.W.I.$ 296,999	B.W.I.$ 322,782	B.W.I.$ 144,579
Federation†	B.W.I.$ 106,899	B.W.I.$ 106,899	B.W.I. —	—

*Excluding grants-in-aid from the United Kingdom Treasury and Colonial Development and Welfare funds. †Federal budget other than contributions from presidencies.

Islands was prepared.

Education.—The number of pupils enrolled in the public schools, and the government expenditure were as follows:

	Pupils, 1950		Government expenditure
	Primary	Secondary	
Antigua	8,656	908	B.W.I. $177,760
St. Kitts-Nevis	10,440	610	B.W.I. $246,480
Montserrat	3,246	158	B.W.I. $ 80,673
Virgin Islands	1,460	58	B.W.I. $ 67,214

Finance and Trade.—Currency: British Caribbean or British West Indian dollar, valued at 58.33 cents U.S. (B.W.I. $4.80=£1 sterling).

Principal exports: sugar, cotton (sea island). Production: sugar (1951) 62,783 tons; cotton exports (1950) 12,790 cwt. (P. H-My.)

Legislation: *see* Law; United States. *See* also articles on individual nations and U.S. states.

Lemons: *see* Fruit.

Leprosy: *see* Tropical Diseases.

Leukemia: *see* Blood, Diseases of.

Liberia.

Liberia, on the great western bulge of Africa, immediately north of the equator and adjacent to the great rain forests, is the only republic in Africa. It has an area of 43,000 sq.mi. and a population (est. 1950) of about 1,350,000.

Monrovia, the seaport capital (est. 1950 pop., 12,000) is the republic's only town with a population greater than 4,000.

The religion is preponderantly native tribal, with a total of 23 native tribes and clans represented. In addition, 18 Christian denominations were active in missionary work in Liberia during 1951, and the proportion of Christian converts was believed to total about 25% of the native population.

President in 1951: William V. S. Tubman.

History.—In Jan. 1951 an agreement was signed in Washington, D.C., under which a United States military mission was to be sent to help train a Liberian army. The following month the U.S. granted Liberia a loan of $5,000,000 to be used for building roads. In April the United Nations Educational, Scientific and Cultural organization sent a group of science instructors to establish a science faculty at Liberia college, in Monrovia.

President Tubman was re-elected to the presidency in May, in the first election in which Liberian women and aboriginal property owners were allowed to vote. Under the election laws, only Tubman's True Whig party qualified for the ballot. It was reported that the leaders of an aboriginal Reformation party, who were said to have requested supervision of the elections by the United Nations, were arrested, and that their party chief, Dihdwo Twe, was sought on charges of sedition.

The Liberia Institute of the American Foundation for Tropical Medicine, an international research centre, was formally opened Jan. 11, 1951.

Education.—In 1951 Liberia had 89 government schools, 71 mission schools and 29 tribal schools, with the latter showing the greatest increase. Institutions for advanced education included the College of West Africa and Liberia college, both of Monrovia, and the Booker T. Washington institute, at Kakata, for the agricultural and basic industrial training of sons of native chiefs and other tribespeople.

Finance and Trade.—The U.S. dollar is the official monetary unit and is supplemented by Liberian fractional coins with the dollar base freely negotiable and at par. Revenue receipts for the year ending Aug. 31, 1951, were estimated as $4,851,899; the total external debt was approximately $611,000. There was no internal debt. Exports for the 12 months prior to Aug. 31, 1951, were estimated as $33,391,000, and imports as $11,306,000, with the United States supplying about 93% of the latter and purchasing about 91% of the former.

Industry and Agriculture.—For 1951, industrial employment was estimated at 57,200. Firestone Plantations company remained the largest employer with approximately 62% of the total, and Firestone's rubber production for the year ending Oct. 31, 1951, was estimated at 66,700,000 lb. Subsistence agriculture is the preponderant source of employment, with rice the principal subsistence crop and African oil palm the largest food export. Rubber is the preponderant export item, with iron ore, gold, palm oils, piassava fibres and kola nuts following in that order. The 1951 production of high content iron ore from the new mines in the Bomi hills area was reported at 152,000 tons, with exports to U.S. mills.

(C. M. Wi.; X.)

Libraries.

The findings of the Public Library inquiry, Robert D. Leigh, director, continued to dominate the attention of public librarians in professional meetings, journal articles and symposia during the year 1951. The consensus appeared to be settling around a realization that although the public library had not been a major factor in the intellectual life of the typical U.S. community, it was fast preparing itself to occupy that position.

The celebration of the American Library association's 75th anniversary around the theme, "The Heritage of the U.S. in Time of Crisis," accented the librarians' growing realization that public libraries, as centres for adult discussion and systematic learning, are needed in a society whose communication facilities swamp the citizen with a mass of undigested information and propaganda. During 1951 the rapid acceptance of television brought this issue to a head.

As a means of extending and improving library services to the point where they could be used by the citizen to sharpen his understanding of the terms of the debates on the major questions that face him as a citizen, the American Library association undertook a series of projects for the year.

First, aided by a grant of $10,000 from Gardner Cowles, three books were initiated. Gerald W. Johnson wrote *This American People* as a fresh interpretation of the intent of the Founding fathers on the major problems that faced them and of the applicability of their wisdom to those same problems as they appear today. Henry Steele Commager completed a source book to accompany the Johnson volume, entitled *Living Ideas in America*. Genevieve Foster wrote *Mileposts of Freedom* with the same intent for children.

In order to stimulate a wide audience for these books, the American Library association enlisted the help of about 40 national organizations that had chapters in most U.S. cities and towns and that engaged in study programs. The national officers of these organizations publicized the American Library association program through their national publications and through state and local officers. In some cases, notably the General Federation of Women's Clubs under the leadership of Mrs. Hiram Houghton, Jr., special study guides were prepared.

The Ford foundation recognized the possibilities of the American Library association's program in adult education by offering a $150,000 grant to enable the A.L.A. to experiment in training librarians as discussion leaders on the theme, "The Heritage of the U.S. in Time of Crisis." Six pilot demonstration projects were started in the New York Public library; Denver (Colo.) Public library; Regional library at Athens, Ga.; Los Angeles (Calif.) County library; Vermont Free Public Library commission; and LaCrosse (Wis.) Public library.

The new regional library in Yakima valley in Washington represented the latest merger of a city and county library service unit. Two appointments in the public library field were of major importance: L. Quincy Mumford as director of the Cleveland (O.) Public library and Emerson Greenaway to the Free Library of Philadelphia. School librarians held their first meeting as a new division of the American Library association (American Association of School Librarians). The graduate library school of The University of Chicago celebrated its 25th anniversary, and the University of North Carolina school of library science began giving a master of science degree. The University of California's school of librarianship moved into new quarters.

The Library of Congress published an unusually large number of scholarly publications during 1951 and placed the Declaration of Independence and the constitution in helium-filled cases.

The American Library association accepted the resignation of John Cory as executive secretary and appointed David Clift as his successor. Its annual conference in July presented a national book fair and a series of distinguished speakers at its general sessions—Walter Laves, Jacques Maritain, Margaret Mead, Sen. Ralph Flanders and John A. Wilson, all of whom read papers on some phase of the "heritage" theme.

At least three new micropublication projects were announced. Towsley Microcards Inc. began publishing the U.S. patents on microcards, and the Theatre Library association announced its intention to publish a microprint edition of about 5,000 early English plays. The Association of Research Libraries began exploring the possibilities of publishing doctoral dissertations in micro form and of expanding *Microfilm Abstracts* into an inclusive abstracting journal. All the editorial work and composition for a new edition of the *Union List of Microfilms* was completed; it would include 25,000 entries.

Audiovisual aids continued to claim a place in the library scene. The George Peabody award was given to the Louisville (Ky.) Public Library FM radio station for best public service by a local station. The university libraries were designated as the campus centres for audiovisual aids at Stanford, Purdue, and Oregon universities.

The *London Library of Recorded English,* an anthology of English literature on phonograph records, represented a new venture in publishing.

In the area of bibliography, the Vatican started to microfilm its 41,000 manuscripts at a cost of $160,000. A set of positives was to be kept in the U.S. The first edition of the Army Medical library classification appeared, and the New York Public library began to microfilm its catalogue as a safety measure.

On the international scene, the Association of Research Libraries expanded the Farmington plan to include Australia, Austria, Germany, Portugal and Spain. The first International Congress of Archivists was held in Paris. Luther Evans, librarian of congress, became vice-chairman of the U.S. National Commission for the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.). Lawrence Powell wrote of his impression of England in the Gissing essay style.

The University of Pennsylvania library celebrated its bicentennial anniversary with notable exhibits of the works of Benjamin Franklin and Winston Churchill, plus a series of papers on scholarly problems of modern libraries.

Princeton acquired manuscripts of Booth Tarkington novels, and the Russell Sage library went to New York university. The Spinoza collection of A. Wolf and the papers of Franz Werfel were acquired by the University of California at Los Angeles. George Washington university, Washington, D.C., received the library of the Carnegie Endowment for International Peace, valued at $250,000. The library of the American Mathematical society was purchased by the University of Georgia, Athens, and Harvard purchased a library of 3,000 Hebrew books on history and literature. The University of California purchased from Japan 100,000 books in the Japanese, Chinese and Korean languages. The Library of Congress was given a fund for a poetry collection by Mrs. Gertrude C. Whittall. The Old Dominion fund gave Trinity college, Hartford, Conn., $650,000 to purchase the Watkinson library. The A. W. Stern collection of Lincolniana went to the Library of Congress, and the State University of Iowa, Iowa City, dedicated its James Bollinger Lincoln collection.

Fire destroyed the library of the College of Mt. St. Vincent, New York city, and the Michigan State library, Lansing, spent the year salvaging its losses from fire. The State University of Iowa finished its modular building in April. The Midwest Inter-Library centre, Chicago, was formally dedicated and put into operation Oct. 5, and the Mills Memorial library was given to the New York University Law centre.

The University of Wisconsin, Madison, started its new mammoth library and had the unusual experience of having the first part of its steel framing collapse.

Two major university libraries acquired new directors: Arthur McAnally went to the University of Oklahoma, Norman, and Wyman Parker to the University of Cincinnati. The University of Minnesota's librarian, E. W. McDiarmid, was appointed dean of its liberal arts college. Karl Brown retired as editor of the *Library Journal,* most widely circulated of library journals, and was succeeded by Helen Wessells.

The activities of the American Book Publishers council, under the able stimulation of Theodore Waller, continued to play an increasingly important role. Its conference on reading development produced a volume of important research that librarians studied, with booksellers, in a joint attempt to induce the general public to read more books. (*See* also AMERICAN LIBRARY ASSOCIATION; SOCIETIES AND ASSOCIATIONS, U.S.)

(R. E. EL.)

Great Britain and Ireland.—Statistics collected by the Library association showed that in the financial year 1950–51 £2,305,000, or 11*d.* per head of the population, was spent on books for public libraries and that the total cost of the service was £9,130,000, or 3*s.* 7¾*d.* a head—an increase of about £500,000. The population served totalled 50,100,000 and the number of books lent for home reading rose to 314,100,000. The total number of staff employed was 11,300 (exclusive of part-time staff). The treasury grant to the National Central library was increased from £22,000 to £25,000; the Carnegie United Kingdom trust made its final donation of £1,000. The benefactions of the trust amounted since 1916 to £165,000 and in addition it gave nearly £129,000 in grants to the regional library systems and outlier libraries.

The annual conference of the Library association was held in Edinburgh in June.

The British museum reopened the King's library, damaged by a bomb in Sept. 1940, and set up in it an important display of books and manuscripts from 25 libraries illustrating the achievements of the Friends of the National Libraries during the preceding 20 years. Many libraries arranged special exhibitions and displays in connection with the Festival of Britain, to which must be added the book exhibition illustrating five centuries of English literature arranged by the National Book league in the Victoria and Albert museum, London.

India.—Statistics of library services in India showed a total of 350 libraries of all kinds. Madras was the only state which had enacted a public libraries act, though Bombay was promoting through its department of libraries the development of public libraries by administrative rather than legislative action. But the ninth All-India Library conference, held at Indore in May, passed resolutions urging the central government to make it compulsory for local authorities to provide free public libraries throughout India. Other resolutions adopted by the same conference urged the prompt establishment of the Indian National library and requested the library profession in each of the Asiatic countries not possessing a library association to form one, with the ultimate establishment of an Asian federation of library associations in view.

International.—The papers of the U.N.E.S.C.O. seminar held at Malmö, Sweden, in 1950, were published under the title *The Role of Libraries in Adult Education and Fundamental Education* (U.N.E.S.C.O. Public Library manual, No. 4, Paris, 1951). A beginning was made, jointly with the Fédération Internationale de Documentation, of a new edition of the *Index Bibliographicus,* last published in 1931, and a further volume of the *Index Translationum* was published. *A Guide to the Libraries of the Near and Middle East,* compiled by Joseph Dagher, keeper of

SALVAGE WORK on books which became waterlogged after a fire at the Michigan State library in Lansing early in Feb. 1951. Books are shown drying under hot-air blowers at a near-by field house

the National Library of Beirut, contained detailed information on about 250 libraries in ten territories. In April the first meeting was held in London of an international advisory committee on bibliographical planning, to act as a consultative council to U.N.E.S.C.O. in the carrying out of the recommendations of the Conference on the Improvement of Bibliographical Services held in Paris in Nov. 1950.

Among the first visible fruits of this program were the bibliographical or documentation centres set up in Mexico and India within the framework of the technical assistance program of the United Nations.

Control of the Delhi Public library, established under the auspices of U.N.E.S.C.O. to serve as a pilot project for the whole of southeast Asia, was taken over by an Indian librarian in June 1951.

A brief account of the progress achieved in the improvement of national bibliographical services appeared in the *UNESCO Bulletin for Libraries,* vol. 5, No. 10, pp. 341–345 (Paris, 1951), and a list of more than 40 bibliographical working groups in the next issue (*ibid.,* No. 11, pp. 404–407). The first issue of a new abstracting periodical, *International Political Science Abstracts,* appeared in May.

An important series of conferences was held in Rome in September. At a meeting between representatives of U.N.E.S.C.O., the International Federation of Library Associations, the Fédération Internationale de Documentation and the International Council of Archives, the problem of a joint council of librarianship, archives and documentation was further studied and much progress toward co-operation made. At the 17th meeting of the international library committee of the International Federation of Library Associations, which followed, Pierre Bourgeois, director of the Swiss National library, Berne, was elected president of the federation.

Among the many problems studied were the cost of periodical publications and the protection of libraries and their collections in wartime. The 18th international congress of the Fédération Internationale de Documentation studied documentary reproduction methods, the use of the universal decimal classification, particularly in industrial libraries, and a wide variety of other problems. The most important business was the reorganization of the federation itself in order to ensure the closest possible co-operation with other bodies and the minimum overlapping of work.

Arne Møller, director of Danmarks Tekniske Bibliotek, Copenhagen, was elected president.

Europe.—The Bibliothèque Nationale, Paris, arranged some outstanding exhibitions during the year, among them a historical display of the work of the Imprimerie nationale, and an exhibition "Mille ans de livres anglais," opened on Nov. 15. The first issues appeared of *A.B.C.D.* (*Archives, Bibliothèques, Collections, Documentation*), a new French bimonthly periodical replacing the old *Archives et Bibliothèques,* which ceased publication in 1939.

The Verein Deutscher Bibliothekare held a conference at Münster, Westphalia, in May, which was notable in that it was the first combined gathering of German librarians representing all types of libraries. Some 250 librarians attended, and particular attention was given in the papers read to the progress of reconstruction in German libraries.

The rebuilding of Vienna University library was completed during the year. Lucerne, in Switzerland, opened a new central library, amalgamating the former cantonal and municipal libraries.

Details of a six-year plan for Polish libraries were published in the *Zentralblatt für Bibliothekswesen,* vol. 65, no. 5/6, pp. 208–212 (Berlin, May–June 1951). The number of "library

LIBYAN NATIONAL ASSEMBLY meeting on March 29, 1951, as a resolution was approved establishing a provisional federal government. Libya became an independent, constitutional monarchy in Dec. 1951

points," including presumably service points for travelling libraries, was to be raised from 19,800 in 1949 to 22,300 at the beginning of 1951 and 33,200 by the end of 1955.

BIBLIOGRAPHY.—F. Milkau, *Handbuch der Bibliothekswissenschaft*, 2nd ed. by G. Leyh (Stuttgart, 1950– ; 5 fascicles issued by the end of 1951). (F. L. K.)

FILMS OF 1951.—*It's Fun to Read Books, Library Organization* (Coronet Films); *It's Your Library* (Carl F. Mahnke Productions).

Libya. An independent kingdom in North Africa, Libya is bounded north by the Mediterranean, west by Tunisia and Algeria, south by French West Africa and French Equatorial Africa and east by Egypt and Sudan. Area: 679,340 sq.mi. Pop. (1950 est.): *c.* 1,191,000 (incl. 46,400 Italians); Berbers, with Arab admixture. Chief towns: Tripoli (pop. 144,616); Bengasi (59,087). Language: Arabic. Religion: mostly Moslem. Ruler: King Idris I (*q.v.*); prime minister in 1951, Mahmud Bey Muntasser.

History.—The process of shaping Libya, a former Italian colony, into an independent state began with a United Nations resolution of Nov. 21, 1949, which set the time limit for complete independence at Jan. 1, 1952; the territory had, from 1943, been administered in three parts, Tripolitania and Cyrenaica by Great Britain and the Fezzan by France.

At the beginning of 1951 Cyrenaica had an elected government, semiautonomous in internal affairs, and the Fezzan an assembly of notables with rather similar powers. In Tripolitania it had proved impracticable because of local political feeling to hold elections and the British administration retained full powers. A Libyan national assembly, comprised of an equal number of representatives from each area, had already decided that Libya should be a federal, democratic kingdom and that its king should be the Amir Idris of Cyrenaica.

During 1951 this assembly drafted, with the assistance of Adrian Pelt, the United Nations high commissioner, his advisory council and other experts, a Libyan constitution and finally adopted it in October. It provided for a bicameral parliament. Each of the three areas would have equal representation in the upper house, which would be partly nominated by the king. The lower house would be elected on a proportional representation basis. The federal government would be responsible to parliament and would have exclusive powers over foreign affairs, defense, currency and certain other matters and overriding legislative power over shipping, subsoil wealth and foreign trade. Each area would be designated a province, under a *wali* (governor) representing the king. Elections to the Libyan parliament would be held early in 1952.

A Tripolitanian council (government) had been nominated in March 1951 and later in the same month a provisional government for Libya had been appointed by the national assembly. It was nominated and not elected, but in recognition of the numerical preponderance of the Tripolitanians, the prime minister (Mahmud Bey Muntasser) and two of the five ministers were chosen from that province. To provide Libya, which had a deficit economy, with financial support after independence, Great Britain undertook to back a new Libyan currency, to provide annual grants and to cover the Libyan budget deficit. A financial agreement to give effect to these undertakings to March 31, 1953, was concluded.

Other offers of finance for special purposes were made by France, the United States and Italy.

Great Britain and France, who had progressively passed authority to the embryo state, transferred on Dec. 24 all power remaining to them and the Amir Idris became king and formally declared the independence of the new state in a broadcast from Bengasi on the same day. Objections to the procedure adopted in the formation of Libya and to its form of government were voiced, mainly by the Arab states and Egypt. By the end of the year there had been no decision on the respective claims of Bengasi and Tripoli to be the capital. (F. E. ST.)

Lie, Trygve (1896–), Norwegian diplomat and United Nations official, was born on July 16 in Oslo. Between 1922 and 1940 he was identified with the Norwegian Labour party as its legal adviser and later as a member of its national council. From 1935 to June 1939 he was minister of justice, then minister of commerce, and after the German invasion of Norway, he went with the exile government to London, serving as its minister of foreign affairs. He was reappointed minister of foreign affairs of Norway in 1945. He served as chairman of the commission that drafted the charter for the Security council at the United Nations organization conference at San Francisco, Calif., and at the London meeting of the U.N. general assembly he was elected secretary-general on Feb. 1, 1946.

In his capacity as top U.N. administrative official Lie sought constantly to steer a neutral course between the aims of the U.S.S.R. and its satellites and those of the western nations. He was instrumental in the application of U.N. sanctions against the North Koreans when they invaded South Korea, but in 1951 his principal U.N. role was that of mediator in the effort to bring about peace in Korea. He had been one of 28 persons nominated for the Nobel peace prize by the Nobel committee of the Norwegian parliament, but in August he asked that the committee not consider his name, on the grounds that his regular position with the U.N. was dedicated to the interests of peace. In Feb. 1951 Lie began serving a three-year extension of his original five-year term as secretary-general of the U.N. In his annual report to the general assembly Lie said that the U.N. must be prepared to resist aggression, but that regional military alliances, such as the North Atlantic treaty, could provide only a "precarious balance of power" and not lasting security.

Liechtenstein.

A small independent principality between Switzerland and Austria, Liechtenstein has an area of 61.4 sq.mi. Pop. (Dec. 1950 est.): 13,800. Language: German. Religion: Roman Catholic. An elected *landtag* of 15 members appoints the government. Capital: Vaduz (pop., Dec. 1950, 2,700). Ruler, Landesfürst (sovereign prince) Franz Josef II; prime minister in 1951, Alexander Frick.

History.—In a press interview in July 1951 Prince Franz Josef expressed his gratitude to Switzerland for the disinterested manner in which its diplomatic missions abroad represented and protected Liechtenstein's interests. The prince also called for foreign investments in his country where the income tax was from 2% to 9%.

Education.—Schools (Nov. 1950): primary 14, pupils 1,658, teachers 50; secondary 2, pupils 156, teachers 8.

Finance.—Budget (1950 est.): revenue 4,451,200 fr.; expenditure 5,071,893 fr. Included since 1924 in the Swiss customs and monetary union, Liechtenstein uses Swiss currency. The exchange rate in Nov. 1951 was 4.369 Swiss francs per U.S. dollar. (A. Fk.)

Life Insurance: *see* Insurance.

Life Statistics: *see* Birth Statistics; Death Statistics; Infant Mortality; Suicide Statistics.

Lighting: *see* Electrical Industries.

Limes: *see* Fruit.

Linen and Flax.

Exports of Irish linen totalled 51,400,000 yd. in 1951, compared with 49,300,000 yd. in 1950. This was the highest total since 1939. Of this, linen cloth represented approximately 69.7%, damask 6.7%, threads 5.8%, handkerchiefs 2.3% and other linen manufactures about 15.5%. The United States took 22,200,000 yd. of the linen cloth, or about 40%, at an average price per square yard of 63 cents, compared with an average price in 1950 of 59 cents per square yard.

While buyer pressure, reflecting the general downward trend in textile prices during 1951, asked for lower prices in 1952, relatively small stocks and high costs indicated that Irish mills would have to ask for increases. The Belfast spinners and weavers depend largely on Belgium for their flax, prices for which were increasing in 1951 at the same time that buyer pressure was forcing down the prices of finished linen products. At the close of the year, U.S. buyers were said to be looking toward the continent for finished linens, because of more favourable prices.

In Belgium the linen weavers were busy supplying linen sheets, pillowcases and towels for the army. The fabric was a rough, cheaper quality which, while more expensive than comparable cotton items, was more economical because of its longer wearing and easier washing qualities, and its ability to take rough treatment. Orders were on hand for 234,000 sheets, 145,000 mattress covers, 100,000 provision bags and 98,000 pillowcases, all for the government. Flax prices in Belgium rose sharply after the outbreak of war in Korea, from about 73 cents per kilogram to $1 in Jan. 1951 and to $1.40 in June 1951. Great Britain takes 50% of the Belgian export. Belgian flax plantings in 1951 were 50% more than in 1950.

The production of fine linen cloth in all countries was handicapped by the high prices. In Belgium as well as in Great Britain and France buyers refused to accept the goods at the prices offered. Even South American buyers, who had placed large orders with Belgian producers for the finer types, cancelled them during 1951.

In the United States, while the traditional linen fabrics were being by-passed because of price, a new trend in linen was the blending of linen yarns with silk, rayon and some of the newer synthetic fibres.

The promotion of linen fabrics was continued in 1951, not only through the long-established Irish Linen guild, but also through a group of Belgian firms.

Bibliography.—*Textile Recorder* (Manchester); *Journal of Commerce; Daily News Record; Foreign Commerce Weekly.* (I. L. Bl.)

Lions Clubs, International Association of: *see* Societies and Associations, U.S.

Liquors, Alcoholic.

Developments in the distilled spirits industry in the U.S. during 1951 were strongly influenced by world conditions and their political ramifications, most particularly the war in Korea. Early in the year the government announced, through the department of agriculture, contemplated restrictions in the use of grain. The results were not only a speeding up of buying and an abnormal increase in inventories of distributors and wholesalers, but also a considerable acceleration in production. However, prospects for a good crop improved, and no production restrictions were imposed. Since over-all consumption did not increase, the result was a swelling of total inventories in the warehouses to an unprecedentedly high figure of 901,000,000 gal.

Although the originally proposed $3.00 per gallon tax increase recommended by the treasury was cut down to an increase of $1.50 per gallon, the new federal tax of $10.50 per gallon, which took effect Nov. 1, 1951, added to high state excises, placed such a heavy burden on the purchaser of alcoholic liquors that there was an appreciable slowing down of retail purchasing.

Distilled spirits production for the fiscal year ending June 30, 1951, totalled 401,452,796 tax gallons compared with 208,235,050 tax gallons for the previous fiscal year. Whisky (205,702,460 tax gallons) and spirits (173,025,280 tax gallons) accounted for nine tenths of the production with brandy (11,584,486 tax gallons), rum (2,030,180 tax gallons), gin (8,962,289 tax gallons) and a small amount of vodka accounting for the balance.

In addition to providing beverage alcohol, the distillers furnished about 45,000,000 gal. of industrial alcohol to the government during the latter months of 1950 and the early months of 1951. This was made available on the open market, not purchased by contract.

Government original entry gauge figures representing barrelled whisky aging in warehouses at the end of June 1951 stood at 751,000,000 gal. After allowance for evaporation and leakage this netted about 632,575,000 gal. At the end of September there was little change in these figures. Only a small portion (156,000,000 gal.) of this inventory was more than 4 years old, as of June 30, 1951. The balance was all new or young whisky which would come of age during succeeding years. No unbottled 8-year old whisky remained in warehouses.

Distilled spirits of all types withdrawn from internal revenue bonded warehouses during the fiscal year 1951 increased 21% over 1950, from 144,000,000 gal. to 175,000,000. Withdrawals of whisky alone increased 16,000,000 gal. or 26% over 1950, continuing the consumer preference trend toward bonded and straight whiskies, and high quality blends.

Whisky of all types represented 86% of total distilled liquors bottled in 1951; gin 9%; brandy $1\frac{1}{2}$%; cordials and liqueurs, over $2\frac{1}{2}$%; and small quantities of vodka, specialties and rum made up the remainder.

Most of the rum consumed in the U.S. is imported, mainly from Puerto Rico. Imports of this commodity in 1951 were around 1,500,000 gal., about 1,200,000 gal. coming from Puerto Rico alone. Other important imports were Scotch and Canadian whisky, which account for 99% of the 10,000,000 to 12,000,000 gal. of whisky imported yearly into the U.S. At the end of the first 8 months of 1951, more than 4,000,000 gal. had been shipped from Canada and almost 7,000,000 from the U.K.

Table I.—*U.S. Fermented Liquor Consumption for Year Ending June 30, 1951*

	Distilled Spirits (tax gal.)	Wines (gal.)	Fermented Malt Liquors (gal.)
Total domestic output for continental U.S. consumption	166,174,487	127,323,035*	2,582,613,119
Imported and offshore	21,039,663	5,267,244	3,577,537
Total	187,214,150	132,590,279	2,586,190,656
Per capita consumption—domestic	1.09	.84	16.95
Imported and offshore	.14	.03	.02
Total	1.23	.87	16.97

*Net domestic withdrawals for consumption.

Source: Prepared by Licensed Beverage Industries, Inc., from statistics released by U.S. department of commerce, office of international trade, food branch. Per capita figures based on U.S. census bureau population estimates of Jan. 1, 1950: 150,161,000, and Jan. 1, 1951: 152,365,000. (A. J. Li.)

Liquor Control.—Developments in liquor control in the United States in 1951 were also closely tied up with the economic effects of the Korean war. Illegal distillations became more profitable as a result of the tax increase on liquor, wine and beer, and in spite of the vigorous efforts of the Alcohol Tax unit, the enforcement arm of the FAA (Federal Alcohol administration), liquor escaping payment of taxes ran into the millions of gallons.

The most dramatic and perhaps far-reaching development in liquor control came as a result of the televised hearings of the Kefauver committee. Much of the testimony revealed that the men who were active in illegal gambling and political fix were also engaged in liquor operation, particularly in night spots. In its report the Kefauver committee proposed annual application for renewal of basic permits. (A wholesaler must secure a federal basic permit, as well as a state licence, where required, before beginning operation. Once acquired the federal permit is good unless and until it is revoked or suspended for cause.) This proposal did not pass.

In the early part of the year, the economic stabilizer, Eric Johnston, ordered a price freeze, which included alcoholic beverages. In the closing months of the year, the Office of Price Stabilization put restrictions on markups of alcoholic beverages, both at the wholesale and retail level.

The supreme court in the so-called New Orleans Schwegman case held that a manufacturer of alcoholic beverages could enforce a fair trade price (minimum price at which a retailer may sell a specific product to a customer) only if he had a contract with that retailer; he could not, by a contract with one or a few retailers, force all retailers to accept the minimum price to consumers just as though they had been made parties to the contract. This decision nullified many of the fair trade laws passed by states, except in those states which had no provision concerning contracts in conflict with the terms of the court decision. New York state, for example, compels every brand owner to register with the state control authority his minimum fair trade price to the consumer, and the state agency then enforces that minimum.

Congressional efforts to limit liquor and beer advertising did not succeed. However, the television and radio broadcasting industry adopted a code which excluded hard liquor from the list of products which might be advertised over radio or television. This did not include beer and wine. Efforts to stop the sale of beer near army camps failed.

The Alcohol Tax unit, as well as some of the states concerned, interested themselves in stopping the flow of hard liquor into dry or partially dry states, such as Oklahoma, Mississippi and Georgia. In a number of cases this involved litigation, still pending in the courts at the end of the year. On the whole, however, the interstate flow of liquor from wet states into dry areas was greatly diminished. (*See* also BREWING AND BEER; INTOXICATION, ALCOHOLIC; WINES.) (M. LB.)

Table II.—*Federal Internal Revenue Bureau Collections from Alcoholic Beverages*

Calendar Year	Distilled Spirits	Beer	Wine	Total
1946	$1,972,860,338	$642,224,380	$75,898,249	$2,690,982,967
1947	1,578,195,476	702,059,301	49,905,396	2,330,160,173
1948	1,427,017,216	684,570,490	65,016,303	2,176,604,009
1949	1,455,650,625	679,227,856	79,511,340	2,204,389,821
1950	1,679,371,598	666,658,732	72,988,974	2,419,019,304
1st 8 months, 1950	1,067,161,982	461,591,104	46,932,051	1,575,685,137
1st 8 months, 1951	1,027,536,311	467,109,319	39,739,652	1,534,385,282

Source: Prepared by Licensed Beverage Industries, Inc., research and statistical division from reports of the Bureau of Internal Revenue, U.S. Department of the Treasury.

Literary Prizes.

The following is a selected list of literary prizes awarded during the year of 1951:

United States.—American Academy of Arts and Letters, Award of Merit Medal.—Medal and cash prize of $1,000 given annually to an outstanding person in arts and letters, living in the United States and not a member of the academy or institute, to Sidney Kingsley, dramatist.

American Academy of Arts and Letters Fellowship.—At American academy in Rome, It., to Anthony Hecht, poet.

American Historical Association, Albert J. Beveridge Memorial Fellowship.—A grant of $1,500 to Reynold M. Wick for his manuscript *The Application of Steam Power to American Agriculture.*

American Political Science Association, Woodrow Wilson Foundation.—Honorary award for the best book of the year in the field of government and democracy, to Stephen K. Bailey for *Congress Makes a Law.*

American Political Science Association, Franklin D. Roosevelt Foundation Award.—Honorary award for the best book in the field of government and human welfare, to Arthur N. Holcombe for *Our More Perfect Union.*

American Political Science Association, Willkie Memorial Building Award.—Honorary award for the best book in the field on international relations, to John B. Condliffe for *The Commerce of Nations.*

Anisfield-Wolf Awards.—Two awards of $1,000 each, administered by the *Saturday Review of Literature,* for books which most contribute "to the understanding and solution of racial problems," to John Hersey for *The Wall* (fiction) and to Henry Gibbs for *Twilight in South Africa* (nonfiction).

Author Meets the Critics Literary Awards.—Honorary awards given by the radio program for outstanding American fiction and nonfiction, to John Hersey for *The Wall* (fiction) and to Marchette Chute for *Shakespeare of London* (nonfiction).

Bancroft Prizes.—$2,000 each annually for the best two books published in American history, American diplomacy or American international relations, to Arthur N. Holcombe for *Our More Perfect Union* and to Henry Nash Smith for *Virgin Land.*

Bollingen Prize in Poetry of the Yale University Library.—$1,000 to John Crowe Ransom for his contribution to American poetry.

Carey-Thomas Award.—Annual award, sponsored by *Publishers' Weekly,* for the most distinguished publishing achievement of the year. Certificate to Princeton University press for *The Papers of Thomas Jefferson,* edited by Julian P. Boyd.

Cervantes Medal.—Given annually by Hispanic institute in Florida for contribution to Latin-American relations, to Leonard Bacon for his translation of Camoens' poetry.

Friends of American Writers Award.—$1,000 for the encouragement of young authors from the midwest and those who use midwestern locales in their stories, to Leon Statham for *Welcome, Darkness.*

Guggenheim Fellowships.—154 fellowship awards, totalling $568,000, of which 16 went to writers: Samuel Konefsky, Edwin G. Nourse, Conyers Read, Horace Gregory, Francis Harper, Dumas Malone, Willard M. Wallace, Elizabeth Stevenson, George Woodcock, E. E. Cummings, Rosalie Moore, William Goyen, Charles E. Butler, John Cheever, Arnold O. Sundgaard, Benjamin Botkin.

O. Henry Memorial Award Prize Stories.—$300 first prize to Harris Downey for *The Hunters;* $200 second prize to Eudora Welty for *The Burning;* $100 third prize to Truman Capote for *The House of Flowers.*

Houghton Mifflin Literary Fellowship.—$2,400 for financial assistance to promising writers to Siegle Fleisher for a first novel.

Sidney Howard Memorial Award.—$1,500 given annually by the Playwrights company for new talent in playwriting on Broadway, to the New Dramatists committee.

Jewish Book Council of America Award.—Harry Kovner $100 poetry awards to Judah Stampfer, Aaron Zeitlin, Ben Lappin; $250 Samuel H. Daroff fiction award to Soma Morgenstern for *The Testament of the Lost Son.*

Alfred A. Knopf, Inc.—Furioso Fiction Contest.—$400 for a short story or a part of a longer work of fiction, to William Berge for a short story.

Modern Language Association.—Macmillan Award.—$1,000 award for a book of significant contribution to general understanding of English and American literature, to Alfred B. Harbage for *Shakespearean Setting.*

Modern Language Association.—Oxford Award.—$1,000 award for a book of significant contribution to general understanding of foreign literature, to Warren Ramsey for *Jules Laforgue and the Ironic Inheritance.*

Mystery Writers of America Awards.—Honorary "Edgars," busts of Edgar Allan Poe, awarded for mystery writing: for the best first mystery novel, to Thomas Walsh for *Nightmare in Manhattan;* for the best mystery short story, to Lawrence G. Blochman for *Diagnosis: Homicide;* for fact crime writing, to Edward D. Radin for *Twelve Against Crime* and for his editorship of *Detective* magazine.

National Book Awards.—Gold medals awarded by the entire book industry for distinguished fiction, to William Faulkner for *Collected Stories of William Faulkner;* special citation, to Brendan Gill for *The Trouble of One House;* for distinguished nonfiction, to Newton Arvin for *Herman Melville;* for the most distinguished book of poetry, to Wallace Stevens for *The Auroras of Autumn.*

National Institute of Arts and Letters.—Russel Loines Award for Poetry, to recognize the value of some American or English poet, to John Crowe Ransom.

NATIONAL INSTITUTE OF ARTS AND LETTERS GRANTS.—$1,000 each to six nonmember writers for encouragement to young artists of ability and as practical recognition for more established authors: Newton Arvin, Brendan Gill, Elizabeth Bishop, Louise Bogan, Randall Jarrell, Vladimir Nabokov.

NEW YORK DRAMA CRITICS CIRCLE AWARD.—Honorary awards given by the New York metropolitan critics for the best play produced in New York city, to Sidney Kingsley for *Darkness at Noon* (based on the novel by Arthur Koestler); for the best foreign play, to Christopher Fry for *The Lady's Not for Burning;* for the best musical, to Abe Burrows, Jo Swerling and Frank Loesser for *Guys and Dolls.*

NEW YORK UNIVERSITY'S SOCIETY OF THE LIBRARIES GOLD MEDAL.—To "an American scholar who reveals in his writings accurate scholarship and effectiveness of presentation," to Crane Brinton for *Ideas and Men.*

PARENTS' MAGAZINE MEDAL.—For the outstanding book of service to parents, to Mary and Lawrence K. Frank for *How to Help Your Child in School.*

PHI BETA KAPPA PRIZE.—$1,000 to the author of the best book of the year published by a university press in the field of literary scholarship or criticism, to Ruth Wallerstein for *Studies in 17th Century Poetic.*

POETRY AWARDS.—Given by Poetry Awards of Pasadena, Calif., in co-operation with the Poetry Society of America. $1,250 major award divided between Rolfe Humphries and Hyam Plutzik. $1,000 prize for a long theme poem, to Mark Van Doren for *Mortal Summer.*

POETRY SOCIETY OF AMERICA GOLD MEDAL.—To Wallace Stevens.

TAMIMENT INSTITUTE 1951 BOOK AWARD.—$500 for the best biography written by an American, to Ethel Waters for *His Eye is On the Sparrow.*

WESTMINSTER FICTION CONTEST.—$7,500 to C. E. L'Ami of St. James, B.C., for a novel, *The Green Madonna.*

YALE SERIES OF YOUNGER POETS.—Award to William S. Merwin for *A Mask for Janus.*

ZONDERVAN CHRISTIAN FICTION PRIZE.—$4,000 to James H. Hunter for *Thine is the Kingdom.*

NOBEL PRIZE FOR LITERATURE.—(*See* article NOBEL PRIZES.)

PULITZER PRIZES.—(*See* article PULITZER PRIZES.)

U.S. Children's Books.—CALDECOTT MEDAL.—For the year's most distinguished American picture book for children, to Katherine Milhous for *The Egg Tree.*

CHILD STUDY AWARD.—Honorary award of the Child Study Association of America for the book for young people which deals realistically with problems in their world today, to Mrs. Eleanor Roosevelt and Helen Ferris, joint authors of *Partners, the United Nations and Youth.*

DODD, MEAD—AMERICAN GIRL PRIZE COMPETITION.—$1,500 prize contest sponsored by Dodd, Mead publishing house and *American Girl* magazine for a book-length story appealing to Girl Scouts. To Loula Grace Erdman for *The Wind Blows Free.*

DODD, MEAD—BOYS' LIFE PRIZE COMPETITION.—$2,000 prize contest sponsored by Dodd, Mead publishing house and *Boys' Life* magazine for a book-length story appealing to Boy Scouts. To John Scott Douglas for *The Secret of the Undersea Bell.*

CHARLES W. FOLLETT AWARD.—A prize of $3,000 given by Wilcox and Follett, publishing company, for a worthy contribution to children's literature, to Sydney Taylor for *All-of-a-Kind Family.*

HERALD TRIBUNE (NEW YORK) SPRING BOOK FESTIVAL AWARDS.—Three prizes of $200 each: for the best picture book for younger children, to Françoise for *Jeanne-Marie Counts her Sheep;* for the best book for children from 8 to 12, to Eleanor Estes for *Ginger Pye;* for the best book for older boys and girls, to Elizabeth Baity for *Americans Before Columbus.*

JUNIOR BOOK AWARDS.—Presented by the Boys' Clubs of America to authors of books which were favourites of boys in Boys' clubs throughout the United States. Medals to Ronald Syme for *Bay of the North;* to J. Frank Dobie for *The Ben Lilley Legend;* to A. B. Guthrie, Jr., for *The Big Sky;* to Henry Gregor Felsen for *Hot Rod;* to Glen Balch for *Lost Horse;* to Catherine Owens Peare for *Mahatma Gandhi;* to Marion Renick for *The Shining Shooter;* to Chang Fa-Shun for *The Sky River;* to Thomas H. Raddall for *Son of the Hawk.* Certificates to Frank O'Rourke for *Bonus Rookie;* to Frank Waldman for *Giant Quarterback;* to May Justus for *Luck for Little Lihu;* to Duff McCoy for *The Mystery at Robbers' Rock;* to Donald Barr Chidsey for *Rod Rides High;* to Hazel Wilson for *Thad Owen;* to Eleanor Clymer for *Treasure at First Base.*

JOHN NEWBERY MEDAL.—For the year's most distinguished contribution to American literature for children, to Elizabeth Yates for *Amos Fortune: Free Man.*

PACIFIC NORTHWEST YOUNG READER'S CHOICE AWARD.—Honorary award to the author of the book most popular with children in grades four to eight, to Marguerite Henry for *King of the Wind.*

Canada.—GOVERNOR-GENERAL'S AWARDS.—Silver medals awarded to Germaine Guevremont for *The Outlander* (fiction); to Marjorie Wilkins Campbell for *The Saskatchewan* (creative nonfiction); to W. L. Morton for *The Progressive Party in Canada* (academic nonfiction); to James Wreford for *Of Time and the Lover* (poetry); to Donalda Dickie for *The Great Adventure* (juvenile).

LEACOCK MEDAL FOR HUMOUR.—To Eric Nicol for *The Roving I.*

LORNE PIERCE MEDAL.—Awarded by the Royal Society of Canada for achievement of special significance and conspicuous merit in imaginative or critical literature, to Edward Killoran Brown (posthumous).

TYRRELL MEDAL.—Awarded by the Royal Society of Canada for research in Canadian history, to Jean Bruchesi and to Donald Grant Creighton.

UNIVERSITY NATIONAL AWARD MEDAL.—Established by the University of Alberta for Canadians who have made signal contribution to letters, printing and music, to Mazo de la Roche. (R. E. Bs.)

Great Britain.—Among the awards during the year were: the JAMES TAIT BLACK MEMORIAL PRIZES (about £250 each) to Mrs. Cecil Woodham-Smith for *Florence Nightingale* (the biography prize) and to Robert Henriques for *Through the Valley* (the fiction prize); from the WILLIAM HEINEMANN FOUNDATION (up to £200) to Patrick Leigh-Fermor for *The Traveller's Tree* and to Mervyn Peake for his volume of poetry, *The Glass-blowers* and for his novel *Gormenghast;* the CARNEGIE MEDAL (awarded by the Library association for an outstanding book for children) to Elfrida Vipont for *The Lark on the Wing;* the ROSE MARY CRAWSHAY PRIZE (£100, for a critical or historical work on English literature by a woman) to Rosemary Freeman for *English Emblem Books;* the JOHN LLEWELLYN RHYS MEMORIAL PRIZE to Elizabeth Jane Howard for her novel, *The Beautiful Visit;* the SOMERSET MAUGHAM AWARD (about £250 for a British writer under 30, to be used mainly for foreign travel) to Roland Camberton (Henry Cohen) for his novel, *Scamp;* the DENYSE CLAIROUIN MEMORIAL PRIZE for the year's best translation from the French, to Alan Pryce-Jones for his translation, entitled *The Colonel's Children,* of Jules Supervielle's *Le Voleur d'Enfants.* The SUNDAY TIMES £1,000 prize for literature was awarded to Arthur Bryant for *The Age of Elegance,* and two special awards of £100 each were made to younger authors for books of outstanding merit produced during the year; Jacquetta Hawkes for *A Land,* and Patrick Leigh-Fermor for *The Traveller's Tree.* The *Observer* offered a prize of £250 for a short story, which was awarded to Muriel Spark for a story entitled *The Seraph and the Zambesi.*

The Arts council offered a prize of £500 for a long poem in connection with the Festival of Britain, but the judges decided that they could not award the prize for any single long poem. Instead, three prizes of £200 each were awarded for the following three long poems: *The Impertinent Friends* by Gerald Bromhead Walker; *The Witnesses* by Clive Sansom; and *Unprofitable Journey?* by J. P. Fletcher. In addition, awards of £100 each were made to the following for groups of short poems: Jack R. Clemo, Robert Conquest, J. C. Grant, Theodore Nicholl, L. A. Redford. (E. SE.)

France.—ACADÉMIE GONCOURT PRIZE to Julien Gracq (Louis Poirier), who rejected the award, for *Le Rivage des syrtes;* THÉOPHRASTE RENAUDOT PRIZE to Robert Margerit for *Le Dieu nu;* FÉMINA PRIZE to Anne de Tourville for *Jabadao;* ACADÉMIE FRANÇAISE PRIZE (novel) to Bernard Barbey for *Chevaux abandonnés sur le champ de bataille;* INTERALLIÉ PRIZE to Jacques Perret for *Bande à part;* CRITIQUES PRIZE (essay) to Pierre de Boisdeffre for *Métamorphose de la littérature,* (novelettes) to André Pierre de Mandiargues for *Soleil des loups;* SAINTE-BEUVE PRIZE (novel) to Yassu Gauclère for *La Clé,* (essay) to Jean Fretet for *La Folie parmi nous;* GENS DE LETTRES PRIZE to Maurice Toesca for *Le Scandale;* SOCIÉTÉ DES AUTEURS to Odette Joyeux for *Le Château du carrefour.* Alain (Emile Chartier), Paul Gilson, Julian Green, René Laporte, Henri Martineau and Vincent Muselli received, respectively, the GRAND PRIX NATIONAL DES LETTRES, GUILLAUME APPOLINAIRE, MONACO, AMBASSADORS, ACADÉMIE FRANÇAISE (Grand Prix des Lettres) and CRITIQUES awards, for the sum of their works. (M. JOL.)

JACKET DESIGN for *The Egg Tree*, by Katherine Milhous, winner of the Caldecott award in 1951 for the most distinguished American picture book for children published during the previous year

Literature: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LATIN-AMERICAN LITERATURE; LITERARY PRIZES; NOBEL PRIZES; PULITZER PRIZES; RUSSIAN LITERATURE; SPANISH LITERATURE.

Lithuania. From Feb. 16, 1918, to Aug. 3, 1940, when it was annexed by the U.S.S.R., Lithuania, one of the Baltic states of northeastern Europe, was an independent republic. Area (including Klaipeda or Memel and Vilnius or Wilno territories): 25,173 sq.mi. Pop.: (Oct. 1939 est., including Vilnius but excluding Klaipeda) 2,970,000; (1950 est., including Klaipeda) 3,000,000, but according to reliable estimates the purely Lithuanian population declined from 2,084,000 (66%) to 1,645,000 (55%) between 1940 and 1950. Chief towns (pop., 1938 census): Vilnius (cap., Oct. 1939 est., 207,800), Kaunas (152,365), Klaipeda (47,189), Siauliai (31,299). Languages: Lithuanian and Russian. Religion: Roman Catholic and Greek Orthodox. Chairman of the presidium of the supreme soviet of the Lithuanian S.S.R. in 1951, Justas I. Paleckis; chairman of the council of ministers, Mečislovas A. Gedvilas.

History.—A new supreme soviet was elected on Feb. 18, 1951, among newly returned members being Lieut. Gen. V. R. Vashkevich and Maj. Gen. P. A. Lapkin, respectively chief of staff and chief of the political section of the Baltic military area of which the headquarters were at Riga (*see* also LATVIA). There were 91,530 more voters than in 1947, when the electorate amounted to 1,509,365; but whereas in that year 1.95% of votes were said to have been cast against the official candidates, in 1951 the "opposition" was reduced to 0.09%.

Addressing the soviet of nationalities in Moscow on March 10, 1951, K. F. Liaudis said that more than 90% of peasant farms had been collectivized. No figures were published concerning the merger of smaller collective farms (*kolkhozy*), of which there were 6,549 in July 1950, but their number was thought to have been reduced by two-thirds. In their report to Joseph Stalin on Oct. 7 on the amalgamation, it was admitted by A. Sniečkus, first secretary of the central committee of the Lithuanian Communist party, M. Gedvilas, the premier, A. Andreyev, minister of agricultural stocks, V. Augustinaitis, minister of agriculture, and D. Mamayev, minister of state farms (*sovkhozy*), that there had been serious shortcomings in the work of improving the operation of new *kolkhozy* and of expanding agricultural production.

Great discrepancy between controlled and so-called free prices was caused by low agricultural production. State collecting centres were paying 4.50 roubles per 100 kg. of rye and for wheat 0.6 roubles per 100 kg., while on the free market the respective prices were 160 roubles and 120 roubles. The official price of butter was 1.30 roubles per kilogram compared with 25 roubles on the free market.

Information obtained from Lithuania during 1951 revealed that the Roman Catholic Church was no longer represented in the country by archbishop or bishop, and the 1940 hierarchy of 12 was now dispersed by exile in western Europe, forced labour in soviet camps and death, while only 400 remained of the 1,646 clergy there had been in 1940. The two theological faculties and four seminaries were closed, as were also the majority of churches, including Kaunas cathedral. None of the 52 religious periodicals with a combined circulation of 7,030,200 was permitted to appear, and no religious organization existed.

On Feb. 16, 1951, Lithuanian Independence day, the Voice of America started daily transmissions in Lithuanian, the broadcasts being inaugurated by Edward W. Barrett, assistant secretary of state, who pointed out that U.S. concern for the position of the Lithuanian people was not new. He read the statement of the U.S. government of July 23, 1940, protesting against the annihilation of the three Baltic republics by the Soviet Union, and added that the United States continued to adhere to the fundamental principles expressed at that time. The first program also included speeches by Stasys Lozoraitis, chief of the Lithuanian diplomatic corps abroad, and Mgr. M. Krupavicius, president of the Supreme Lithuanian Committee of Liberation. (*See* also ESTONIA.)

Education.—According to an article by J. Paleckis published in *Izvestia* on Feb. 7, 1951, there were 459,000 pupils in primary schools, the number of pupils in secondary schools had increased fivefold and there were three times as many students in 12 institutions of higher education as in 1939.

Finance.—Budget (1951 est.): revenue 1,530,500,000 roubles; expenditure 1,462,000,000 roubles. (K. SM.)

Liver Disorders: *see* STOMACH AND INTESTINES, DISEASES OF.

Livestock. Hogs and cattle on U.S. farms continued to increase rapidly in numbers in 1951, though there were initial signs that the less abundant corn crop of 1951 would turn hog numbers down in 1952 after five years of expansion. Sheep numbers began to increase after an eight-year-long decline to record low levels. Chickens and turkeys were slightly less numerous, and horses and mules continued their trend toward extinction.

Cattle increased by more than 4,000,000 head between Jan. 1, 1950, and Jan. 1, 1951. The 84,179,000 head had a farm value of $160 per head, or a total value of $13,441,384,000, as compared with $123 a year before and a total value of $9,847,676,000. A fundamental question facing the livestock and meat industries was that of when herd build-up or inventory accumulation of beef animals would cease, releasing new production and some of the accumulation to the market. After some hesitation, because the record cost for feeder cattle during much of 1951 was so uncommonly close to the price of finished cattle, making the business a high-risk one, corn belt farmers did put record numbers of cattle into their feed lots for finishing. During part of the year the movement of slaughter cattle to market apparently was somewhat disorganized by restrictions, existing and anticipated, resulting from ceiling prices on beef at wholesale and retail and maximum drove cost. Rollbacks anticipated for Aug. 1 and Oct. 1 were cancelled when amendments to the Defense Production act became law. Record high prices were set for lambs and prime steers during the year, but late in the year even the better grades of beef cattle dropped moderately below ceiling price levels.

The spring pig crop of 1951 was 61,957,000 head, as compared with 55,407,000 head average for 1940–49. The fall pig crop was 40,182,000 head, only 2% larger than in 1950 and comparable with 35,400,000 head average for 1940–49. Thus the pig crop of 1951 totalled 102,139,000 head, or 5% more than in 1950 and substantially above the 1940–49 average of 90,807,000 head. Indications were that sows farrowing in the spring of 1952 would be only 8,794,000 head, 8% less than the 9,581,000 sows farrowed in the spring of 1951; this indicated a probable spring pig crop 9% smaller than the previous one.

Table I.—*Livestock on U.S. Farms*

(In 000 head)

	Jan. 1, 1951	Jan. 1, 1950	Average 1940-49
Horses	4,763	5,274	8,581
Mules	1,990	2,149	3,268
Cattle (including calves)	84,179	80,052	78,826
Milk cows	24,579	24,573	26,157
Sheep	31,505	30,743	46,143
Hogs	65,028	60,502	62,346
Chickens	466,686	480,834	489,368
Turkeys	5,975	5,986	6,961

Table II.—*Number of Livestock in Specified Areas*

(in 000 head at beginning of year)

Areas	Cattle		Hogs		Sheep	
	1951	1950	1951	1950	1951	1950
North America	118,300	113,800	81,000	76,600	39,000	38,200
Europe	101,700	99,500	71,200	66,700	118,100	113,600
U.S.S.R.	57,200	56,000	24,100	19,000	86,000	78,000
Asia	289,100	289,000	79,900	78,600	147,800	146,300
South America	129,500	128,900	35,000	34,200	124,300	120,000
Africa	90,300	84,000	4,200	3,800	93,700	91,000
Oceania	20,200	19,700	1,800	1,800	152,800	146,800
Estimated world total	806,300	790,900	297,200	280,700	761,700	733,900

U.S. sheep numbers on Jan. 1 were about 4% above the record low of the previous year and more ewe lambs were held back for replacement or expansion, indicating probably further gain in spite of the fact that more sheep and lambs were being fattened for market in Nov. 1951 than a year previously.

Partly as a result of an abundant supply of feed grains, Canadian cattle numbers again increased after six years of decline. Slaughter of most kinds of livestock declined. Live cattle exports to the U.S. declined and restrictions on export of live hogs from Canada to the U.S. were removed.

World cattle numbers in 1951 were preliminarily estimated at 806,300,000 head, a record, about 2% higher than in 1950 and 8% above the prewar average. Leading countries were India (180,200,000), the U.S. (84,179,000), the U.S.S.R. (57,200,000), Brazil (46,400,000) and Argentina (43,000,000). Several western European countries experienced serious outbreaks of hoof-and-mouth disease during the year.

World hog numbers of Jan. 1, 1951, hence not including many farrowed and marketed during the year, were estimated at 297,200,000 head, a record total, 6% more than a year earlier and 2% more than prewar.

Herdsmen in many parts of the world, encouraged by favourable prices for wool and mutton and good grazing, increased their sheep flocks to a total of 761,700,000 head, 4% more than in 1950 and 2% more than prewar.

World horse numbers declined slightly in 1951 to 74,900,000, as compared with 75,000,000 in 1950 and 95,800,000 prewar. (*See* also Agriculture; Meat.) (J. K. R.)

Livestock Shows: *see* Shows.
Local Government: *see* Municipal Government.

London.

London in 1951 was dominated by the Festival of Britain. The South Bank exhibition and the Battersea pleasure gardens formed the centre of a decorative and festive effort spreading all over London from May to October. The South Bank exhibition closed on Sept. 30 and the pleasure gardens on Oct. 20. It was proposed to reopen the pleasure gardens in summer for a maximum of five years. In July the queen laid the foundation stone of a national theatre which would eventually be built between the Royal Festival hall and Waterloo bridge. (*See* Fairs and Exhibitions.)

Many places of importance which had remained closed or had been closed for other purposes resulting from the war were restored or reopened during the year. In May the house of lords resumed the use of its own chamber which had been lent to the commons from the later years of World War II until the completion of the new chamber in 1950. The chapter house at Westminster abbey was reopened with new commemorative windows to replace those (1881) destroyed in the war. The Rubens ceiling paintings were replaced in the banqueting hall in Whitehall. The London museum reopened in its new, somewhat restricted quarters at Kensington palace. The assembly hall at Church house, wrecked in 1941, was reopened by Queen Mary in June. The decorations of the Soane museum were restored in their original style (1812), and Gray's Inn hall, reconstructed after damages received in 1941, was reopened in December.

In housing in the County of London, an outstanding development was the Lansbury estate in Poplar on a bombed site of about 30 ac., where the London County council, in conjunction with the Poplar Borough council, was creating a complete civic unit. A large part of the construction was already finished and in occupation. A U.S. gift to the east end of London was Winant house, a block of 12 well-designed flats in Poplar High street, erected as a memorial to Gilbert John Winant, U.S. ambassador to London during World War II. With about 200,000 families still on the waiting list for homes, more than 60,000 of them urgent cases, the L.C.C. estimated an expenditure of £20,500,000 for capital outlay on housing in 1951–52.

DRAGGING SERPENTINE LAKE in Hyde Park, London, Eng., as police searched for the Stone of Scone stolen from beneath the coronation chair in Westminster abbey. The Stone, taken by Scottish nationalists, was returned in April 1951

In October, the conversion of London tram routes (street car routes) to trolley-bus routes reached the halfway mark with the withdrawal of 56 mi. of tram routes affecting about 100,000 travellers in south London.

London was visited in May and June successively by King Frederick and Queen Astrid of Denmark and by King Haakon of Norway, the arrival of the latter being marked by one of the noblest pieces of river pagentry of recent times, when the Norwegian royal yacht "Norge" sailed up the Thames to the Pool of London. But the royal occasion which most delighted Londoners was the drive of the duke and duchess of Edinburgh on their return from their tour in Canada and visit to the United States, when they proceeded from Buckingham palace to Westminster, where they lunched at the Guildhall with the lord mayor. In April the venerable Stone of Scone, which was stolen on Christmas eve, 1950, was returned in custody of the police to Westminster abbey, having been found in the ruins of Arbroath abbey. (D. Nn.)

Lopes, Francisco Higino Craveiro

(1894–). Portuguese president, was born at Lisbon, Port., on April 12, the son of Gen. João Carlos Craveiro Lopes. He joined a regiment of horse on July 23, 1911, attended the cavalry course of the army school and was appointed ensign in 1915. He took part in the Mozambique campaign against the Germans, then attended a military aviation school at Chartres, Fr., and in 1918 joined the Portuguese army air force on the western front; he served in the army air force until 1929. In that year he became aide-de-camp to his father, then governor general of Portuguese India. Returning to Portugal after nine years he was appointed commander of an air base. In 1941, as a colonel, he became commander of the air force. Two years later he attended the high-command course at Caxias and in 1944 was appointed commander of the Portuguese legion (a voluntary force formed in 1936, during the Spanish civil war) and professor at the high-command course. In Jan. 1951, as a general, he was appointed commander of the 3rd military region at Tomar and withdrew from the command of the Portuguese legion. In 1945 and 1949 he was elected deputy to the national assembly. On July 22 he was the only candidate to the presidency and polled 896,379 votes out of a total of 1,334,000 electors.

Lords, House of: *see* PARLIAMENT, BRITISH.

Los Angeles. Los Angeles, the fourth largest city in the United States with a population of 1,970,358 by the 1950 census, continued to have an average monthly population influx of 11,000 people during 1951. Of these newcomers, an estimated 6,000 monthly were job seekers. Los Angeles is the largest city in the United States in area with 453.47 sq.mi. The 1950 census gave Los Angeles county a population of 4,151,687. County population was up 49%, and that of the city up 31% over 1940.

With more than $300,000,000 invested in new plants and expansion of existing facilities, Los Angeles county industry in 1951 more than doubled the previous yearly record of 1943, and trebled the year-end investment totals of 1950. More than 36,000 new job opportunities were created by the year's industrial activity.

Construction slacked off somewhat during the year because of government restrictions and mobilization allocations of material. Commercial and residential construction was down 19% from 1950's record but stayed ahead of average years. Permits were issued in 1951 for enough dwelling units to house nearly 200.000 persons.

Despite continuing inroads of industrial and residential subdivisions on farmlands, agriculture in Los Angeles county continued to be a potent factor in the area's economy. In 1950 the county had agriculture production valuations of $206,883,600.

Substantial parts of the Hollywood freeway (downtown Los Angeles to North Hollywood), Santa Ana freeway (downtown to Santa Ana) and Ramona freeway (downtown to Orange county) were made operative. Los Angeles television receivers went above the 1,000,000-set mark, placing the area second only to New York city.

A public-school scandal precipitated an almost complete turnover of school board members. Los Angeles public housing became the centre of a heated controversy with the city council after weeks of debate voting 8–7 to abrogate its contract with the federally subsidized city housing authority for 10,000 housing units estimated to cost $110,000,000. Mayor Fletcher Bowron opposed the council on this matter, whereupon the council voted to bring the entire housing program issue to a vote of the electorate in June 1952. Meanwhile the city housing authority filed suit against the city and specifically its councilmen in the California supreme court. (T. C. D.)

Louisiana. One of the west south central states of the United States, admitted to the union in 1812 as the 18th state, Louisiana is popularly known as the "Pelican state," "Creole state" or "Bayou state." Area 48,523 sq.mi., of which 45,162 sq.mi. are land. Pop.: (1950 census) 2,683,516, of which 1,796,548 or 67% were white and 886,968 or 33% nonwhite; 1,471,696 or 54.8% urban and 1,211,820 or 45.2% rural. Capital, Baton Rouge (125,629). Other important cities: New Orleans (570,445), Shreveport (127,206), Lake Charles (41,272), Monroe (38,572), Alexandria (34,913), Lafayette (33,541).

History.—The legislature did not meet in regular session during 1951, but a special session was called to enact some emergency legislation, June 18–29. A surplus of about $17,000,000 had accumulated in the state treasury, and the chief work of this special session was the appropriation of this surplus to certain state departments, agencies and institutions. A total of $16,150,600 was appropriated; the most important appropriations were: $14,000,000 to the highway department to repair an estimated $10,000,000 damage caused by the severe winter of 1950–51 and to meet the rising cost of maintenance and construction; $1,204,000 to charity and mental hospitals to cover increased cost of operation; $420,000 to finance the state civil defense program; $250,000 to construct a new home for the school for spastic children; $150,000 to aid certain parishes; and $61,000 to reimburse farmers for losses caused by enforced nonplanting of cotton in 1951 to eradicate the pink bollworm. The only other important measure was a provision for more severe penalties for violation of the narcotics laws.

The most important political event of the year was the state Democratic primary campaign, with eight candidates seeking the nomination for governor. Three interesting points of the campaign were: the entry of a Negro candidate for governor, for the first time since Reconstruction days; the appearance of a woman in the gubernatorial race for the first time in Louisiana; and the split in the "Long" ranks, with Gov. Earl K. Long supporting one candidate and his nephew, United States Senator Russell B. Long, supporting another. The main issues in the campaign were: the restoration of a state civil service system, which had been established in 1942 by the anti-Long regime and abandoned in 1948 by the Earl K. Long administration; high taxes and economy and efficiency in state administration; continuation of the expensive social security program; reform of the state penitentiary, at which a scandal had developed earlier in the year; and state rights versus Trumanism. The state Democratic primary election was scheduled for Jan. 15, 1952.

State officers in 1951 were: Earl K. Long, governor; William J. Dodd, lieutenant governor; Wade O. Martin, Jr., secretary of state; A. P. Tugwell, treasurer; L. B. Baynard, auditor; Bolivar E. Kemp, Jr., attorney general; Shelby M. Jackson, superintendent of education; Lucile May Grace, register of land office; W. E. Anderson, commissioner of agriculture and immigration.

Education.—In 1951 the 797 public schools for whites enrolled 236,249 elementary and 72,862 high school pupils and employed 11,984 teachers; the 1,151 public schools for Negroes enrolled 168,388 elementary and 25,173 high school pupils and employed 5,577 teachers. The 173 private schools for whites enrolled 48,371 elementary and 10,824 high school pupils and employed 1,847 teachers; the 93 private schools for Negroes enrolled 18,448 elementary and 1,986 high school pupils and employed 493 teachers. The state maintained 14 public trade schools, and 11 new ones established by the 1950 legislature were under construction. Total state expenditures for public education for the fiscal year 1950–51 were $98,316,490, of which $17,498,229 were for institutions of higher learning; federal grants-in-aid for education were $6,943,776 for the 1950–51 fiscal year.

Social Insurance and Assistance, Public Welfare and Related Programs.—Total benefit payments under the Louisiana unemployment compensation law were only $13,650,000 in 1951, as compared with $21,000,000 in 1950, the decrease resulting from a higher level of employment, despite the increase in numbers covered by insurance.

Louisiana expended less than $92,000,000 on public welfare in 1951, compared with $100,000,000 in 1950, the decrease being attributed to stricter requirements for aid in some categories.

In 1951 the state maintained eight charity hospitals, in addition to rental of beds in several private hospitals; three hospitals for mental patients; three tuberculosis sanitariums; a school for white deaf, a school for white blind and a school for Negro deaf and blind; a training school for spastic children; a training school for the feeble-minded.

The state maintained two prison farms for its 2,500 adult offenders, separate training institutes for about 200 delinquent white boys and girls and a training institute for about 100 delinquent Negro boys. The training in-

Table I.—*Louisiana Public Welfare Programs, 1951*

Type of assistance	Average number on rolls	Cost for year
Old-age pensions	118,657	$66,547,614
Needy blind	2,445	990,597
Dependent children	92,895	15,222,693
Disability assistance	17,796	5,973,005
General assistance	6,820	2,220,271
Foster children	1,312	722,648
Totals	239,925	$91,676,828

Table II.—*Principal Crops of Louisiana*

Crop	1951	1950	Average 1940-49
Cotton (bales)	765,000	426,000	527,000
Cottonseed (tons)	309,000	169,000	215,000
Corn (bu.)	16,307,000	17,514,000	18,747,000
Rice (bu.)	11,324,000	10,882,000	10,000,000
Sugar cane (tons)	4,373,000	5,741,000	5,008,000
Sweet potatoes (bu.)	6,400,000	10,914,000	8,763,000
Irish potatoes (bu.)	744,000	882,000	2,346,000
Oats (bu.)	1,204,000	1,032,000	3,224,000
Hay (tons).	342,000	394,000	409,000
Pecans (lb.)	13,000,000	9,100,000	10,578,000
Peaches (bu.)	230,000	189,000	296,000
Pears (bu.)	124,000	182,000	209,000
Citrus fruits (boxes)	50,000	300,000	—
Truck crops (value)	$ 8,775,000	$11,259,000	—

Source: U.S. Department of Agriculture.

stitute for delinquent Negro girls authorized by the 1950 legislature was under construction.

State expenditures for maintenance, expansion and improvement of charitable and correctional institutions were about $22,000,000 for the 1950–51 fiscal year, $19,585,107 of which was expended on the charity hospitals and mental institutions.

Communications.—In 1951 Louisiana had 18,200 mi. of public highways, 14,800 mi. of which were state-maintained, 4,800 mi. paved with concrete or black top and the remainder gravelled. Total state expenditures for highway maintenance and new construction for the 1950–51 fiscal year were $58,194,215, divided as follows: new construction, $36,960,363; maintenance, $12,098,242; new equipment, $3,114,431; state aid to parishes, $2,125,542.

There were 4,400 mi. of railways and 4,800 mi. of navigable waterways. About 100 land airports and 10 seaplane bases were in operation in 1951. Nearly 540,000 telephones were in service at the end of the year.

Banking and Finance.—Louisiana had 36 national banks on July 1, 1951, with total deposits of $1,200,000,000 and resources of $1,279,000,000; and 130 state banks, with total deposits of $534,000,000 and resources of $573,000,000. There were 62 savings and loan associations, with total assets of $220,000,000. Total state income for the 1950–51 fiscal year, including $77,070,282 in federal grants-in-aid, was $361,770,538; expenditures for the same period were $336,417,406. The state bonded debt on July 1, 1951, was $218,557,000.

Agriculture.—The total value of agricultural and truck crops in 1951 was about $309,000,000, compared with $270,000,000 in 1950; total acreage harvested was 3,300,000, compared with 3,100,000 in 1950. The total cash income from crops, livestock and poultry and their products was about $445,000,000 in 1951, compared with $400,000,000 in 1950; from government payments $10,000,000, compared with $10,300,000 in 1950.

Manufacturing.—More than 2,400 industrial establishments, employing 160,000 workers and paying $350,000,000 in wages and salaries, produced finished products worth $1,500,000,000 in 1951, compared with $1,300,000,000 in 1950. During the year about $200,000,000 of capital investments in new plants and expansions of existing ones was made, under the state law exempting new industrial plants from taxation for ten years.

Forest Products, Furs, Fisheries.—Louisiana forests produced $1,160,940,914 bd.ft. of lumber and 941,754 cords of pulpwood in the 1950–51 fiscal year, compared with 961,962,000 bd.ft. and 941,151 cords in 1949–50 fiscal year.

The Louisiana fur harvest for the 1950-51 season was valued at $5,957,248, compared with $2,956,478 for the 1949–50 season.

The total catch of Louisiana commercial fisheries—fish, oysters, shrimp, crabs and frogs—was valued at $30,000,000 in 1951, compared with $28,000,000 in 1950. It provided employment for about 30,000 men, and approximately 115,000 persons were dependent on the industry for a livelihood. (W. Pr.)

Mineral Production.—Table III shows the tonnage and value of those minerals produced in the state in 1949 whose values exceeded $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Louisiana ranks fifth among the states in value of mineral production, second in natural gas and sulphur and third in petroleum.

Table III.—*Mineral Production of Louisiana*

(Short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays.	209,433	$ 184,890	134,366	$ 106,841
Natural gas (000,000 cu.ft.)	1,050,000,000	48,300,000	732,845,000	32,025,000
Natural gasoline (gal.)	610,416,000	44,214,000	585,323,000	45,259,000
Petroleum (bbl.) . .	209,116,000	554,920,000	190,826,000	507,730,000
Petroleum gases (gal.)	250,447,000	8,140,000	223,356,000	9,573,000
Salt	2,278,811	6,902,502	2,030,076	5,837,714
Sand and gravel . .	5,505,362	6,310,425	5,050,148	6,107,311
Sulphur	1,406,723	23,700,000	1,244,449	20,000,000
Other minerals . . .		?		5,173,868
Total		?		$631,812,734

Films of 1951.—*New Orleans, The Gay City* (Cornell Film Co.).

Lovett, Robert Abercrombie

(1895–), U.S. government official, was born on Sept. 14 in Huntsville, Tex. He studied at Yale and at Harvard, served in the naval air arm during World War I and afterward became a partner in the banking firm of Brown Brothers, Harriman & Co. He was appointed special assistant to the secretary of war in Dec. 1940, and assistant secretary of war for air in April 1941. He returned to private business in 1945, but in May 1947 was appointed undersecretary of state to help implement U.S. policies of frustrating soviet interference with European recovery. During absences of State Secretary George C. Marshall in 1947 and 1948, he was acting secretary of state, and as such helped further co-ordination of western Europe's political and economic activities. His resignation from the department was accepted along with Marshall's on Jan. 7, 1949. On Sept. 28, 1950, however, he was appointed deputy secretary of defense.

Lovett was one of the first to take a firm stand against Gen. Douglas MacArthur in 1951, declaring that the general was serving under adequate military directives and that political issues were "beyond his responsibility as a field commander." Upon the resignation of Marshall as defense secretary, Lovett was elevated to that position, being unanimously confirmed in that post by the senate on Sept. 14 and sworn in on Sept. 17.

Lumber.

Lumber production in the United States continued at a relatively high level during the year 1951, about the same as for 1950. Douglas fir had displaced southern pine as the leading species. Southern pine was second in importance, followed by ponderosa pine. The two first-named species comprised about 54% of the total lumber production of the United States, and the three leading species comprised about 65% of the total production. The fourth most important species was oak, which continued to be produced at an annual rate of about 4,500,000,000 bd.ft.

In addition to the above species, the leading softwoods produced were hemlock, eastern white pine, spruce, redwood, sugar pine, cypress, white and noble firs, western larch and lodgepole pine. Among the hardwoods, in addition to oak, the leading species were yellow poplar, red gum and maple. Other fairly important hardwoods were tupelo or black gum, cottonwood and aspen, beech, birch, elm and ash, while less important in volume were basswood, hickory, cherry, black walnut, sycamore, alder, locust and pecan. In lumber values, walnut, cherry, birch, hard maple and oak commanded the highest prices.

Oregon remained the leading lumber-producing state, while California supplanted Washington as the second largest producer. The other important lumber-producing states in order of national importance were North Carolina, Georgia, Alabama, Florida, Mississippi and Texas. Other important states in the south were Arkansas, South Carolina and Virginia. Idaho, Pennsylvania and West Virginia continued as fairly important lumber contributors, and New York state produced more than 300,000,000 bd.ft. in 1951.

The strong demand for lumber for war purposes, particularly for shipping containers, as well as for barracks, docks, wharves, ships and other construction operations, and the demand for new housing, kept lumber prices high. Imports and exports of lumber also continued to be large. There was an increasing interest in foreign woods, particularly Obeche, Corina, Okume and Paraná pine, which was shipped from Brazil to the eastern seaboard. These relatively new species were of interest to furniture and cabinet manufacturers. Importations of mahogany from Africa, Central America and the Philippines also remained large.

Prices for the better grades of lumber continued to be exceedingly high. However, they were in general somewhat below the all-time peak levels that prevailed in 1950. The demand for, and therefore the prices of, flooring, doors, veneers and plywood and finishing forms of lumber continued to be strong until the summer of 1951. Thereafter, the demand slackened for hardwoods for furniture and radio and television cabinets, but continued very strong for construction lumber for housing and war operations.

The large number of small sawmills, cutting around 10,000 bd.ft. per day, came more prominently into lumber production. In fact, total production from the small mills exceeded that from the big mills which each cut from 50,000 to 1,000,000 bd.ft. per day. There were estimated to be about 60,000 small sawmills operating in the United States during 1951.

Stumpage prices continued high. For prime white oak, from $50 to $80 or more per 1,000 bd.ft. was paid, especially for cooperage stock in Arkansas. Douglas fir commanded prices of $20 to $30 or more, with peeler logs in demand for veneer bringing $50 to $60 per 1,000 bd.ft. Southern pine stumpage prices reached $20 to $30 or more per 1,000 bd.ft., and white pine in New England and the middle Atlantic states was also sold for $20 to $30 per 1,000 bd.ft., particularly in the better stands. Ash, black cherry, basswood and hard maple sold for $25 to $40 per 1,000 bd.ft. The lower-valued hardwoods, such as elm, beech and tupelo gum, sold for $5 to $20 per 1,000 bd.ft., depending upon location, size, quality and particularly on grade outturn.

The year was notable for the development of the tree farm program sponsored by the American Forest Products Industries of Washington, D.C. Tree farms are areas of privately owned land dedicated to the continuous growth of forest crops for commercial purposes. In 1951, 24,000,000 ac. in 29 states were devoted to tree farms. The leading states in this movement were Texas, Arkansas, Washington and Oregon. (N. C. B.)

British Commonwealth and Europe.—Rearmament dominated the timber trade of Great Britain, the commonwealth and Europe during 1951. Not only did the free-on-board value of wood rise in practically every species, but there was also a continued rise in freight rates. From April onward, the British government permitted private traders to import softwoods from Sweden, Finland, France and a number of other countries outside the dollar area. This greatly influenced the Baltic markets.

Prices in Great Britain rose steadily, and by midsummer the price of good unsorted Swedish deals had risen to £88 per standard, f.o.b. This buying was pursued on such a scale that, aided by large government purchases of softwoods from Canada and the United States, it was estimated that the total stock of softwoods in the United Kingdom at the close of 1951 would be in the neighbourhood of 750,000 standards, compared with approximately 250,000 standards at the end of 1950. In the autumn this heavy initial buying by private importers in Great Britain had run its course and there was some easing in shippers' quotations and in freight rates. The outlook for the new buying season of 1951–52 was most uncertain because, during the autumn, an increased dollar stringency and a fall in the balance of payments compelled Great Britain to curtail its prospective purchases of softwoods in the dollar area. During 1951 the British government also signed a contract with the U.S.S.R. for 100,000 standards of softwoods. Imports of Yugoslavian softwoods amounted to about 70,000 standards. In the early part of 1951 the British government made extensive contracts in Canada for British Columbian pine, western hemlock and spruce from the eastern provinces. Deliveries in all were said to have amounted to about 300,000 standards for the year.

The French timber trade in softwoods was much hampered by the refusal of the French government to grant export licences on the scale which it had previously done; this restricted the export of oak, beech and poplar. The export of hardwoods, both in the form of logs and lumber, from the west coast of Africa on an increasing scale was a feature of the year. The actual shipment of this material was, however, restricted temporarily because of a shortage of freighters, and a considerable tonnage piled up in the ports and on the seaboard. By autumn, however, a large increase in the number of ships plying to the west coast of Africa occurred and a far greater weight of timber was moved. Much of this went to the U.K., and the fact that some of the parcels had been overlying through lack of ships for some months, as well as the fact that the demand in the U.K. for furniture had eased, led to a break in prices. U.S. buyers of mahogany and other choice woods, who had been active in the west coast of Africa since World War II, restricted their activities somewhat during the summer, but it was noticed that toward the end of the year they resumed their buying. It was thought that the action of these U.S. buyers would stiffen the market.

Shipments of hardwood timbers from Yugoslavia consisting of oak, beech and ash were well maintained. The United Kingdom was the principal buyer, but parcels also went to Belgium, the Netherlands and France. Prices showed an increase of 33⅓%—50% over 1950 levels. During the year, Austria kept up its timber production and sold both softwoods and hardwoods. Czechoslovakia and Rumania both exported small quantities. Poland, however, which used to be a large exporter of timber before World War II, was disappointing.

The production of hardwoods in a number of South American countries such as Brazil, Chile, Ecuador and Colombia was well maintained, but their exports diminished considerably because of a rise in the internal consumption and currency difficulties. A feature of the hardwood market was the arrival in the U.K., after an absence of many years, of shipments of excellent Japanese lumber, both oak and beech. It was expected that plywood imports into the U.K. for 1951 would amount to about 200,000 tons. The year 1951 also saw an increase in the number of shipments of plywood from newly established factories in such tropical countries as Nigeria, the Gold Coast, French Equatorial Africa and the Belgian Congo. (*See* also FORESTS.) (B. L.)

Lutherans.

In 1951, 50 member churches in 24 countries were preparing for the Lutheran World federation assembly to be held in Hannover, Ger., in the summer of 1952. Anders Nygren was president of the Lutheran World federation. The permanent office of the federation is in Geneva, Switz.

Of the more than 60,000,000 Lutherans in the world during 1951, 1 out of 10 was a refugee. Service of physical relief and spiritual ministry to these refugees, mainly in central Europe, the middle east and Asia, continued to be a major part of the work of the Lutheran World federation. More than 90,000 had been re-settled, mostly in the United States, Canada, Australia and Great Britain.

From the United States alone there was raised in Lutheran World Action since 1939 a sum of more than $47,000,000. In addition, $19,000,000 worth of food and clothing was sent in the program known as Lutheran World Relief, in part to Korea. The Lutheran churches of Finland, Norway, Sweden and Denmark also participated in this program.

Lutheran churches over the world were co-operating in Latin American missions in a program that was launched at a conference in Brazil in Sept. 1951. Younger Lutheran churches in Africa, Indonesia, India, Palestine and New Guinea were supported both by money and manpower from older Lutheran churches.

Fifty Lutheran One-Day Seminars in 1951 drew Lutheran groups together in the United States. Speakers drawn from all bodies spoke on the general subject "A United Lutheran Front in American Life."

Plans were completed for a first-rank full-length feature film on the life of Martin Luther.

Newly elected presidents were Oscar A. Benson of Augustana Lutheran Church, Hans C. Jersild of United Evangelical Church and John E. Wargelin of the Suomi Synod. Bishop Ilmari Johannes Salomies was the new primate of the Church of Finland.

Lutheran membership in the United States exceeded 6,000,000 for the first time. The annual survey of the National Lutheran council's division of public relations revealed 6,301,948 Lutherans in 16 bodies in the United States and Canada, 198,164 of these in Canada. (*See* also CHURCH MEMBERSHIP.) (Jo. Si.)

Luxembourg.

An independent grand duchy in western Europe, Luxembourg is bounded south by France, northwest by Belgium and northeast by Germany. Area: 1,010 sq.mi. Pop.: (Dec. 31, 1947, census) 290,992; (July 1, 1950, est.) 298,600. Language: Luxembourgian (idiomatic) and (officially) French. Religion: Roman Catholic 98%. Capital, Luxembourg (pop., Aug. 1949 est., 62,000). Ruler: Grand Duchess Charlotte; prime minister in 1951: Pierre Dupong.

History.—The main feature of 1951 was the parliamentary election of June 3 after which the Christian Social party still maintained its lead (with 21 out of 52 seats) but was closely followed by the Socialists (19 seats), while the Liberals and the Communists (with 8 and 4 seats respectively) suffered losses. The Dupong cabinet resigned, but instead of the former coalition of Christian Socialists and Liberals a new government was based on the collaboration of the Christian Social and Socialist parties. Pierre Dupong remained prime minister and minister of finance and Joseph Bech minister of foreign affairs. The three Socialist ministers were Victor Bodson, Nicolas Biever and Michel Rasquin. The Communists lost the right to introduce legislation since five parliamentary representatives of a party were constitutionally required in order to present bills. The losses of the Communists were even heavier in the communal elections.

In January it was announced that the Luxembourg government had agreed to increase its armed forces from two to four battalions.

Queen Juliana paid from June 19 to 21 the first Dutch royal state visit to Luxembourg since the advent of the Nassau dynasty in 1890.

There was a strongly increased output of iron ore and a postwar record was reached with 484,000 metric tons in July. The steel plants also reached record figures (266,000 tons in August) and there was no unemployment. (*See* also BELGIUM.)

(H. R. Ml.)

Education.—Schools (1948): elementary 966, secondary 7, technical 3.

Finance.—Budget: (1950 est.) revenue 2,996,300,000 fr., expenditure 3,890,930,000 fr.; (1951 est.) revenue 3,477,700,000 fr., expenditure 3,446,200,000 fr. Monetary unit: Luxembourg franc, at par with the Belgian franc, with an exchange rate of 50.50 fr. to the U.S. dollar.

Industry.—Production (in metric tons, 1950): iron ore (metal content, 30%) 3,828,000; pig iron 2,496,000; crude steel 2,448,000; gas 17,300,000 cu.m.; electricity 697,200,000 kw.hr.

Macao: *see* PORTUGUESE COLONIAL EMPIRE.

MacArthur, Douglas

(1880–), U.S. general of the army, was born on Jan. 26 at Little Rock barracks, Ark. (For his early career, see *Encyclopædia Britannica.*) After the Japanese attack on Pearl Harbor, MacArthur led U.S. and Filipino forces in defense of the Philippines until March 17, 1942, when Pres. F. D. Roosevelt ordered him to Australia. From this point he led the combined United Nations drive that ultimately led to a successful reinvasion of the Philippines. MacArthur himself accepted the Japanese surrender in Tokyo bay on Sept. 2, 1945, and as supreme commander of the Allied powers in Japan he carried out the occupation policies determined by the 11-nation far eastern commission. When the North Koreans invaded South Korea in June 1950, MacArthur was placed in charge of the United Nations forces opposing the aggression, and by late Oct. 1950, had taken his command almost to the Manchurian border. When the Chinese Communists entered the war, MacArthur promptly informed the world that it was confronted by a new war, not a development of the earlier one.

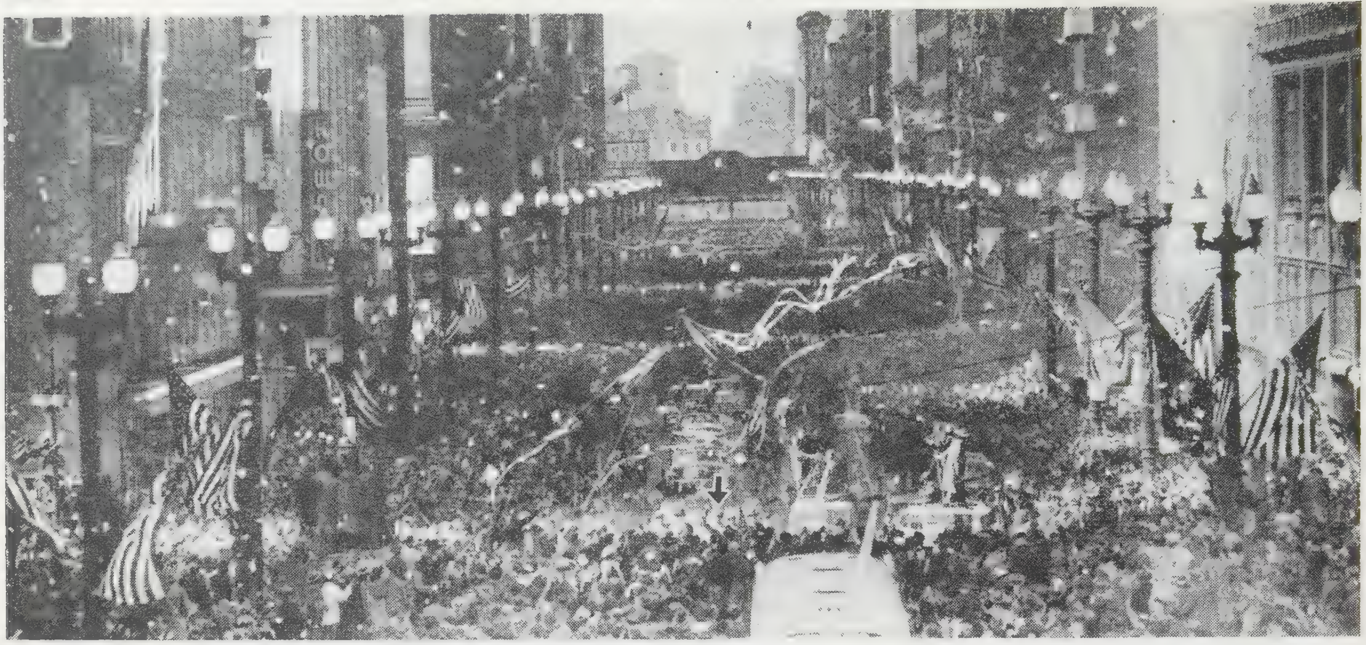
When in March 1951 General MacArthur by implication threatened to bomb and blockade red China, in calling upon the red field commanders to discuss armistice terms, the first of a series of disagreements on policy with officials in Washington, D.C., emerged. The eventual outcome was MacArthur's removal by Pres. Harry S. Truman, an action taken on April 11. In an address before a joint session of congress in Washington on April 19 MacArthur launched a "great debate" over U.S. foreign policy. His thesis was that the Korean war must be won, not stalemated; that bombing Communist air bases in Manchuria, blockading the Chinese coast, and using Chinese Nationalist forces would not necessarily bring the U.S.S.R. into the war; that Formosa was essential to U.S. defense plans in the Pacific; that Japan could be relied on to proceed with the democratic countries; and that for himself he would "just fade away, an old soldier who tried to do his duty as God gave him the light to see that duty." MacArthur was given tumultuous welcomes in San Francisco, Calif., Washington, New York city, Chicago, Ill., and other cities. (For an account of the U.S. senate investigation of the dismissal of General MacArthur and of U.S. foreign policy, *see* MACARTHUR INVESTIGATION.)

MacArthur Investigation.

Following the recall of Gen. Douglas MacArthur by Pres. Harry S. Truman on April 11, 1951, hearings to investigate the background of such action were instituted by the U.S. senate in response to a proposal of the armed services committee and the foreign relations committee acting jointly. As "An Inquiry into the Military Situation in the Far East and the Facts Surrounding the Relief of General of the Army Douglas MacArthur from His Assignments in That Area," these hearings ranged far afield and comprised more than 3,000 pages of proceedings for the period May 3–June 27.

Origin of the Controversy.—The origin of the controversy which led to this investigation is deeply embedded in the events of the years following the end of the war with Japan. In Japan the policies of the United States were represented by Gen. Douglas MacArthur as supreme commander for the Allied powers in occupation of Japan preliminary to a peace treaty. In China the policies of the United States had passed through a series of stages which had begun with the recognition of Chiang Kai-shek and support of his armies, followed by withdrawal of military aid in the years following the end of World War II. In Korea the interests of the United States had assumed those previously held by Japan in South Korea, inasmuch as the portion north of the 38th parallel by a military decision reached at Potsdam came under soviet direction. It was on this "frontier" line between U.S. and soviet influence in the far east that war had broken out in June 1950, and General MacArthur had been placed by President Truman in charge of the operations of United Nations forces resisting the aggression of the North Korean Communist forces against South Korea.

Immediate Events Leading to the Recall of MacArthur.—With the entry of the Chinese Communists in overwhelming numbers into North Korea late in 1950, General MacArthur's victorious campaign against the North Korean army was turned into a rapid though orderly withdrawal of the United Nations forces south of the 38th parallel. By Jan. 7, 1951, the Communist forces were 45 mi. S. of the parallel and the drive continued with diminished force. During the next few weeks the United Nations forces regained the initiative, but on Feb. 14 General



RECEPTION for Gen. Douglas MacArthur (indicated by arrow) in Chicago, Ill., after his return to the United States in April 1951

MacArthur, visiting the front, stated that any talk now of crossing the 38th parallel was "purely academic." Throughout the balance of February, the Communist forces were in retreat. By the end of the first week in March, General MacArthur stated that battle lines would soon "reach a point of theoretical military stalemate." He added that the United Nations could not hope to win as long as the Chinese Communists operated from "sanctuary" bases in Manchuria. The Communists continued to retreat, and on March 14 the United Nations forces re-entered Seoul.

On March 24 General MacArthur issued a statement in Tokyo offering "at any time to confer in the field with the commander in chief of the enemy forces in an earnest effort to find any military means whereby the realization of the political objectives of the United Nations in Korea, to which no nation may justly take exceptions, might be accomplished without further bloodshed." He had included in this statement an implied psychological threat that "the decision of the United Nations to depart from its tolerant effort to contain the war to the area of Korea through expansion of our military operations to his coastal areas and interior bases would doom Red China to the risk of imminent military collapse."

Before this offer of armistice in the field was issued, apparently without clearance in Washington, the government had handed to its allies in the United Nations maintaining forces in Korea a proposed statement of war aims. It was said to be the purpose of this statement to bring about a new approach to the question of a cease-fire in Korea. And it was reported late in March that in the United Nations general assembly there was vigorous debate of a proposal to discuss all far eastern problems with Communist China after an armistice in Korea. It was reported that the British expressed the wish that the United Nations forces should stop at the 38th parallel. In early April United Nations troops continued to cross the parallel and on April 5 Speaker Sam Rayburn told the U.S. house of representatives, "We are in greater danger of an expanded war today than at any time since 1945 and maybe the beginning of World War III."

On the same day, Minority Leader of the House, Joseph W. Martin of Massachusetts, introduced into a speech lashing the administration a letter addressed to him from General MacArthur, saying: "It seems strangely difficult for some to realize that here in Asia is where the Communist conspirators have elected to make their play for global conquest, and that we have joined the issue thus raised on the battlefield; that here we fight Europe's war with arms while the diplomats there still fight it with words; that if we lose the war to communism in Asia the fall of Europe is inevitable; win it and Europe most probably would avoid war and yet preserve freedom. . . . We must win. There is no substitute for victory." Representative Martin's proposal that the Chinese Nationalist forces on Formosa be utilized against the Chinese Communists on the mainland of China, MacArthur had said in his letter, "is in conflict with neither logic nor this tradition," and this appeared in the press as a sharp digression from U.S. policy.

Rumours of disciplinary action against General MacArthur for publicly disputing administration policies abroad began to circulate, and on April 11 President Truman issued an order directed to General MacArthur stating: "I deeply regret that it becomes my duty as President and Commander in Chief of the United States military forces to replace you as Supreme Commander, Allied Powers; Commander in Chief, United Nations Command; Commander in Chief, Far East; and Commanding General, United States Army, Far East," and accompanied this with a statement to the public: "With deep regret I have concluded that General of the Army Douglas MacArthur is unable to give his wholehearted support to the policies of the United States Government and of the United Nations in matters pertaining to his official duties. . . . Full and vigorous debate on matters of national policy is a vital element in the constitutional system of our free democracy. It is fundamental, however, that military commanders must be governed by the policies and directives issued to them in the manner provided by our laws and Constitution. In time of crisis, this consideration is particularly compelling. General MacArthur's place in history as one of our greatest commanders is fully established. The Nation owes him a debt of gratitude for the distinguished and exceptional service which he has rendered his country in posts of great responsibility. For that reason I repeat my regret at the necessity for the action I feel compelled to take in his case."

MacArthur's Views on Policy in the Far East.—General MacArthur had indicated the direction of his thinking as early as Aug. 1950, in his letter to the Veterans of Foreign Wars, in which he stated: "In view of misconceptions currently being voiced concerning the relationship of Formosa to our strategic potential in the Pacific, I believe it in the public interest to avail myself of this opportunity to state my views thereon. . . . Any appraisal of that strategic potential requires an appreciation of the changes wrought in the course of the past war. . . . Our strategic frontier then shifted to embrace the entire Pacific Ocean, which has become a vast moat to protect us as long as we hold it. . . . Our line of defense is a natural one. . . . It envisions no attack against anyone nor does it provide the bastions essential for offensive operations. . . . The geographic location of Formosa is such that in the hands of a power unfriendly to the United States it constitutes an enemy salient. . . . At the present time there is on Formosa a concentration of operational air and naval bases. . . . An enemy force utilizing those installations currently available could increase by 100 per cent the air effort. . . . Historically, Formosa has been used as a springboard for . . . military aggression directed against areas to the south. . . . Should Formosa fall into the hands of a hostile power, history would repeat itself. . . . Nothing could be more fallacious than the threadbare argument by those who advocate appeasement and defeatism in the Pacific that if we defend Formosa we alienate continental Asia. . . . To pursue any other course would be to turn over the fruits of our Pacific victory to a potential enemy. It would shift any future battle area 5,000 miles eastward to the coasts of the American continents. . . ."

The Clash Between MacArthur and the Administration.—The events in Korea in the first three months of 1951, together with the movements of that period in the United Nations, had made it abundantly clear that the clash between MacArthur and the administration was inevitable. It may have been evident to MacArthur himself that his thinking in terms of world statesmanship had completely submerged his thinking in terms of purely military objectives in the Korean war. Yet he said later in the hearings, "I resent . . . any inference that can be drawn that I have been, in any degree, insubordinate or disrespectful of the President of the United States, or the policies of this country, or even the policies and directives of the United Nations." That General MacArthur had taken an unprecedented position, in publicly expressing views which appeared to be in opposition to the policy of his commander-in-chief, the president of the United States, was maintained by sections of the United States public as a reason for discrediting those views. Others held that in thus expressing positive views, he sacrificed himself to the welfare of his country. The evidence of the hearings suggests that MacArthur had endeavoured to persuade his military advisers and the president of the dangers he saw in U.S. military policy in the far east and that he had not been fully aware of the trend of policy in Washington. At no point in the hearings was there any doubt of a general agreement that the military should be subject to civilian control. Thus a point so vigorously discussed by "constitutional theorists" did not become an issue in the hearings. MacArthur himself testified: "At no time in our system of government is there any question of the civilian administration being in complete control."

General MacArthur returned to the United States on April 17 and two days later appeared before congress in joint session and stated his view of the needed policies for the United States in the far east.

It should be noted that General MacArthur had first of all asserted the importance of the war in Korea; that he had called for decisive action there leading to victory for the United Nations forces; and that he had deprecated yielding to the "compromise" attitude of allies of the United States, in particular on the disposition of Formosa.

The Hearings Before the Joint Committee.—Beginning on May 3, the hearings were conducted by the following members of the senate: committee on armed services—Richard B. Russell, Georgia, chairman (presiding); Harry Flood Byrd, Virginia; Lyndon B. Johnson, Texas; Estes Kefauver, Tennessee; Lester C. Hunt, Wyoming; John C. Stennis, Mississippi; Russell B. Long, Louisiana; Styles Bridges, New Hampshire; Leverett Saltonstall, Massachusetts; Wayne Morse, Oregon; William F. Knowland, California; Harry P. Cain, Washington; Ralph E. Flanders, Vermont. Committee on foreign relations—Tom Connally, Texas, chairman; Walter F. George, Georgia; Theodore Francis Green, Rhode Island; Brien McMahon, Connecticut; J. W. Fulbright, Arkansas; John J. Sparkman, Alabama; Guy M. Gillette, Iowa; Alexander Wiley, Wisconsin; H. Alexander Smith, New Jersey; Bourke B. Hickenlooper, Iowa; Henry Cabot Lodge, Jr., Massachusetts; Charles W. Tobey, New Hampshire; Owen Brewster, Maine.

Three points must be stressed because of widespread misconceptions of the nature of the hearings and of the findings of the committees at the end: (1) The hearings were not public. Republicans in the senate had attempted to provide this but were defeated by a vote of 40 to 37. (2) The testimony as published in the press or in the report issued later was not complete, because of deletions from the oral record for security reasons. (3) The questions asked the witnesses were many times not answered, even in the privacy of the hearings; in particular was this true in the case of Gen. Omar N. Bradley.

A summary of the voluminous testimony is not possible in brief scope. The witnesses who gave testimony under oath before the joint committee, in order of their appearance, were: General of the Army Douglas MacArthur; Secretary of Defense George C. Marshall; General of the Army Omar N. Bradley, chairman of the joint chiefs of staff; Gen. J. Lawton Collins, chief of staff, United States army; Gen. Hoyt S. Vandenberg, chief of staff, United States air force; Adm. Forrest P. Sherman, chief of naval operations; Adrian S. Fisher, legal adviser, department of state; Secretary of State Dean G. Acheson; Lieut. Gen. Albert C. Wedemeyer, United States army; former Secretary of Defense Louis A. Johnson; Vice Adm. Oscar C. Badger, United States navy, commander, eastern sea frontier; Maj. Gen. Patrick J. Hurley, honorary reserve, United States army, former secretary of war and ambassador to China from Nov. 30, 1944, to Nov. 27, 1945; Maj. Gen. David G. Barr, United States army, chief of the army advisory commission in Nanking, China, from Jan. 1948 until May 1949; Maj. Gen. Emmett O'Donnell, Jr., United States air force, in command of the far eastern air force bomber command from July 8, 1950, until Jan. 10, 1951.

General MacArthur testified for three days. The position of MacArthur was revealed, under questioning, in this reply: "I do not know why I was recalled. . . . So far as I know, I have completely implemented, to the best of my ability, every directive, every policy that was given me. . . . I can only interpret that order that the Administration, knowing the views that I held, was going to act in a very contrary way, and believed that it was advisable not to place any strain upon my loyalty, if you might put it in that way, and relieved me of the command."

Under questioning, the details of MacArthur's view of the far eastern situation revealed by the basic propositions outlined in his address to congress remained unchanged. He said: ". . . in the Far East the integration of the three fighting services has been as complete as I could possibly imagine. . . . It has been the integration of the forces of a number of nations, all of which had various components there. I would rate it as 100 per cent. . . . My connection with the United Nations was largely nominal. [It should be noted that he made semimonthly reports to the United Nations.] There were provisions made that the entire control of my command and everything I did came from our own Chiefs of Staff and my channel of communication was defined as the Army Chief of Staff. Even the reports which were normally made by me to the United Nations were subject to censorship by our State and Defense Departments. I had no direct connection with the United Nations whatsoever. The controls over me were exactly the same as though the forces under me were all American. . . . For 5½ years . . . I have had to govern Japan. I was provided, by the nations concerned—I, as the sole executive authority for Japan; so naturally the scope of my duties were complete and enveloping, as far as the Far East was concerned and, to some extent, involved the entire world. . . . I was more than the Governor of Japan. I was the sole executive authority for administration and execution in Japan. . . . I had not only the normal executive authorities such as our own President has in this country, but I had legislative authority. . . . I was required to carry out and implement the policies of the Far Eastern Commission, but in the gaps that existed where those policies did not apply, my own authority was complete. . . . I believe that everything possible should be done to cement the international feature of the United Nations' effort there. I would say not only that the idea should be deprecated of their pulling out, but it should be emphasized extraordinarily that they should send much larger forces, and that those nations which have not contributed anything, should contribute. On the contrary one of the great weaknesses of the United Nations' effort as a United Nations' effort there is that it is not well balanced. Almost the entire burden of blood and effort and money is confined to two countries, the native country of the Koreans, and ourselves. . . . The relativity of authority in making international decisions should be based in some degree upon the responsibilities of the agents that carry it out. And if one nation carries 90 per cent of the effort, it's quite inappropriate that nations that only carry a small fraction of the efforts and the responsibility should exercise undue authority upon the decisions that are made."

On the whole, there was agreement on the part of all the witnesses that followed MacArthur, as far as their testimony considered the matter, as to the steps in the development of United States diplomatic and military policies and as to the events that resulted in the recall of MacArthur. The disagreements and divergences in points of view were much more evident and arose out of different positions taken, not on military policy but on the foreign policy of the United States.

The position of Secretary Acheson was revealed again and again in the eight days of questioning. It appears in the following: "The foreign policy of the United States has a central and dominant objective—to protect the Nation and to safeguard the future of its people. . . . But we seek to deter war if we can. . . . The best way to protect the security of our nation and of our people was to prevent war; . . . the way to go about it was through an international system of collective security." And again, "The whole basis of the United Nations has been, and our policy in connection with it has been, to attain universality. We would like all nations to be members of the United Nations." And again, "Our attitude toward Korea was fundamentally based on the charter of the United Nations." He stated on June 7 that an armistice at the 38th parallel would fulfil United Nations pledges. These were not to unify Korea by force. When pressed upon the question of the possible recognition of Communist China, he preferred to reply as if to a larger question, "We are part of a larger organization which determines what government can represent a country in the United Nations."

In Acheson's view the objectives in Korea were to end aggression, to safeguard against its renewal and to restore peace. This did not mean destruction or unconditional surrender of the aggressor, and above all, it meant holding the members of the United Nations together in a common purpose. It is apparent that in the secretary's view, the United Nations sphere of interest had transcended the national sphere of interest.

General Marshall's testimony, covering more than six days, dealt with every phase of military policy not only in Korea but in China and at times as far as it related to Europe. But it was clear that he was in basic agreement with Secretary Acheson in point of view on foreign policy when he said: "The policies involved here related to the conduct of the operations in Korea, our relations with the United Nations in the responsibility of the Chief Executive of this country as the commander of those units, the resolutions of the United Nations in relation to the matters in Korea, over which General MacArthur was the United Nations commander. . . . In the first place, the policies were determined by the resolutions of the United Nations Security Council. The further development in connection with the orders from the Chief Executive acting for the United Nations—that is, the President—were based on the original resolutions and were based on the continual contact with the representatives of the nations who were involved in that fight and those pertained to the restrictions on bombing, those pertained to the blockade of the China coast, and those pertained to the use of the troops from Formosa of the Government of China. . . . He [MacArthur] carried out the military directives, which is quite a different thing from the discussion of the limitations, as they were related to our allies, all of our allies, in the conduct of that campaign." And again, the inescapable conclusion: "By his [MacArthur's] public statement or statements that were made public in the ordinary press, he set up a very serious reaction among our allies, which threatened our collective action with them, and which threatened our position in the world in relation to this great crisis, and which threatened to leave us in a situation of going it alone." General Marshall contended that the Soviet Union was the real opponent in Korea. On this point, as on others, the disagreement with General MacArthur was revealed. In response to the question "Who is overwhelmingly the enemy?" MacArthur had said, "Communism. . . . I mean all over the world," and when Senator Fulbright had suggested that it was "imperialist Russia," MacArthur had replied, "I disagree with you completely—if you think communism is limited to Russia. . . ."

The testimony of General Bradley and of the joint chiefs of staff, Vandenberg, Collins and Sherman, revealed that they had accepted the administration's basic premise as to the meaning and needs of U.S. foreign policy, and had concurred in the relief of MacArthur inasmuch as he was not in sympathy with the policy of the administration. It is to be noted that frequently General Bradley refused to testify as to discussions with the president. This led to acrimonious demand that the president instruct him to reply. But in the end he maintained his silence.

The testimony of former Secretary of Defense Louis Johnson, in emphasizing the necessary interrelations of military and diplomatic policy, was not in agreement with the fundamental approach of Secretary Acheson. Apart from the facts revealed in his testimony as to the differences within the administration during his period of service, Johnson's response to questioning brought out clearly the leadership of the department of state in the formulation of the president's policies.

The testimony offered by General Wedemeyer was, on the whole, in support of the position taken by General MacArthur, inasmuch as Wedemeyer's basic proposition was that formulation of foreign policy was the point at issue, and not a disagreement among military commanders as to the best means of attaining military objectives. That he was taking this approach was recognized by the committee, and in response to a question, he answered: "In my judgment, if our country recognized Red China, the Chinese Red government, as either the de facto or de jure government, it would be tantamount to a refutation of our traditional American friendship for those people. It also would be an abrogation of treaties that had their initiation at the time of John Hay, and following right through; a complete abrogation of our open door policy and of our co-operative attitude that we have with great credit maintained in that area—great credit, I think, to our policy formulators. . . . It would be a victory for the Communist movement in China, in the Far East, and in the world."

The testimony of General Hurley stood apart from most of that offered by other witnesses in that it dealt for the most part with the basic causes for the impasse in China since the end of World War II.

MacArthur's view at the close of the testimony may be seen in his reply to an invitation to reappear: ". . . in view of the voluminous record which has already been taken wherein is included my own personal views in most complete detail, I do not believe it in the public interest for me to do so. . . . certain of the testimony which was given by some of the subsequent witnesses did not coincide with my own recollection and record of the events. . . . I especially take sharp exception to interpretations of events of campaign given with little local knowledge thereof by those thousands of miles away from the scene of action. . . . I suggest that the bi-monthly official reports to the United Nations be incorporated into the committees' proceedings as they represent factually the views of the Commanders on the spot at the time of the actual occurrence of events, entirely uninfluenced by any extraneous issues or pressures. Much opinion testimony was given of a nature which was never either by word or deed communicated to me and of which I had no slightest inkling. . . . In so far as the investigation dealt with my relief from the Far East Command, I feel that the full facts have not been elucidated due to the orders of the President silencing the pertinent witnesses as to his own part in the action."

On Aug. 17, eight members of the joint committee—Styles Bridges, Alexander Wiley, H. Alexander Smith, Bourke B. Hickenlooper, William F. Knowland, Harry P. Cain, Owen Brewster, Ralph E. Flanders—signed a report of their findings which appears as an appendix to the testimony. Pertinent portions of their conclusions include: "The conviction that the Administration's Far East policy was one of appeasement toward communism was proven to be fact as a result of the investigation. Some significant reversals of this policy are directly attributable to the inquiry; for example, the Administration's categorical statements regarding China and Formosa. . . . Why was there a major shift by the State Department in its foreign policy? The reasons are several. One, the State Department found itself unable to defend policies in the face of questions which were propounded to it. Two, the march of events in Korea itself has proven the wisdom of policies which the Department had previously for so long scorned. And, three, the ground swell of American public opinion, which expressed itself in one of the greatest floods of spontaneous correspondence which has ever descended upon the legislative and executive branch of the Government, required the State Department to alter policies which were disapproved by the public, which had been ill-informed and misinformed by the State Department on far-eastern affairs."

In summary, it may be said that the value of the hearings appears to have been great. Enlightenment was given to an interested public, and the attention of the American people was concentrated, not on Korea, not on military policy, but upon the foreign policy of the United States, which, the hearings revealed, had been motivated in recent years by opposition to "aggression" rather than by opposition to "communism." The hearings revealed, as nothing else had done, the nature of the crisis symbolized in dramatic terms by the recall of General MacArthur. The fact that as a whole the committees did not make a report to the congress indicates the tentative nature of all conclusions as to the wisdom of MacArthur's leadership, as to the soundness of U.S. military policies in the far east, and as to the function of the United States in the United Nations.

BIBLIOGRAPHY.—*Hearings before the Committee on Armed Services and the Committee on Foreign Relations, United States Senate, Eighty-Second Congress, First Session, to Conduct an Inquiry into the Military Situation in the Far East and the Facts Surrounding the Relief of General of the Army Douglas MacArthur from His Assignments in That Area.* Parts 1, 2, 3, 4, 5 including Appendix and Index, Aug. 17, 1951. Printed for the use of the Committee on Armed Services and the Committee on Foreign Relations by the United States Government Printing Office (1951).

(E. E. R.)

McCarran, Patrick Anthony (1876–), U.S. senator, was born at Reno, Nev., on Aug. 8. He graduated from the University of Nevada, Reno, in 1901 and was admitted to the state bar in 1905, meanwhile (1903) serving in the Nevada legislature. At Tonopah, Goldfield and Reno he built a lucrative law practice, particularly during mining booms. From 1913 to 1917 he was associate justice of the Nevada supreme court and in 1917–18 chief justice.

He resumed his law practice thereafter until 1932, when he was elected U.S. senator from Nevada on the Democratic ticket. He was re-elected for his fourth consecutive term (1951–57) in Nov. 1950.

As chairman of the senate judiciary committee and the joint congressional ("watchdog") committee on foreign aid, McCarran wielded considerable influence in 1950–51 on domestic and foreign policy. He helped write the Internal Security (McCarran) act of 1950, and on Jan. 18, 1951, became chairman of a senate subcommittee appointed to investigate administration of the act.

The subcommittee later became a focus of national attention when it conducted hearings on U.S. policy in the far east. During these hearings McCarran became increasingly alarmed at the administration's methods for safeguarding internal security. On Aug. 5 he charged that Communist agents and sympathizers had ready access to top U.S. defense secrets. On Aug. 20 he said that from 3,000,000 to 5,000,000 Communists and other aliens had entered the U.S. illegally and were "potentially more dangerous than . . . an armed force."

McCarthy, Joseph R. (1909–), U.S. senator, was born Nov. 14 in Grand Chute, Wis. He graduated from Marquette university, Milwaukee, Wis., and practised law until 1939 when he was elected circuit judge. From 1942 to 1945 he served overseas with the U.S. marines, and during this time his name was put up by friends for nomination to the U.S. senate. Although he received 100,000 votes, he ran second. In 1945 he was re-elected circuit judge, and in 1946 he was elected to the U.S. senate. In the senate he was especially known for his investigations of communism in high places in government, and his frequent sweeping accusations caused his enemies to use the word "McCarthyism" to describe his type of investigations. In 1951 he repeatedly scored the Truman administration for what he termed the failure of its policy in Asia, and called the ouster of Gen. Douglas MacArthur "perhaps the greatest victory the Communists have ever won." Sen. William Benton (*q.v.*) (D., Conn.) in August introduced a resolution calling for investigation of McCarthy's activities to decide whether he should be expelled from the senate. Senator Benton termed "McCarthyism" unjust and dangerous, and on Sept. 28 told the senate privileges and elections subcommittee that McCarthy should be ousted on the basis of ten charges that Benton detailed.

McCloy, John Jay (1895–), U.S. high commissioner in occupied Germany, was born on March 31 in Philadelphia, Pa. He studied at Amherst college, Amherst, Mass., and Harvard university and served in World War I and in the occupation forces in Germany after that war. He later practised law in New York city, specializing in corporation law and foreign litigation. In Oct. 1940 he was appointed expert consultant to the secretary of war, and, in April 1941, assistant secretary of war. He became president of the International Bank for Reconstruction and Development in Feb. 1947. In May 1949 he was appointed first civilian U.S. high commissioner for occupied Germany by Pres. Harry S. Truman.

In Jan. 1951 he ordered a number of German prisoners convicted of war crimes released for clemency, an action that created mixed comment internationally. He was instrumental in promoting the adoption in March of the Schuman plan for a partial pooling of natural resources and industrial might in western Europe. In July he punctured German hopes for large, independent units in a west European army by reporting it was the U.S. intention that German units should be incorporated into this force in small elements. In his regular report to the state department, he reported that Communists were losing ground in west Germany but that a new threat was arising in the form of neonaziism.

McCormack, John William (1891–), U.S. congressman, was born on Dec. 21 at Boston, Mass., and was educated in the public schools of Boston. He studied law in a private law office, was admitted to the Massachusetts bar in 1913 and began practice in Boston. He was a member of the Massachusetts constitutional convention in 1917–18, a member of the state house of representatives from 1920 to 1922, and state senator from 1923 to 1926, serving as Democratic floor leader for the last two years of his term. He was elected U.S. congressman from the 12th Massachusetts district as a Democrat in 1928 to fill a vacancy in the 70th congress (1927–29), and was returned to the house in each succeeding election. McCormack served as majority floor leader of the house from 1940 to 1947 and as minority whip from 1947 to 1949, when the Republicans controlled congress. After the Democratic victory in the national elections of 1948, McCormack was again elected majority leader (1949) and was re-elected to that post on Jan. 2, 1951.

Macedonia: *see* GREECE; YUGOSLAVIA.

McFarland, Ernest William

(1894–), U.S. senator, was born at Earlsboro, Okla., on Oct. 9. He graduated from the University of Oklahoma, Norman, in 1917 and took his law degree (1921) and master's degree (1922) at Stanford university, Stanford, Calif. During World War I he served in the U.S. navy. Admitted to the Arizona bar in 1920, he established a law practice at Casa Grande and was assistant attorney general of Arizona in 1923–24. Later, as attorney for the San Carlos irrigation and drainage district in Arizona, he became known as a legal authority on irrigation and other water uses.

McFarland was elected U.S. senator from Arizona as a Democrat in 1940 for the term 1941–47 and was re-elected in 1946 for the term 1947–53.

In the senate he supported most of his party's legislation, but was known also as a moderate, acceptable to the southern Democrats (particularly because of his reluctance to support civil rights legislation). With their backing, he was elected senate majority floor leader by a 30–19 vote over Sen. Joseph C. O'Mahoney of Wyoming on Jan. 2, 1951. In this key post McFarland allowed the "great debate" on U.S. foreign policy to run its full course in 1951, saying that "this clash of honest judgment and conviction . . . results in sounder policy." McFarland departed temporarily from administration ranks on June 29, 1951, when he voted for the stopgap price control bill which eliminated Pres. Harry S. Truman's request for authority to roll back prices.

McGrath, James Howard

(1903–), U.S. attorney general, was born on Nov. 28 in Woonsocket, R.I., graduated from Providence college, Providence, R.I., in 1926 and received a law degree from Boston (Mass.) university in 1929. He was city solicitor of Central Falls, R.I., 1930–34; U.S. district attorney, 1935–40, and governor of Rhode Island, 1940–45. Appointed U.S. solicitor general in 1945, he served until the next year, when he was elected U.S. senator from Rhode Island. From Oct. 1947 to Aug. 1949 he was chairman of the Democratic national committee, and on Aug. 24, 1949, was sworn in as attorney general of the U.S. He was especially active in promoting a national conference on organized crime, which in Sept. 1951 formed a nine-man committee to investigate gambling in sports. He also actively prosecuted the top members of the Communist party in the U.S., whose conviction on charges of conspiracy to overthrow the U.S. government by violence was upheld by the U.S. supreme court in June 1951.

Machinery, Farm: *see* AGRICULTURE.

Machinery and Machine Tools.

Machine tools were the focal point in the defense program of the United States during 1951. It was mainly a year of tooling up for production of armament—planes, tanks and guns. The result was that the machine tool industry had thrust upon it a volume of orders bigger than any time since World War II. As the year progressed, the backlog of machine tool orders became larger, and at the year's end the pile-up was equal to almost two years of production. During 1951 the industry booked a total of more than $1,700,000,000 worth of machine tools, and it had shipped only $620,000,000 worth.

The federal authorities recognized the critical importance of machine tools as the year moved along. On July 10, 1951, Defense Mobilizer Charles E. Wilson issued a sweeping directive to all defense agencies to give extraordinary help to machine tool builders in expanding output. Builders were granted a reasonably satisfactory price formula and, in December, a superpriority on materials not given to any other industry. At the same time, the industry was requested to double its production rate by mid-1952, increasing production to an annual level of $1,400,000,000. In response, builders enlarged their subcontracting of parts, subassemblies and complete machines, added to their plant facilities and increased their work forces and work week. The National Production authority gave a rating to defense and defense-supporting orders for machine tools; instructed the machine tool industry to ship 70% of its output to the armed services; and, late in the year, forbade delivery after Feb. 1, 1952, of unrated orders.

Defense officials made clear to the machine tool industry that the entire armament load upon builders would be in excess of $3,000,000,000. On top of that the British were seeking at least $150,000,000 of machine tools from the United States for their defense production program.

A giant 200-ton aircraft-skin milling machine was built during the year for the manufacture of a self-reinforced "skin" for near-sonic jet aircraft. This machine automatically cut, edged and shaped a desired pattern in three dimensions on the surface of a metal sheet. Chips were removed automatically. Virtually push-button controlled, the machine would mill integral rib skin panels from solid or rough-forged aluminum-alloy plate. It operated in three dimensions, with two feed motions and a range of infinite intermediate speeds between $\frac{3}{4}$ and 150 i.p.m. Longitudinal and lateral cutting motions were guided simultaneously from a master pattern by an electronic tracer control.

The machine used 12-drive motors totalling 350 h.p., exclusive of 18 motors and generators delivering the power supply, which added up to 1,400 h.p.

The air matériel command of the United States air force made public in 1951 a second report on the machinability of various steels. It was shown that tool life varies with microstructure of the steel and that tremendous improvement was possible in tool life by heat treatment prior to machining. Whatever the steel in question, air force research proved that any given structure would machine like the same structure of other steels. Along with the air force's data in timing was the revelation by researchers of the Cincinnati Milling Machine company that radioactive tracers were being used to measure the rate of tool wear. The method consisted of machining with a cutting tool rendered radioactive by neutron irradiation in a nuclear reactor and measuring the radioactivity of the collected particles worn from the tool during a few seconds of cutting. Measurement of tool life had formerly been mostly by laboratory tests.

Method X for producing holes and other openings of any shape electrically in sintered carbides and other hard metals to fine tolerances was announced during the year. It consisted of "machining" metallic parts by shaping them in a dielectric fluid by a spark discharge of controlled intensity and duration. The method could be used for almost any operation, such as boring, threading, tapping, turning and drilling. It was used experimentally to hollow out titanium turbine-blade forgings. As high as 50 lb. of metal per minute could be removed by this process. The dielectric fluid could be fuel oil, kerosene or a special compound. Cutting rates depended upon the density of the material.

The setup on the machine was similar to that required for a jig borer. Its operation was almost completely automatic.

Cold extrusion as a process got much attention during 1951. Steel cartridge cases were cold-extruded successfully and the method was being applied more and more in the civilian-goods field. For military-security reasons, the details about cold extrusion were withheld. The building of giant hydraulic presses for aircraft parts, such as spar cap forgings, was begun by several United States press companies. The United States air force was pushing the development of presses up to 75,000 tons in capacity. Parts could be forged in these presses and almost all the machining work eliminated thereby. One-piece hollow-steel propeller blades were extruded successfully in air force experiments.

Lubricants in press work attracted much experimentation during the year. One aircraft maker found that blends of specially processed waxes dispersed in naphtha or water solved a number of difficult drawing and forming operations on stainless steel, aluminum alloy and magnesium sheet parts. These wax emulsion lubricants were applied by swabbing, roller coating or spraying. They did not rub off when dry, but were removed from formed parts by conventional degreasing methods. They were proved particularly good for lubricating dies in hot-stretch-forming magnesium sheets. (B. Fy.)

McKellar, Kenneth Douglas (1869–), U.S. senator, was born on Jan. 29 at Richmond, Ala. He received his bachelor's and master's degrees from the University of Alabama at University, Ala., in 1891 and his law degree the next year. Shortly thereafter he moved to Memphis, Tenn., where he established a prosperous law practice and became active in Democratic politics, serving as a presidential elector in 1904 and as a delegate to the Democratic national convention in 1908. He was elected to the U.S. house of representatives in 1911 to fill an unexpired term and was re-elected, with the help of Democratic boss Edward H. Crump of Memphis, to the 63rd and 64th congresses (1913–17). He was first elected U.S. senator from Tennessee in 1916 and was re-elected for his sixth successive full term in 1946. After Harry S. Truman took office as president upon the death of Franklin D. Roosevelt in April 1945, McKellar, as president pro tem of the senate, became presiding officer of the upper house. In May 1946 he was appointed chairman of the senate appropriations committee.

McMahon, Brien (1903–), U.S. senator, was born at Norwalk, Conn., on Oct. 6. He received his A.B. degree from Fordham university, New York city, in 1924 and his LL.B. degree from Yale in 1927. Admitted to the Connecticut bar in the latter year, he practised law in Norwalk and in 1933 became judge of the Norwalk city court. Later that year he was appointed special assistant to the U.S. attorney general, and in 1936–39 he was assistant attorney general in charge of the department of justice criminal division. From 1939 to 1944 he again practised law; in the latter year he was elected U.S. senator from Connecticut on the Democratic ticket. In 1950 he was re-elected for the term 1951–57.

During his freshman year in the senate McMahon introduced the first act for the control of atomic energy, and in Oct. 1945 he was named chairman of the special congressional committee on atomic energy. Generally a loyal supporter of the Truman administration, McMahon thereafter spent much of his time in the senate on work of his committee. On Feb. 2, 1950, he proposed a 5-year, $50,000,000,000 plan whereby the U.S. would extend economic aid to other countries, including the U.S.S.R., in exchange for total atomic disarmament. Throughout 1950–51 he repeated his warnings that the alternative to control of atomic weapons was the destruction of civilization. On May 4, 1951, the senate unanimously passed a resolution proposed by McMahon expressing friendship for the Russian people and inviting the Kremlin to circulate the resolution freely. On Sept. 18 he introduced a senate resolution calling for an increase in expenditures on U.S. atomic weapons from $1,000,000,000 to $6,000,000,000 annually.

McMillan, Edwin Mattison (1907–), U.S. physicist, was born at Redondo Beach, Calif., on Sept. 18. He received his B.S. (1928) and M.S. (1929) degrees from the California Institute of Technology, Pasadena, and his Ph.D. from Princeton university in 1932. In the latter year he was appointed a research fellow at the University of California, Berkeley. Named instructor in physics there in 1935, he advanced to a full professorship in 1946. In May 1940, with the collaboration of P. H. Abelson at the University of California, McMillan discovered the first transuranium element, neptunium (element 93). With Glenn T. Seaborg (*q.v.*) McMillan also conducted the basic research that led to discovery of plutonium, element 94, later in 1940. This work helped lead directly to development of the atom bomb. During World War II, however, McMillan worked primarily with sonar and microwave radar, although he later joined the staff of the Los Alamos, N.M., atom bomb laboratory. In recognition of his work in nuclear chemistry and physics, McMillan on Nov. 15, 1951, was named with Seaborg as co-winner of the 1951 Nobel prize in chemistry.

Madagascar. The fourth largest island of the world, situated off the southeast coast of Africa, Madagascar is a French overseas territory. Its area and estimated 1950 population (including dependencies and also including the Comoro archipelago, 849 sq.mi., pop. 142,000) were 229,438 sq.mi. and 4,430,000 persons. From 1946 the Comoro archipelago was administered as a separate territory. The Merina are the most numerous indigenous people (*c.* 900,000); in 1948 there were 31,171 French, including 15,638 from metropolitan France; Hindus, Chinese and Arabs constituted small racial minorities. Language: Malagasy, related to Malay. Religion: Madagascar, Christian and pagan; Comoro archipelago, Moslem. Chief towns (pop., 1948 est.): Antananarivo or Tananarive (cap., 171,052); Tamatave (28,194); Majunga (27,181); Antsirane or Diégo-Suarez (25,287). High commissioner in 1951: Governor General Robert Bargues. Comoros administrator, Pierre Coudert.

History.—In the elections of June 17, 1951, the Malagasy chose three moderates. Experiments on the communal organization of villages were pursued in several areas of the island.

Output of sisal, cloves and mica increased. There was a crisis in the meat industry, and some factories closed. The F.I.D.E.S. (Fonds d'Investissement pour le Développement Économique et Social) set up a state company to exploit the coal of the Sakoa (in the southwest), which would involve building a railway and a harbour and extracting 300,000 to 600,000 metric tons a year. Work on the plain around Lake Alaotra continued, with a view to growing rice and peanuts. Six groups of internal air lines not only catered for passengers but also transported tobacco, vanilla, cayman skins for export, fruit and vegetables (grown on the plateaus) for consumption on the coast and sea fish for consumption on the plateaus.

Extended antimalarial spraying reduced the death rate in Antananarivo very considerably. As a result of vaccination there were no plague cases. The incidence of births over deaths had grown from 12,000 in 1947 to 50,000 in 1950.

Education.—Schools (1950): pupils, primary 229,000, secondary 2,560, technical 3,140; bursaries in France, 140.

Finance.—Budget (1952 est.): 5,165,000,000 fr. C.F.A. Monetary unit: franc C.F.A. (Colonies Françaises d'Afrique) = 2 metropolitan francs. Metropolitan franc = .2857 cents U.S. in Sept. 1951.

Foreign Trade.—(1950) Imports 15,073,000,000 fr. C.F.A., including 12,200,000,000 from the French union; exports 12,431,000,000 fr. C.F.A., including 10,600,000,000 to the French union. Principal exports: coffee 6,561,000,000 fr.; hides and skins 751,000,000 fr.; vanilla 631,000,000 fr.; cloves 574,000,000 fr.; meat 396,000,000 fr.; perfume 366,000,000 fr.; graphite 305,000,000 fr.; mica 187,000,000 fr.; dry vegetables 192,000,000 fr.

See H. Deschamps, *Madagascar, Comores, Terres Australes* (Paris, 1951). (Hu. De.)

Magazines and Periodicals: *see* NEWSPAPERS AND MAGAZINES.

Magnesium: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Maine. The extreme northeastern state of the United States, Maine was admitted as the 23rd state in 1820, and is popularly known as the "Pine Tree state." Land area 31,040 sq.mi.; water area 2,175 sq.mi.; population (1950 census) 913,774, an increase of 7.9% over 1940. The population of the principal cities (1950 census) was: Augusta (cap.) 20,913; Portland 77,634; Lewiston 40,974; Bangor 31,558; Auburn 23,134; South Portland 21,866; Biddeford 20,836; Waterville 18,287.

History.—Gov. Frederick G. Payne (Rep.) proposed to the Republican controlled 95th Maine legislature during 1951 that it enact a 2% sales tax with food exempt, and scrap the state property tax. It did so, and the enacted bill was promptly challenged in the courts, but was upheld. The sales tax yield, starting July 1, 1951, amounted to $1,000,000 a month, and the state would lose property tax revenue in 1952 and thereafter, of $5,000,000 a year. Most of the increase in revenue was to go into welfare and education. The legislature also approved a codification of the 1820 constitution of Maine, and a new classification and salary schedule for state employees. It proposed eight constitutional amendments, of which six were approved by the voters on Sept. 10.

Governor Payne initiated investigations of the state prison, mental institutions and the three state Indian reservations. No serious conditions were noted except on two of the Indian reservations, where a legislative committee made findings similar to those of the governor concerning poor educational facilities, immorality and deplorable living conditions. A campaign against illegal gambling in various sections of the state brought about numerous convictions including 15 prison sentences, 10 of which were upset on technicalities. The Great Northern Paper company announced in March 1951 that it would build a $6,000,000 hydroelectric plant on the Penobscot river above Millinocket.

The chief officers of Maine during 1951 were: governor, Frederick G. Payne; secretary of state, Harold I. Goss; attorney general, Alexander A. LaFleur; treasurer, Frank S. Carpenter; auditor, Fred M. Berry; commissioner of education, Harland A. Ladd.

Education.—The net enrolment in the public schools April 1, 1950, was 158,247 compared with 162,821 in 1949, and 160,191 in 1948. There were 6,323 teaching positions in 1949–50 compared with 6,211 in 1948–49. The state maintained the University of Maine at Orono, and five teacher training institutions. The combined enrolments at these schools in 1951 was 4,121.

Social Insurance and Assistance, Public Welfare and Related Programs.—As of Nov. 30, 1951, there was a balance in the Maine employment security fund for unemployment benefits of $39,478,382 compared with $37,143,182 a year earlier. Total estimated benefits for 1951 were $5,725,000 compared with payments of $9,125,833 in 1950 and a record $11,392,398 in 1949. The state expended for health, welfare and charities for the fiscal years ending June 30, 1951, and June 30, 1950, $16,862,438 and $15,155,290 respectively. Thirteen state institutions (correctional, hospitals for the insane, sanatoria) as of Nov. 30, 1951, had a total inmate population of 5,616 and 1,459 employees; the total expended for the fiscal years 1951 and 1950 was $5,080,811 and $4,550,030, respectively.

Table I.—*Principal Crops of Maine*

Crop	1951	1950	Average 1940–49
Corn, bu.	540,000	510,000	481,000
Oats, bu.	5,016,000	4,464,000	3,281,000
Barley, bu.	192,000	204,000	118,000
Buckwheat, bu.	63,000	88,000	123,000
Hay, tons	796,000	661,000	856,000
Potatoes, bu.	45,835,000	63,360,000	59,654,000
Apples, bu.	1,154,000	1,391,000	788,000
Beans (dry), 100-lb. bags	80,000	63,000	64,000

Source: U.S. Department of Agriculture.

Table II.—*Principal Industries of Maine, 1950*

Type of industry	Value of product	Employees	Wages
Textile-mill products	$241,766,824	26,208	$68,818,228
Paper and allied products	236,684,185	16,920	53,400,293
Leather and leather products	129,559,772	19,116	37,436,498
Food and kindred products	119,593,289	18,987	19,735,250
Lumber and wood products	75,205,172	12,582	23,225,305
Machinery	37,636,567	4,928	15,792,393
Transportation equipment	30,076,393	6,594	21,224,522
Fabricated metal products	25,730,712	2,022	4,979,361
Chemicals and allied products	11,517,609	676	1,318,111
Printing and publishing	11,339,049	1,667	4,560,602
Apparel	10,134,462	1,645	2,781,270
Stone, clay and glass products	7,048,117	1,078	2,667,109
Miscellaneous manufacturing industries	5,191,896	788	1,105,770
Furniture and fixtures	3,674,564	556	1,171,323
Primary metal industries	1,837,823	217	523,030
Rubber products	746,699	99	181,629
Optical goods	667,600	78	198,929
Not elsewhere shown	457,326	102	131,853
Total	$948,868,059	114,263	$259,251,476

Communications.—Highways of the state (March 1, 1951) were: state highway system, 3,148 mi.; state-aid system, 7,825 mi.; local system, 10,849 mi.; total 21,822 mi. In the year ended June 30, 1951, the state expended for highway and bridge purposes, exclusive of debt and interest charges, $21,085,465 compared with $20,376,606 for 1950. Steam railway mileage (Jan. 1, 1950) was 2,004 mi. on eight railroads. Maine had 38 licensed commercial airports in 1950, of which 20 had paved runways.

There were an estimated 308,145 motor vehicle registrations in Maine for 1951 and 349,500 operator's licences; for 1950 there were 303,719 registrations and 338,371 operator's licences. As of Dec. 1951 the New England Telephone and Telegraph company reported 167,913 principal telephones divided as follows: business 26,305, residential 141,608.

Banking and Finance.—During 1951 the Maine banking department supervised 32 savings banks, 30 trust companies, and 30 loan and building and savings and loan associations, the same as in 1950. The following figures are for June 30, 1951: deposits of savings banks $240,407,000, total assets $277,223,000; trust company deposits $232,142,000, total assets $256,242,000; building and loan and savings and loan associations, total assets $37,851,000. There were 33 national banks in the state. State receipts, expenditures and bonded debt for the fiscal year ending June 30, 1951, were, respectively: $64,759,415, $65,451,911, $6,973,500. For the year ending June 30, 1950, they were, respectively: $61,210,062, $61,811,434, $8,517,500.

Agriculture.—Rainfall throughout most of the state was considerably above normal during 1951 after four subnormal seasons. Apple, hay and potato crops were injured by excessive precipitation, while forest fire damage was at a minimum. Federal support prices were removed from potatoes grown in 1951, but a light crop nation-wide resulted in high prices for the Maine growers' crop estimated at 45,835,000 bu., compared with 63,360,000 bu. in 1950. The legal deer kill of 41,645 set a new record for the state.

Fisheries.—During 1950 there were 353,279,886 lb. of fish and shellfish landed at Maine ports, valued at $14,688,742 to the fishermen. Corresponding figures for 1949 were 292,203,570 lb. and $14,998,040, respectively; thus there was an increase in volume of 21% in 1950 but a decrease of 2% in value.

Manufacturing.—The average weekly hours worked in manufacturing by production workers (Oct. 1951) was 38.5 and average hourly earnings were $1.329. There were 1,325 manufacturing firms in Maine in 1950, with production valued at $948,868,059 and 114,263 employees, of whom 75,950 were men and 38,313 were women. (E. F. D.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having a value in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Table III.—*Mineral Production of Maine, 1949–50*

(Short tons)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Cement	1,057,413	$2,526,182	1,127,220	$2,705,034
Feldspar	20,480	130,275	19,585	124,821
Sand and gravel	4,605,172	1,393,676	4,897,143	1,726,217
Stone	258,810	2,025,870	309,740	2,214,164
Other Minerals		666,223		—
Total		6,742,226		—

Maize: *see* CORN.

Malaria. The use of halogenated hydrocarbons, especially DDT, introduced in 1945, tremendously simplified the eradication of Anopheles mosquitoes, which transmit malaria. These insecticides were most effective when used as residual sprays on walls of habitations. By 1951 their use had become world-wide. In Venezuela, Brazil, British Guiana, Argentina, Italy, Cyprus, Corsica, Greece, Turkey, Egypt, Sardinia, Yugoslavia, Portugal, Israel, Mauritius, Ceylon and parts of India, malaria was checked and in some places had a phenomenally low incidence. But sobering facts warning against sole reliance on

DDT-SPRAYING TEAM at work in Terai, India, in 1951, as part of a World Health organization program for malaria and insect control

DDT became evident. Residual spraying was not successful in the Philippines. Evidence indicated that it would be less effective in large sections of Africa. Laboratory experiments demonstrated the theoretical possibility that Anopheles could gradually develop tolerance to DDT. These considerations increased interest in environmental sanitation which had seriously lagged since the beginning of the DDT era.

Indigenous malaria approached the vanishing point in the United States. Only two proven new cases contracted within the country were reported during the first nine months of 1951. The precipitous drop since 1948 was attributed primarily to improved living conditions, but DDT might have played a role.

Malaria and the Korean War.—Malaria was successfully suppressed in United States military personnel stationed in Korea by chloroquine, which was administered once each week except during the winter months. The forces of the British Commonwealth suppressed malaria by uninterrupted daily administration of paludrine. The incidence of malaria in United Nations troops was kept low compared with World War II rates. (Suppressive drugs act on the parasites in the blood but do not eradicate the parasites hidden in the tissues of the body and, therefore, they do not prevent nor effect permanent cure of vivax malaria.)

Korean malaria had almost exclusively been benign tertian or vivax. Temperate zone vivax infections, in contrast to those found in the tropics, characteristically have long initial latent or symptom free periods. During this time, which generally corresponds with the winter months, the parasites are absent from the blood but lie dormant in the liver or other organs. The first (delayed primary) clinical attack frequently occurs eight to ten months after infection, particularly if the individual was on suppressive treatment when bitten by infected mosquitoes. Attacks of Korean malaria were, therefore, usually seen in the late spring and summer.

The incidence of malaria in the army personnel stationed in the United States was low from the beginning of the Korean conflict until March 1951. But with the return of a large number of troops from Korea on a rotation program which began early in May, the malaria rate in the army started to soar, reaching a peak of 629 new cases per week in August, then gradually decreased. More than 10,000 malaria hospital admissions were reported by the army before the close of the year. An additional large number of Korean veterans was treated by civilian physicians. A high percentage of the attacks which occurred in the summer of 1951 represented the first symptoms of a disease acquired during suppressive treatment the previous year.

To explore the practicability of treating all men returning from Korea with a new curative antimalarial drug, the army began large-scale evaluation of primaquine in the spring of 1951. The program was initiated by clinical investigations at the Illinois state penitentiary in co-operation with The University of Chicago and by field trials at a Moravian medical mission in the jungle of Nicaragua. Tests were also conducted at the federal penitentiary in Atlanta under the direction of the public health service. Toxicity trials were next performed on men engaged in heavy activity at Fort Knox, Ky., and Fort Benning, Ga. The final trial, conducted in co-operation with navy physicians of the military sea transport service, consisted of drug administration to 2,700 soldiers returning from Korean duty on two transports. No toxicity was revealed during this program, which involved treatment of more than 5,000 individuals.

After the successful completion of these tests early in October, the army announced that all servicemen rotating from Korea would receive primaquine for 14 days prior to debarkation at Pacific coast ports. The plan called for the administration of the curative drug while chloroquine suppression was still effective. It was expected that most individuals who had been infected with malaria would be cured before an attack occurred.

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Malaya (Federation of) and Singapore.

The Federation of Malaya consists of two British settlements, Malacca and Penang, and nine protected states, Johore, Kedah, Kelantan, Negri Sembilan, Pahang, Perak, Perlis, Selangor and Trengganu. Area: 50,850 sq.mi. Pop.: (mid-1951 est.) 5,337,222. Singapore is a British island colony off the southern extremity of the Malay peninsula with the dependency of Christmas Island in the Indian ocean. Area: Singapore and adjacent islets 220 sq.mi.; Christmas Island *c.* 60 sq.mi. Population: Singapore Island (mid-1951 est.) 1,041,933; Christmas Island (mid-1951 est.) 1,522.

High commissioner for the federation: Sir Henry Gurney (assassinated Oct. 6, 1951); appointment vacant at Dec. 31, 1951. Governor of Singapore: Sir Franklin Gimson; United Kingdom commissioner-general in southeast Asia: Malcolm John MacDonald.

History.—In 1951 both the Communist guerrilla warfare and the military and police countermeasures increased in intensity. Although 1,130 terrorists surrendered or were killed or captured in the first ten months of 1951 compared with 935 during the whole of 1950, the security forces suffered more casualties, 1,047

(Jan.–Oct.) against 889 in the whole of 1950, and there were 5,087 "incidents" (Jan.–Oct.) against 4,739 in the whole of 1950. On Oct. 6 Sir Henry Gurney, the high commissioner, was ambushed and assassinated in the Pahang hills.

Terrorist slashing of rubber trees and intimidation of plantation workers was one of the factors contributing to a decrease in rubber output to 506,000 tons for Jan.–Oct. as compared with 564,000 in the same period in 1950.

World economic conditions maintained the prices of Malaya's products, chiefly rubber and tin, at a high level. Out of a record federal revenue of Malayan $579,546,000 during 1951, the export duty on rubber produced Malayan $216,000,000. Although Malayan $249,000,000, about 55%, of the total federal expenditure was spent on combating the insurrection, there was nevertheless a surplus of about Malayan $127,000,000. The Malayan six-year plan for economic and social development, which had been launched in 1950, was appreciably retarded—particularly the school-building and housing programs—by a shortage of building material and technical personnel.

A slow legislative process of extending nationality rights to the non-Malay population was set in motion. A draft nationality bill (formulated by representatives of all racial communities during 1950) was agreed to by the nine rulers of the Malay states in March. By the end of the year it was still under examination in the various state councils. A supplementary federal citizenship bill which accorded federal citizenship on a similar basis to the state nationality bills was given a second reading in the legislative council in July. It was clear from utterances by leaders of the Malayan Chinese association that these new measures did not satisfy them. In implementation of British policy of helping Malaya toward self-government the experiment was launched in March of appointing five unofficial Asians (three Malays, a Chinese and a Ceylonese) as members (virtually ministers) responsible to the high commissioner for home affairs, agriculture, health, education, and land, mines and communications. The experiment worked well throughout the year.

Singapore experienced a record trade boom in 1951, chiefly as a result of rearmament and world demand for raw materials. The high revenue of the colony during the year, Malayan $168,000,000, was the result mainly of larger yields from income tax and from customs and excise. The estimated surplus was about Malayan $45,000,000.

Paradoxically the trade boom arrested Singapore's program of economic and social development. The government suspended capital expenditure contracts during several months of the year to avoid contributing to inflation. Only Malayan $750,000 were spent on expanding medical services instead of a budgeted Malayan $4,000,000 and only 11 new schools were built instead of a projected 23. Singapore Improvement trust constructed only about 800 dwellings compared with their target of 2,790.

Elections for the nine elective seats in the legislative council took place in April; the Progressive party won six seats, the Labour party two and one was won by an independent. About 50% of electors voted. In December elections for six seats in the Singapore city council were held with the following results: Labour party three, Progressive party two, independent one; 58% of the electors voted.

In September, the newly formed trade union council held its first congress; 30 unions and 50,000 workers were represented.

In December it was announced that a knowledge of English would no longer be required from Singapore Chinese who wished to become British subjects.

RUBBER PLANTERS meeting in Bentong in 1951 to discuss mutual defense against terrorism in Malaya, where a state of emergency had existed since 1948. Weapons carried to the meeting are shown in the foreground

It was announced on June 22 that the Cocos-Keeling Islands, which had been administered by Singapore, had been transferred to the control of the Commonwealth of Australia; the commonwealth government intended to develop a wartime airstrip for use by commercial aircraft.

Finance and Trade.—Currency: Malayan dollar linked with sterling (Malayan $1 = 32.67 cents U.S.). Budgets (1951 est.): (federation) revenue Malayan $473,025,781, expenditure Malayan $334,988,121; (Singapore) revenue Malayan $124,734,668; expenditure Malayan $111,156,650. Foreign trade (1950, trade between the federation and Singapore excluded): (federation) imports Malayan $770,000,000, exports Malayan $1,481,000,000; (Singapore) imports Malayan $2,145,000,000, exports Malayan $2,535,000,000. Principal exports: rubber, tin, coconut oil, copra, palm oil, canned pineapples and spices.

FILMS OF 1951.—*The Fight in Malaya* (British Information Services).
(D. A. SN.)

Malik, Jacob A. (1906–), soviet diplomat, was born at Kharkov, Ukraine. After graduating from the Soviet Institute of Foreign Affairs, he was appointed assistant chief of the press section at the people's commissariat of foreign affairs in 1937. He served as counsellor of the soviet embassy in Japan, beginning in 1939, and was made ambassador to Japan in 1942. In Jan. 1946 he was named political adviser to the soviet member of the Allied Council for Japan, and in August of that year he was appointed deputy minister of foreign affairs in charge of the far eastern department. In May 1948 he became chief soviet representative to the United Nations. It was Malik who advanced the soviet proposal for the initiation of truce discussions between U.N. and Communist leaders in Korea.

He did this in a speech on June 23, 1951. He returned to the U.S.S.R. from New York city in July, and en route, in Sweden, stated that he was "almost sure" there would be a truce in Korea.

Malta. This British colony consists of a group of Mediterranean islands about 58 mi. south of Sicily; only Malta and Gozo are of importance. Area: Malta 94.9 sq.mi., Gozo 25.9 sq.mi. Pop. (1951 est.): 315,000. Principal towns (1948): Valletta (cap., 18,666), Sliema (24,294), Hamrun (17,124), Birkirkara (16,070).

Governor in 1951, Sir Gerald Creasy; prime minister, G. Borg Olivier.

History.—In 1951 the minority Nationalist government of Borg Olivier was defeated. Parliament was dissolved in February, and a general election took place in May. Once more no party gained a clear majority; Olivier was given the support of Paul Boffa's Workers' party and took office with a coalition majority of 2 in a house of 40 members. Unfortunately this political instability prevented much being done to overcome the serious economic problems of the island on the lines recommended by Sir George Schuster in 1950, and there was even a falling off in the flow of emigration. From the end of World War II to May 1951, 20,000 emigrated, of whom 12,000 went to Australia. On the other hand, the birth rate was high and the net reduction in population over this period was only a little more than 1,000. Princess Elizabeth (*q.v.*) was in Malta in the early part of the year and in April presented a new king's colour to the Mediterranean fleet.

When parliament was opened in October it was announced that a ministerial delegation would go to London to discuss economic problems with the new British government.

Education.—Primary schools (1949) 114 (attendance 38,677); secondary 6 (attendance 1,780); technical 3 (attendance 357); private elementary and secondary 63 (attendance 12,079); university, 300 students.

Finance and Trade.—Currency: pound sterling. Budget (1950): revenue £5,750,000; expenditure £6,240,000. Foreign trade (1950): imports £14,500,000; exports £1,400,000.
(K. G. B.)

Manchuria: *see* CHINA.

Mandated Pacific Islands: *see* TRUST TERRITORIES.

Mandates: *see* TRUST TERRITORIES.

Manganese. About 50 countries reported production of manganese ores for 1950, but the 11 listed in Table I account for more than 90% of the world total, according to data of the U.S. bureau of mines.

Table I.—*World Production of Manganese Ore*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Brazil	162.0	269.7	164.4	156.7	155.7	165.2	179.2
Chile	48.5	8.2	22.6	21.3	24.4	?	27.0
Cuba	284.3	218.5	144.2	55.5	32.0	68.9	87.0
Egypt	?	?	?	?	66.0	152.7	167.7
Fr. Morocco	30.4	49.0	63.9	126.0	236.3	257.8	316.7
Gold Coast	528.6	675?	857.2	560.7	705.6	830.0	784.2
India	414.7	235.5	283.5	505.2	589.0	723.3	748.6
Japan	?	94.5	32.4	38.0	60.6	110.2	147.6
South Africa	117.8	126.2	262.1	317.7	304.7	722.2	871.9
U.S.S.R.	508 ?	2,480 ?	1,870 ?	1,980 ?	1,980 ?	1,650 ?	2,200 ?
United States	247.6	182.3	143.6	131.6	131.1	126.1	140.1
Total	3,140	4,670	4,050	4,250	4,620	5,240	6,060

United States.—The salient statistics of the manganese industry in the United States are presented in Table II.

Table II.—*Data of Manganese Industry in the U.S.*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Mine shipments	247.6	182.3	143.6	131.6	131.1	126.1	134.5
Metallurgical ore	241.2	174.3	134.4	125.4	119.8	110.9	122.9
Battery ore	6.2	8.0	8.3	6.2	10.8	15.0	11.5
Imports, general	1,157.9	1,461.9	1,749.2	1,541.8	1,256.6	1,544.5	1,834.9
Imports for consumption	1,315.7	1,311.3	1,514.5	1,298.0	1,473.5	1,423.8	1,925.1
Brazil	197.4	242.3	86.0	157.8	160.5	201.6	136.3
Chile	6.0	91.3	143.5	42.1	10.3	14.7	7.8
Cuba	467.1	293.6	158.7	57.1	32.8	60.8	96.9
Gold Coast	160.0	208.7	279.7	217.3	217.8	281.8	378.1
India	346.8	210.5	321.3	284.5	314.8	357.2	642.5
South Africa	41.4	62.0	243.7	192.9	283.4	275.6	510.0
U.S.S.R.	—	151.3	241.9	289.0	384.1	151.0	65.6
Consumption	1,593.1	1,485.9	1,136.7	1,419.1	1,538.4	1,360.0	1,650.4

Mine production through July 1951 declined to 66,000 tons, but general imports were 1,012,165 tons and imports for consumption 1,114,864 tons; current consumption was 1,099,469 tons.
(G. A. Ro.)

Manitoba. Central province of Canada, Manitoba was established as a province on July 15, 1870; area 246,512 sq.mi. (26,789 sq.mi. water); pop. (1951 census), 776,541, an increase of 6.4% over 1941; approximately 52% rural. Capital: Winnipeg, 233,617. Other cities: St. Boniface, 26,218; Brandon, 20,484; Flin Flon, 9,858; Portage la Prairie, 8,463.

History.—The Liberal-Progressive government of Douglas Lloyd Campbell appointed a representative committee in 1951 to study and report upon all aspects of provincial-municipal relations, including administration, jurisdiction, boundaries and finance. Education was also being studied. A Manitoba hydro board was appointed to make effective a provincial power system, take measures to meet the power need, and supervise the development of the Pine Falls development which delivered a portion of its energy in December. A highway dike was constructed around greater Winnipeg as a defense against further Red river floods. A joint Canadian-Manitoba body was studying the problems of permanent Red river flood control.

Education.—Public school enrolment for the year ending June 1951, was 128,868, of whom 20,243 were in the secondary grades. The university registration for 1951–1952 dropped to 4,603, but was above the pre-World War II average of 2,800.

The city of Winnipeg, with provincial and federal support, opened a vocational-technical high school, with 50% of the teaching being in academic subjects. Alcohol education was added to the public school curriculum, under the direction of John Brown.

Public Health and Welfare.—Under the Manitoba health plan, in 1951, 11 health units were in operation, 2 regional diagnostic units and 5 medical nursing unit districts. As at April 1, 1950, the prisons of the province, located at Winnipeg, Brandon, Dauphin and (for women) at Portage la Prairie, reported admissions for the year, respectively, of 1,920, 563, 234 and 204.

Communications.—The 99-mi. Pas-Flin Flon highway was opened in

July, 41 mi. of paving were completed on the Trans-Canada road, and at the end of the year there was a total of 9,244 mi. of all-weather roads, of which 8,345 mi. were gravelled, 851 mi. bituminous and 98 mi. concrete. There were 4,837 mi. of railway track. A 155-mi. railway was started from the Hudson's Bay line to Lynn Lake mining area during the year. There were eight stations operating. At Stevenson air field, at Winnipeg, a large expansion development started in 1951. The Manitoba government telephone system had a wire mileage of 483,544 in 1951, with 153,260 subscriber stations of its own and 4,109 of connecting companies.

Finance.—The gross debt of the province on March 31, 1951, totalled $135,978,452. Of this, $72,367,359 was self-sustaining and was further offset by a sinking fund of $16,843,590. Revenue for the fiscal year was $55,481,556, which included a payment of $12,500,000 from the government of Canada on account of the Red river flood of 1950. Expenditures amounted to $53,721,626, which included payments of $15,463,950 on account of the flood.

Agriculture.—Unfavorable weather again affected the harvesting of an otherwise above-average crop. Total agricultural production was estimated at $292,000,000 (to be enhanced by anticipated payments from the Canadian Wheat board, based on its sales operations for the crop year 1951–52). Estimated production of sugar beets was 178,000 tons, a record for the province. Livestock increased in value to $64,000,000. Coarse grain producers, by government referendum of Nov. 24, voted to continue compulsory marketing of their products through the Canadian Wheat board.

Fishing and Fur.—Commercial fishermen numbered 5,904 in 1950–51, catching 31,467,800 lb. valued at $3,879,757 (market value $6,599,474). Fur trappers numbered 9,756 of whom 2,640 operated registered trap lines; the wild catch was valued at $3,393,412. Furs valued at $1,976,922 (110,712 skins) were produced on 531 fur farms.

Manufacturing.—The gross production of 1951 totalled an estimated $596,000,000. Industrial pay-rolls approximated $100,000,000, and 44,000 employees in manufacturing represented a record. The tourist industry reached a record with an estimate of 710,026 visitors, who spent an estimated $23,742,555. The interprovincial oil pipe line from Alberta resulted in the completion of a $10,000,000 oil refinery in the greater Winnipeg area.

Mineral Production.—New mining areas at Lynn lake produced nickel, copper and zinc; and, at Snow lake, gold. Production in 1950 totalled $33,146,629, of which metals represented $25,045,000. Other products were silver, cadmium, silenium and tellurium, as well as clay products, structural materials, peat moss and salt. (J. L. J.)

Mao Tse-tung (1893–), chairman of the Chinese Communist party and of the Chinese People's Republic, was born in Shao Shan, Hunan province, and educated in Changsha. He helped found the Chinese Communist party in Shanghai in 1921; became political commissar of the 4th Red army in 1931; and in 1934 at the second All-China Soviet congress became the unchallenged leader of the Chinese Communists. He led his forces into northwest China to escape the Chiang Kai-shek "annihilation campaigns" in 1934–35. Between 1937 and 1943 he led his forces against the invading Japanese, but after the Japanese surrender in 1945 supervised the Communist armies that drove Chiang's nationalists back until, by the autumn of 1949, the Communists were strong enough to launch their People's regime. Early in 1951 Mao was quoted by the Indian delegate to the United Nations as threatening an irreconcilable break with the west if the Chinese should be branded aggressors in Korea. Subsequent to the beginning of the extended truce negotiations in Korea, however, Mao was repeatedly pictured in western press dispatches as being the centre of a rift with the U.S.S.R., brought about by charges that the Russians had not adequately supported the Chinese intervention in Korea. (*See* also CHINA.)

Maple Sugar: *see* SUGAR.
Maps: *see* CARTOGRAPHY; GEOGRAPHY.
Margarine: *see* VEGETABLE OILS AND ANIMAL FATS.
Mariana Islands: *see* MARSHALL, CAROLINE AND MARIANA ISLANDS; TRUST TERRITORIES.
Marine Accidents: *see* DISASTERS.

Marine Biology. An important development in marine investigation during 1951 was the increased attention accorded open ocean populations, both pelagic and benthonic. In the central Pacific the exploratory vessels "John R. Manning" and "Hugh M. Smith," operating for the Pacific Oceanic Fishery investigations, found a remarkable correlation between the upwelling of nutrient rich water, the abundance of zooplankton and the prevalence of fish populations in a biologically rich zone extending east and west between the equator and about 6° N. latitude. Here the inorganic phosphate concentration was about double that of the neighbouring ocean, the zooplankton two to three times as abundant and the numbers of tuna at depths of 30 to 70 fathoms extraordinary. Similar exploration throughout the North Atlantic was initiated by the French fisheries vessel "President Theodore Tissier" of the Office Scientifique et Technique des Pêches.

PLANKTON (many times enlarged), the minute drifting organisms as vital to fish as grasses are to land animals. Their role in the ocean's economy was the subject of joint research by the National Geographic society and the University of Miami, Fla., in 1951

United Nations weather station vessels provided the first opportunity to record the annual cycle of pelagic animal and plant populations in the open ocean. Weekly zooplankton collections and data from two locations, one in the Labrador sea and the other in the central Atlantic, were under investigation at the Narragansett Marine laboratory. Results of the first year provided biological supporting evidence for the theory that the Labrador sea forms an important source of North Atlantic bottom water. Principal production was found to occur in late summer. Phytoplankton from the two areas was being analyzed at the Bingham Oceanographic laboratory and the University of Oslo. Workers at the latter institution had also completed a study of the first year-round weather ship collections of oceanic phytoplankton in the Norwegian sea. These revealed a spring flowering in April which was retarded for a time by plankton animal grazers. Later, when these declined, the plants increased rapidly in June and July to an August peak.

In the North sea a phytoplankton survey completed during 1951 by the International Council for the Exploration of the Sea demonstrated that the mosaic of different pelagic plant communities could be explained in terms of the differences in the origin of the water masses in which they occur. The stability factor appeared to be of predominating importance.

Oceanographers from the Woods Hole Oceanographic institution on Project "Skijump" cut holes in the thick ice of the polar sea with a chain saw in latitude 76° 10′ N. in April and obtained biological samples from depths of 2,000 ft.

The most outstanding ocean bottom studies during the year were reported by the Danish Deep Sea expedition vessel "Galathea," which dredged in depths of more than six and one-half miles in the Philippine Deep. The hauls yielded living bacteria and a variety of deep-sea animals including coelenterates, mollusca, echinoderms and crustacea which had existed under a pressure of more than 1,000 times that at the surface. The "Galathea's" collections were from depths more than 1,360 fathoms below any previously taken. According to a bacteriologist from the Scripps Institution of Oceanography who was aboard at the time, the first link in the food chain in great depths seems to be bacteria which feed on dissolved organic matter and in this manner provide sustenance for other bottom dwellers. Other studies on the influence of organic matter in marine sediments on the distribution and density of the deep benthonic fauna were conducted by the French Institut Océanographique.

The "phantom bottoms" or "scattering layers" in the ocean from which aggregates of marine organisms return a measurable echo when an echo-sounding machine is used were attracting widespread attention of physicists and biologists. Concurrent echo-sounder records and biological collections in the Bering sea and California waters indicated that the phenomena are probably caused by a heterogeneous population in which fishes appear to dominate in the deeper more intense scattering layer and crustacea in an upper layer in which scattering is less intense. A worker in the British Museum of Natural History compiled a list of fish residents of the scattering zone and found that the three major families possess air bladders which would significantly increase their effectiveness as sound scatterers. It was expected that a new midwater trawl tested at the Scripps Institution of Oceanography would make possible more efficient sampling of this population.

Important progress was also being made in research on the character and significance of underwater sounds produced by marine animals. During the year the Narragansett Marine laboratory obtained 106 recordings and analyses, representing 19 species of fish found to be sonic. The toadfish (*Opsanus tau*) produced what was believed to be a mating call during the breeding season and a quite different noise at all other times. Sounds emanating from different individuals of a single species varied markedly according to size and age. Noises produced by several hitherto unsuspected species, in some instances by means not fully determined, indicated that almost every species of marine fish must be considered a potential sound maker until proved otherwise.

Coastal ecological surveys were completed in several little-known areas. In the Pacific, members of the Hawaii Marine laboratory investigated Onotoa atoll in the central Gilbert Islands under the auspices of the Pacific Science board. In the Atlantic workers from University College of Wales, having traversed much of the coast of Wales, extended their survey in 1951 to the north of Scotland. Similar studies on the algae and invertebrates of the Moroccan coast were carried out by representatives of the Institut Scientifique Cherifien, and on the biology of lagoon waters and of the exchange between lagoons and the open sea by the Hydrobiological station of Chioggia, It.

Continued exploration was revealing extensive hitherto unknown populations of shrimp off the American coasts. The research vessel "N. B. Scofield" located very large ones in central and northern California waters. Large numbers were also found in the Gulf of Mexico at depths exceeding 25 fathoms.

The importance of disease in controlling benthonic invertebrate populations was demonstrated in oysters by the Agricultural and Mechanical College of Texas division of oceanography in Louisiana and by clam investigators of the United States fish and wildlife service on the New England coast. This was believed to be a frequent cause of depletion in shellfish which are commonly characterized by large fluctuations in abundance. In Chesapeake bay a particularly large set of oysters in 1951 was being studied by biologists of the Chesapeake Biological laboratory.

A scientist working at the Seto Marine laboratory in Japan found evidence that in *Euchlora rubra*, long considered to be the only ctenophore with sting cells, these cells are of foreign origin, probably being derived from small jellyfish eaten by the ctenophore.

In Norway phototaxis was observed in several marine dinoflagellates, some of which migrate toward the surface during the daylight hours while others move downward. (*See* also OCEANOGRAPHY; ZOOLOGY.)

FILMS OF 1951.—*Salmon, Life Cycle of the Sockeye* (Paul Hoefler Productions). (CH. J. F.)

Marine Corps, U.S.

The United States marine corps is a separate organization within the department of the navy whose primary mission is service with the fleets. It was established on Nov. 10, 1775, by a resolution of the Continental Congress.

There are two fleet marine forces (Atlantic and Pacific), each containing an infantry division and an aircraft wing, together with supporting and service elements. The third marine brigade, an additional unit, was organized in the summer of 1951 at Camp Pendleton, Calif.

During the year, two marine corps air facilities were established to house the increasing number of helicopter transport squadrons. These bases were located at Santa Ana, Calif., and Camp Lejeune, N.C.

The marine corps is commanded by a full general appointed by the president to a four-year term. The 19th marine commandant, Gen. Clifton B. Cates, assumed office Jan. 1, 1948. He was succeeded on Jan. 1, 1952, by Lieut. Gen. Lemuel C. Shepherd, Jr., who during most of 1951 was commanding general of the Pacific fleet marine force.

Although the marine corps' first duties are with the fleet, the National Security act of 1947 also provides that it develop "in coordination with the Army and Air Force, those phases of amphibious operations which pertain to the tactics, technique, and equipment employed by landing forces." Marines also "perform such other duties as the President may direct provided that such additional duties shall not detract from or interfere with the operations for which the Marine Corps is primarily organized."

During 1951 the 1st marine division on land and the 1st marine aircraft wing in the air continued to play an important part in the United Nations' battle up the Korean peninsula against the Communist forces. The previous year had ended with the marines' dramatic breakout to the sea from the Chosin reservoir.

On Oct. 11, 1951, marines introduced an important new tactic in modern warfare when they transported a full battle-equipped battalion to the front lines by helicopter. This vertical envelopment manoeuvre followed several years of study and experimentation.

In June 1951 the marine corps began releasing to civilian life reservists called to active military service as a result of the Korean emergency. Marine plans called for all reservists to be released to inactive duty by June 1952. (C. B. Cs.)

Marriage and Divorce.

With few exceptions, marriage and divorce rates during 1951 remained at much the same levels that prevailed in the previous year. Although a significant increase in the marriage rate did

LAST COUPLE to be married under public law 717, which made possible more than 1,300 G.I.-Japanese marriages. The bride and groom are shown at the U.S. consulate in Tokyo on Feb. 10, 1951, the day the law expired

occur in some countries during the latter half of 1950, a corresponding decline began in the second quarter of 1951. Birth rates showed little decrease from postwar peaks and, in fact, in many countries affected by the Korean crisis, the figures were nearing the record totals set in 1947.

United States.—With a marriage rate estimated at not more than 10.6 per 1,000 population, a provisional total of 1,650,000 marriages was expected for 1951, a decrease of almost 3% from the preliminary total of 1,693,257 marriages for 1950, but a certain gain over the final total of 1,608,180 marriages for 1949. It was believed that about 3,750,000 births would be recorded, representing an increase of about 6% over the 3,548,000 births of 1950. Including annulments, the number of divorces was estimated at 375,000—decreases of 2% and 5% respectively from the 385,000 divorces of 1950 and 397,000 divorces of 1949.

Table I.—*Marriages by Age of Bride and Groom for Specified States, 1949**

Age at Marriage	Bride	Groom	Age at Marriage	Bride	Groom
Under 15 yr. . . .	733	5	25–34 yr. . . .	90,146	139,581
15 yr.	2,474	23†	35–44 yr. . . .	34,446	43,618
16 yr.	8,697	289†	45–54 yr. . . .	15,582	21,300
17 yr.	14,400	1,755†	55–64 yr. . . .	6,488	11,847
18 yr.	45,242	6,830	65–69 yr. . . .	1,663‖	3,720‖
19 yr.	32,646	11,804	70–74 yr. . . .	553‖	1,910‖
Under 20 yr. . . .	29,336‡	6,821‡	75 yr. and over .	186‖	981‖
Total under 20 yr.	133,528§	27,527§	Not stated . . .	1,303	1,064
20–24 yr.	150,086	182,433	Total all ages .	433,981	433,981

*Adapted from Table 2, "Statistics on Marriages: Specified States, 1949," *Vital Statistics—Special Reports* (July 17, 1951), U.S. Public Health Service. (Specified states: Alabama, California, Connecticut, Delaware, Idaho, Iowa, Kansas, Louisiana, Maine, Massachusetts, Mississippi, Montana, New Hampshire, New York with exclusion of 79,367 marriage licences issued in New York city, North Dakota, Oregon, South Dakota, Tennessee, Vermont, Virginia and Wyoming.)

†Includes estimates for Virginia husbands based on state total for ages 15–17 yr.

‡Includes marriages for all ages under 20 yr. for the states of California, Massachusetts and Wyoming for which comparable low age groups were not available.

§Totals for all ages under 20 yr. for all 21 states.

‖Includes estimates for California based on state totals for 65 yr. and over.

Table II.—*Marriages, Age of Groom by Median Age of Bride, by Single Year to Age 34**

Age of Groom	Median Age of Bride	Age of Groom	Median Age of Bride
Under 18 yr.	17.39 yr.	26 yr.	22.57 yr.
18 yr.	18.21 yr.	27 yr.	23.21 yr.
19 yr.	18.62 yr.	28 yr.	23.90 yr.
20 yr.	19.11 yr.	29 yr.	24.68 yr.
21 yr.	19.20 yr.	30 yr.	25.51 yr.
22 yr.	20.12 yr.	31 yr.	26.22 yr.
23 yr.	20.86 yr.	32 yr.	27.27 yr.
24 yr.	21.43 yr.	33 yr.	28.01 yr.
25 yr.	22.03 yr.	34 yr.	28.52 yr.

*Computed from Table 4, "Marriages, Age of Bride by Age of Groom, By Single Age to Age 34 and 5-Year Intervals Thereafter: 16 States Combined, 1949," *Vital Statistics—Special Reports* (July 17, 1951), U.S. Public Health Service. (Specified states: Connecticut, Delaware, Idaho, Iowa, Kansas, Louisiana exclusive of 10 parishes, Maine, Mississippi, Montana, New Hampshire, New York exclusive of marriage licences issued in New York City, North Dakota, Oregon, South Dakota, Tennessee, and Vermont.)

Among the findings from various studies were that, as of 1950, of the 42,500,000 homes in the United States, about 23,400,000 were owner-occupied; that, according to the National Desertion bureau, more than 1,000,000 women and children were victims of family desertions, most of which occurred within the first few years of marriage; that 1,526 persons were sterilized in 27 states in 1950; that, in the age range 14–17 years, there were more widowed and divorced among males than among females but that, in the age range 18–20 years, the ratio of widowed and divorced females to males was nearly four to one; that, in more than one out of every six families, either husband or wife had been previously married; that, compared with 40,523,000 children living with both parents, 674,000 children lived with the father only and 3,426,000 lived with the mother only; that, in three generations, the median difference in ages of mates at marriage had decreased from four to about one and one-half years; that better-educated women were less likely to marry and were more likely to seek divorce; and that, although nearly one-half of all wives were in the labour force during the first year of marriage, less than one-fifth worked after five years of marriage.

Great Britain.—Immediately following World War II, the birth rate in the British Isles climbed at a rapid rate, reaching a peak of 20.7 per 1,000 population in 1947. By 1949, the rate had receded from 20.5 to 16.7 in England and Wales, from 23.3 to 21.3 in Northern Ireland, and from 22.0 to 18.5 in Scotland. With a birth rate already much below most European countries, it was not expected that the figure for 1951 would greatly exceed 17.5. However, the infant and maternal mortality rates were among the lowest in the world. The marriage rate in England and Wales remained relatively unchanged from the 8.3 per 1,000 population estimated for 1950.

The National Marriage Guidance council of London reported that it had selected 255 marriage counsellors, of whom 119 had completed training and 88 were receiving training. Of 68 local marriage councils reporting, 52 were carrying on educational programs. Collaborating with the Family Welfare association, the Tavistock Institute of Human Relations (London) established a family discussion bureau to offer preventive and therapeutic services in the field of family problems; its research program on family life was supported by the Nuffield foundation.

Canada.—Marriage, birth and divorce rates in the provinces showed little change in general from those of the previous year, for which the estimated marriage rate was 9.0, a decrease of only 16% from the peak rate of 10.9 set in 1946. In Ontario, where for more than a century only marriage by a religious ceremony had been allowed by law, considerable interest was evinced in the new law, effective Oct. 2, 1950, permitting civil marriages. Plans were under way for supplementing the rural adult program in family life education with the film, "Family Circles," a National Film board production, already viewed by more than 500,000 persons in commercial motion picture theatres.

Other Countries.—In July, the International Union of Family Organizations met in Brussels, Belg. An allocation up to 15,000 levas (about U.S. $53) was made available in Bulgaria to couples desiring to marry, with subsequent allotments for childbirth and graduated monthly allowances for offspring. In Czechoslovakia, where a civil marriage ceremony had been legally required since Jan. 1, 1950, the municipal government of Prague established a loan of approximately $720 to each marrying couple, one-sixth of which was to be cancelled with the birth of each child. The birth rate in France rose to a peak of 21.3 per 1,000 population in 1947 (an increase of 43% over the prewar level of 14.9), and little decline was expected from the estimated rate of 20 per 1,000 population in 1950. An international study conference on family allowance problems was held in Paris, Fr., in July. Birth rates in western Germany and Italy continued to be below prewar figures.

The government of Norway, at the insistence of the Norwegian Socialist youth movement, was considering interest-free loans (to be repaid in three to ten years) to young couples to buy household furnishings at time of marriage. In Stockholm, Swed., a municipal family counselling bureau was opened in June. Because of the scarcity of manpower, the Swedish government continued to provide free medical and hospital care in childbirth and day nurseries for small children of working wives and mothers; in a survey of 907 expectant mothers, 45% of the wives and 66% of the husbands wanted the first-born to be a son with most parents desiring that the sex of the second child be opposite to that of the first-born. In Switzerland, a premarital counselling service was organized in Geneva by the Société Genevoise d'Utilité Publique. Of all divorces sought in Turkey, the wife was the plaintiff in two-thirds of the cases. Under the new marriage laws of Yugoslavia, women obtained rights equal to men, bigamy was illegal, and six grounds for divorce were established with both husband and wife having alimony rights.

In Argentina, a system of family allowances for all employed persons with less than 150 pesos monthly wages provided 15 pesos a month for each legitimate child under 15 years of age, to each wife who did not work and to each couple who supported a dependent parent. The government of India was urged by the National Planning commission to encourage family planning and limitation of children and to provide surgical sterilization; in Bombay, four birth control clinics were in operation. In a survey of men students in Japanese colleges, the vote was three to one in favour of the idealistic and western notion of love as a basis for marriage. Communist family law in North Korea provided women equality with men, outlawed polygamy and prostitution, set the minimum legal age for marriage for men at eighteen years and for women at seventeen, with no woman to be married without her own consent.

In South Africa, the Johannesburg Matrimonial Conciliation board estimated that reconciliations resulted among 23% of couples counselled. Marriage councils operating in Sydney and Melbourne were further augmented by the Marital Relationship Committee of Western Australia, organized by the synod of the Church of England.

(*See* also BIRTH STATISTICS.)

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FILMS OF 1951.—*Marriage is a Partnership* (Coronet Films).

(C. R. A.)

Marshall, Caroline and Mariana Islands.

The Marshall, Caroline and Mariana Islands, stretching from about 1° to 20° N. lat. and from 130° to 170° E. long., constitute, with the exception of Guam in the Marianas, the Trust Territory of the Pacific Islands. The territory contains about 2,000 islands in 96 distinct island units of which 64 are inhabited, with a combined land area of about 687 sq.mi. Truk, in the centre of the territory, is 4,931 mi. W. of San Francisco, Calif., and 1,832 mi. E. of Yokohama, Jap. The population on June 30, 1951, totalled 56,178; three-fifths of the population live on the six principal island units: Saipan, the Palaus, Yap, Truk, Ponape and Majuro. Eleven different languages are spoken in the territory, including English and Japanese.

History.—The territory was under the administration of the U.S. navy until July 1, 1951, when control was transferred by presidential order to the department of the interior. The last naval officer to be high commissioner was Adm. A. W. Radford, who was appointed on April 2, 1949, and was also commander-in-chief of U.S. naval forces in the Pacific. He was succeeded as high commissioner on Jan. 8, 1951, by Elbert D. Thomas, former senator from Utah, who established his headquarters at Honolulu, T.H. The territory is divided for administrative purposes into five administrative districts: Saipan, Palau, Truk, Ponape and Marshall Islands. Although plans existed for creating a territorial legislature, by the end of 1951 one had not been established.

Education.—On June 30, 1951, there were 146 public schools, of which 138 were elementary, 6 were intermediate, 1 was advanced and 1 was a technical and normal school. These schools had 303 teachers, of whom all but 6 were native instructors, and 7,526 pupils. There were also 20 mission schools with 89 teachers and 1,760 pupils. Educational expenditures were estimated at 29% of total expenditures during the fiscal year 1951.

Finance.—During the fiscal year ending June 30, 1951, receipts totalled $467,304 and U.S. appropriated funds totalled $2,025,400. Expenditures totalled $2,492,704.

Production and Trade.—In the fiscal year ending June 30, 1951, exports of copra totalled 11,606 short tons and exports of phosphate rock totalled 143,738 short tons. In this period the value of exports totalled $2,213,622, of which copra represented $1,296,082 and phosphate rock $741,935. Other exports included handicrafts, shells, fruits and vegetables, and sponges. Imports were valued at $2,223,174; the most important imports were food, clothing, tools and marine gear.

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Marshall Plan: *see* EUROPEAN RECOVERY PROGRAM.

Martin, Joseph William, Jr.

(1884–), U.S. congressman, was born on Nov. 3 in North Attleboro, Mass. He worked as a newspaper reporter and later bought the *Evening Chronicle* of North Attleboro, also becoming publisher of the *Franklin* (Mass.) *Sentinel*. He served in the Massachusetts state legislature from 1912 to 1917. In 1924 he was elected to the federal house of representatives and was re-elected consistently thereafter, being named house minority leader in 1939 and speaker of the house in 1947. He was a delegate to the Republican national convention at Chicago, Ill., in 1916 and at Cleveland, O., in 1936; chairman of the Republican national committee, July 1940 to Nov. 1942; and permanent chairman of the Republican national convention in 1940, 1944 and 1948.

On Feb. 12, 1951, in a talk in Brooklyn, N.Y., Martin urged the ouster of Secretary of State Dean Acheson and the use of Chinese nationalist troops to open a second front against the Chinese reds on the Asiatic mainland. On April 5 he read to the house a letter from Gen. Douglas MacArthur endorsing the idea of using the Chinese nationalist troops, a policy the Truman administration had rejected. After MacArthur had been relieved of his commands in the far east, Martin was coauthor of a joint resolution inviting the general to address a joint session of congress.

Martin was also a sharp critic of Pres. Harry S. Truman's domestic policies, being the author of the remark, concerning the wage-price freeze announced Jan. 26, that all it did was "freeze the hole in every family's pocketbook."

Martinique.

The status of this former French island colony situated in the Lesser Antilles was changed in 1946 to that of an overseas *département*. Area: 427 sq.mi. Pop.: (1936 census) 246,712; (1946 census) 261,595; (1950 est.) 273,000. The inhabitants are mainly coloured (Negro or mixed), speak a French patois and are Roman Catholic. The capital is Fort-de-France (pop., 1946 census, 66,006). Prefect: Christian Laigret.

History.—Two Communists and one moderate deputy were sent to the national assembly in Paris after the elections of June 17, 1951. In October six Socialists, six Radicals and moderates and five Communists were elected to the local general council. The new waterfront at Fort-de-France was completed. Work was continued on water supply, roads and the construction of a sanatorium. The rum industry's predicament was still serious. The cultivation of new crops was considered. French state revenue in the *département* rose to 2,400,000,000 fr., but the expenditure was 5,200,000,000 fr.

Education.—Provision is made for all children of school age. There is one *lycée* and one school of law.

Finance.—Currency: metropolitan franc. In Sept. 1951, U.S. $1 = 350 fr.

Foreign Trade.—(1950) Imports 7,400,000,000 fr.; exports 5,302,000,000 fr. Principal exports: sugar 2,051,000,000 fr., rum 1,095,000,000 fr., bananas 1,551,000,000 fr. Trade is almost wholly with the French union.

Transport and Communications.—Ships entered (1950): 673.

(Hu. De.)

Maryland.

One of the original states of the United States, long known as the "Old Line state," and, in later years, as the "Free state," Maryland is bounded on the north by Pennsylvania and Delaware, on the east by Delaware and the Atlantic ocean and on the south and west by Virginia and West Virginia. The total area is 10,577 sq.mi., of which 696 sq.mi. are water. Pop. (1950 census) 2,343,001, an increase of 28.6% from the 1940 population. Urban population was 69.0% of the total. Annapolis (pop., 1950, 10,047) is the capital. Other cities in the state, with 1950 population figures, are Baltimore (949,708), Cumberland (37,679), Hagerstown (36,260), Frederick (18,142) and Salisbury (15,141).

History.—A revised child labour law was enacted at the 1950 session of the general assembly. There was a one-day special session on July 27, 1950, to provide for absentee voting for members of the armed forces; and a one-day special session on Nov. 10, 1950, to exempt all purchases up to 50 cents and all foods and meals from the retail sales tax.

Under the 1950 census, Maryland gained an additional representative in the United States congress and a new congressional district was created at the 1951 session of the general assembly.

An important act relating to defective delinquents was also enacted at the 1951 session.

Education.—In 1950–51 there were 835 public elementary and occupational schools in the state (including Baltimore city), with a total enrolment of 240,447 and a teaching staff of 6,855. There were 219 secondary and vocational schools, with an enrolment of 128,426 and a teaching staff of 5,550. In the elementary schools approximately one student in four was a Negro, and in the higher schools approximately one in six was a Negro. The enrolment in Catholic schools for the entire state was 57,970 white and 2,521 Negro students. The enrolment in non-Catholic private schools was 11,672 white and 167 Negro students. Thomas G. Pullen, Jr., was state superintendent of schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—As of June 30, 1951, old-age assistance was being given to 11,488 persons, with a total cost of $5,334,331.43 for the fiscal year ended June 30, 1951; public assistance was being given to 487 needy blind persons, with a total cost of $240,722.54 for the fiscal year; aid to dependent children was being given to 6,028 families, with a total cost of $5,929,593.31 for the fiscal year. As of Jan. 1, 1951, the administration of a new category of aid to the permanently and totally disabled was begun. This type of assistance was received by 2,150 persons in June 1951 and total expenditures for the fiscal year (covering the six months the program was in effect) were $295,190.22. Unemployment compensation benefits paid for the benefit year ending March 31, 1950, were $14,303,136, as compared with $31,319,231 in the preceding year.

Table I.—*Principal Crops of Maryland*

	1951	1950	Average, 1940–49
Apples, bu.	1,200,000	1,352,000	1,441,000
Asparagus, fresh market, crates	76,000		141,000
Asparagus, processing, tons	510		470
Barley, bu.	2,470,000	2,635,000	2,210,000
Cabbage, fresh market, tons	6,600		6,200
Cantaloupes, crates	162,000	301,000	227,000
Corn, bu.	20,430,000	18,832,000	16,674,000
Cucumbers, fresh market, bu.	312,000		432,000
Hay (all), tons	683,000	615,000	594,000
Lima beans, market, bu.	68,000	75,000	104,000
Lima beans, processing, tons	3,170	3,720	2,210
Oats, bu.	1,980,000	1,598,000	1,237,000
Peaches, bu.	722,000	563,000	563,000
Potatoes, bu. (Irish)	1,230,000	1,396,000	1,906,000
Potatoes, bu. (sweet)	800,000	946,000	1,368,000
Snap beans, early market, bu.	352,700	272,000	367,000
Snap beans, late market, bu.	68,000	85,000	90,000
Snap beans, processing, tons	23,800	16,500	15,000
Strawberries, crates	288,000	180,000	228,000
Sweet corn, processing, tons	71,900	69,500	84,200
Tobacco, lb.	42,900,000	40,000,000	32,966,000
Tomatoes, market, bu.	1,000,000	940,000	1,114,000
Tomatoes, processing, tons	228,800	225,700	225,900
Watermelons, melons	2,200,000		2,330,000
Wheat, bu.	5,371,000	5,162,000	6,840,000

As of Dec. 1, 1951, there were 1,532 white inmates and 2,392 Negro inmates, or a total of 3,924 inmates, in the four state penal institutions; of these, 43 were white females and 117 Negro females.

Communications.—The state roads commission expended $76,720,548.52 for the fiscal year ended June 30, 1951. The total road mileage in the state highway system was 4,667, in the county system 12,065 and in the municipalities 1,161. In 1951 there were 1,320 line-mi. and 2,800 track-mi. of steam railroads and 41.4 line-mi. and 52 track-mi. of electric interurban railways. As of Dec. 1, 1951, there were 699,158 telephone instruments in service in the state, of which 316,586 were in the city of Baltimore. There were 2,577,000 mi. of wire, of which 1,384,000 mi. were in underground cable.

Banking and Finance.—As of June 30, 1951, state banks and trust companies had deposits of $948,740,646.69 and total resources of $1,034,905,217.90; mutual savings banks had deposits of $405,604,729.13 and total resources of $455,767,238.24. There were 59 national banks in the state with deposits of $696,302,000 and total resources of $752,480,000. The total resources of all state and national banks were $2,243,152,456.14. As of Dec. 31, 1950, 382 savings and loan and building and loan associations were computed to have assets of $395,917,055.

State appropriations for the year ended June 30, 1951, were $144,858,957.47 and expenditures were $158,931,903.32. State appropriations for the year ending June 30, 1952, were $163,182,343. The total bonded indebtedness of the state as of June 30, 1951, was $72,898,000 and there was a general surplus of $12,731,966.21.

Agriculture.—During the first ten months of 1951, Maryland farmers received an estimated $77,419,000 from the marketing of principal farm crops, as compared with $69,345,000 for the similar period in 1950. Livestock and livestock products brought a total of $157,539,000 during the first ten months of 1951, as compared with $132,149,000 in 1950. Total cash receipts from farm marketings in the first ten months of 1951 amounted to $234,958,000, compared with $201,494,000 for the first ten months of 1950.

Manufacturing.—The Maryland employment security board estimated the number of manufacturing establishments as of June 30, 1951, to be 3,211 employing 254,201 persons, as compared with 224,870 as of June 30, 1950, and the nonmanufacturing establishments (covered by unemployment compensation) at 35,905 employing 359,211 persons, as compared with 346,530 as of June 30, 1950.

The total pay roll for the three months ended June 30, 1951, was: manufacturing $210,466,268, nonmanufacturing $238,761,614, making total quarterly pay rolls for the 13-week period $449,227,882 as compared with $378,910,925 for the similar period of 1950. (H. E. F.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949, for commodities having a value in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production in Maryland*

(In short tons)

	1950		1949	
	Quantity	Value	Quantity	Value
Clays	675,749	$ 1,158,031	586,453	$ 922,822
Coal	647,923	3,134,704	668,332	3,505,099
Coke*	2,367,233	?	2,039,957	?
Iron, pig*	3,525,475	?	2,931,596	?
Lime	64,687	691,843	64,299	617,696
Sand and gravel	5,864,472	7,789,764	4,776,815	6,028,791
Stone	1,975,690	3,459,605	1,789,830	3,036,410
Other minerals	—	?	—	6,350,471
Total	—	?	—	20,461,000

*Values for processed materials are not included in the totals.

Massachusetts.

A north Atlantic state of the U.S., Massachusetts was admitted to the union on Feb. 6, 1788. It is popularly known as the "Bay state." Area: 8,257 sq.mi., including 390 sq.mi. of water; population (U.S.

census 1950) 4,690,514 of which 3,959,239 or 84.4% was urban. This was a gain of 8.7% over 1940. The capital is Boston (pop., 801,444); other important cities are Worcester (203,486); Springfield (162,399); Cambridge (120,740); Fall River (111,963); New Bedford (109,189); Somerville (102,351); Lynn (99,738); Lowell (97,249); Quincy (83,835); Newton (81,994); Lawrence (80,536).

History.—State officials elected for the biennium 1951–52 were: governor, Paul A. Dever; lieutenant governor, Charles F. Jeff Sullivan; secretary of state, Edward J. Cronin; treasurer, John E. Hurley; attorney general, Francis E. Kelley; auditor, Thomas J. Buckley.

The general court is the name given to the Massachusetts legislature. It holds sessions annually, and adjourned its 158th session on Nov. 17, 1951, the longest session in the history of the state.

Unusual delays were encountered in enacting tax bills necessary to cover the increased expenditures. The budget for the fiscal year totalled $329,000,000. This appropriation included a bond issue in the amount of $23,250,000 for state buildings. The total represented an increase of $14,000,000 over the preceding fiscal year. Another bond issue of $30,000,000 was provided for the construction of sewers by the Metropolitan District commission.

In order to finance the increased expenditures, all temporary taxes, amounting to $53,000,000, were renewed, and new taxes totalling $32,000,000 were imposed. The gasoline tax was raised to collect an additional $10,000,000. The state income tax was increased from 1½% to 2½%, and the capital gains tax was doubled from 3% to 6%.

Some tax benefits were provided. Unearned income was to be exempt up to $2,000, an increase of $1,000 in the exemption. Exemption up to $5,000 was also provided on personal property tax, the previous base being $1,000. The effect of this change would be to equalize the imposition of the existing property tax for all citizens having less than the exempted amount. Formerly, while some cities and towns imposed a personal property tax wherever more than a $1,000 valuation was found, other cities and towns neglected to impose a personal property tax except on wealthy people.

Out of a total of 4,600 bills, a few more than 800 were enacted into law, and 80 resolves were passed. For the first time in many years the voters of Massachusetts would be allowed to express their presidential preference at the primary elections in 1952. Veterans of the Korean war were given civil service preference equal to that in effect for veterans of World Wars I and II.

In the Nov. 1951 election the voters adopted by an overwhelming vote a referendum increasing the minimum assistance under the old-age law to $75 per month, at the same time reducing the eligible age from 65 to 63. It was predicted that to finance this program of old-age assistance would require an additional annual expenditure of $54,000,000. The case was submitted to the supreme judicial court and the court, just before the effective date, found the referendum to be unconstitutional.

Education.—In 1951 there were 1,691 public elementary schools and 110 consolidated schools with 400,323 pupils; 108 junior high schools with 80,473 pupils; 225 senior high schools with 132,429 pupils. The public schools of the state employed a total of 24,844 full-time teachers at an average salary of $3,269.31. The total expenditure for public schools for support and outlay was $135,490,122.10. John J. Desmond, Jr., was the state commissioner of education.

Social Insurance and Assistance, Public Welfare and Related Programs.—During 1951 old-age assistance was extended to an average monthly number of 101,833 persons at an estimated annual cost of $77,992,808; an average monthly number of 13,202 families received assistance for the care of 32,103 dependent children (estimated cost $17,862,974); general relief was extended to an average monthly number of 19,819 persons (estimated cost $13,087,894).

Table I.—*Principal Crops of Massachusetts*

Crops	1951	1950	Average 1940–49
Corn, all, bu.	1,692,000	1,554,000	1,677,000
Cranberries, bbl.	590,000	610,000	468,600
Apples, bu.	3,516,000	3,825,000	2,537,000
Hay, tons	540,000	504,000	588,000
Potatoes, bu.	1,886,000	2,622,000	3,214,000
Tobacco, lb.	10,662,000	13,517,000	10,353,000
Onions (50 lb. bags)	408,000	432,000	—
Oats, bu	200,000	150,000	210,000
Asparagus (30 lb. crates)	112,000	112,000	—

Source: U. S. Department of Agriculture.

Table II.—*Estimated Value of Principal Products Manufactured in Massachusetts*

Products	Estimated Value, 1951
Electrical machinery, apparatus and supplies	$450,000,000
Woollen and worsted goods	440,000,000
Boots and shoes, other than rubber	356,000,000
Clothing, men's and women's, including work clothing	321,000,000
Cotton goods	229,000,000
Leather: tanned, curried and finished	194,000,000
Foundry and machine-shop products	188,000,000
Printing and publishing, book and job and newspapers	165,000,000
Rubber goods, including rubber tires and inner tubes	163,000,000
Bread and other bakery products	162,000,000
Paper and wood pulp	142,000,000
Boot and shoe, cut stock and findings	120,000,000
All other industries	3,428,000,000
Total value	$6,358,000,000

For the year ending July 1, 1951, the commonwealth appropriated $6,347,938 to maintain correctional institutions including the state prison (600 inmates), prison colony (825 inmates), reformatory for men (725 inmates), reformatory for women (250 inmates, including 30 babies under two years) and the state farm (2,000 inmates, including the criminally insane).

Banking and Finance.—Revenue receipts of the commonwealth for the fiscal year ended June 30, 1951, were $386,513,744.73. This included $86,645,000 collected from the sale of bonds, but it did not include any taxes collected by the state for distribution to the cities and towns. Expenditures for state government amounted to $357,464,211.90. The direct gross debt was $208,613,800, less a sinking fund of $6,017,140.15 for a net debt of $202,596,659.85.

The assessed valuation of the state as of Jan. 1, 1950, was $7,230,068,313. The estimated valuation on Jan. 1, 1951, was $7,510,028,145. As of June 30, 1951, bank deposits in savings banks amounted to $3,357,966,696; total assets of commercial departments of trust companies, $1,121,013,000; bank deposits in savings departments of trust companies, $252,265,000; total assets of credit unions, $81,447,487; total assets of co-operative banks, $657,678,711.

Agriculture.—Cash receipts from the marketing of farm products in 1950 totalled $173,957,000. This included total crop cash receipts of $55,742,000 and total livestock products of $118,215,000.

Manufacturing.—In 1951 there were 2,033 labour unions in Massachusetts. The total membership as of Jan. 15, 1951, was 605,220 (437,545 males and 167,675 females), an increase of 38,831 members over 1950.

(D. A. Dy.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having a value in excess of $100,000, and the corresponding data for 1950, so far as they were available at the end of 1951.

Table III.—*Mineral Production of Massachusetts, 1949–1950*

(Short tons)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays	155,279	$ 139,060	156,017	$ 135,813
Coke*	855,217	?	891,400	?
Iron, pig*	181,998	?	125,422	?
Lime	139,357	1,830,625	107,931	1,360,328
Sand and gravel	7,111,067	5,430,790	5,504,841	4,379,030
Stone	3,284,470	8,484,999	2,290,940	6,552,935
Other minerals		?		21,330
Total		?		$12,449,436

*Values for processed materials are not included in the totals.

Mathematics.

Publication of research papers in mathematics continued at a high rate during 1951. There were several outstanding discoveries, but the details are too technical to be stated here. The year was marked by two events of great significance for the future of mathematics.

The first of these events was the creation of a new division of mathematics in the National Research council. Before 1951 mathematics was a part of one of the eight divisions of the council, the division of mathematical and physical sciences. It was felt that the interests of that division were too diverse to represent the needs of mathematics adequately, and the council as a whole agreed with this point of view and split the division into a division of the physical sciences and a division of mathematics in Jan. 1951. The first officers of the new division were H. Marston Morse of the Institute for Advanced Study, Princeton, N.J., (chairman), Marshall H. Stone of The University of

Chicago (vice-chairman) and John R. Kline of the University of Pennsylvania, Philadelphia (executive secretary). Kline resigned later and was succeeded by James A. Clarkson of Tufts college, Medford, Mass.

The division was well organized by June 1951. The members of the division included representatives of the American Mathematical society, the Mathematical Association of America, Inc., the Institute of Mathematical Statistics, the Biometric society, the National Academy of Sciences, the American Physical society, the Association for Symbolic Logic, the Econometric society and the National Research council division of engineering and industrial relations.

Morse and Saunders MacLane were representatives of the division on the National Research council committee advisory to the office of ordnance research. The office of ordnance research accepts proposals for contracts to do research, and each such proposal is referred to the National Research council committee for consideration. There is a similar committee in mathematics advisory to the office of naval research, a committee advisory to the Fulbright commission and a fellowship committee.

A committee on operations research was studying the problem of finding and training specialists in that field. There was a committee on high speed calculating machines, a committee on editing the quarterly journal of mathematical tables and other aids to computation and a committee on scientific conferences. There was also a committee on the revolving fund for publication of mathematical books to advise on and encourage the publication of mathematical books not readily financed through other channels.

The division was trying to obtain a detailed background knowledge of the mathematical staff, student body, potential for increased mathematical research, and need of support in eighty or more graduate schools. It was expected that a committee on the regional development of mathematics would be appointed later.

A new and very important committee was the United States national committee for mathematics. This committee of the division of mathematics of the National Research council was created in response to the second significant event of 1951, the creation of an International Mathematical union. The union was established in Sept. 1951, with ten countries adhering. Five additional countries later adhered. A list of the members follows together with the names of the national adhering organizations, and the group in which the country adheres.

Australia (Group I). Australian National Research Council.
Austria (Group I). Oesterreichische Mathematische Gesellschaft.
Canada (Group II). Canadian Mathematical Congress. Société Mathématique du Canada.
Denmark (Group II). Det Kongelige Danske Videnskabernes Selskab.
Finland (Group I). Soumalainen Tiedeakatemia. Academia Scientiarum Fennica.
France (Group IV). L'Académie des Sciences de Paris, le Centre National de la Recherche Scientifique et la Société Mathématique de France.
Germany (Group IV). Deutsche Mathematikervereinigung.
Great Britain (Group V). The Royal Society.
Greece (Group I). Académie d'Athénes.
Italy (Group IV). Unione Matematica Italiana.
Japan (Group IV). Science Council of Japan.
Netherlands (Group II). Wiskundig Genootschap voor Nederland.
Norway (Group I). Det Norske Videnskaps Akademi i Oslo.
Peru (Group I). Academia Nacional de Ciencias Exactas.
United States of America (Group V). National Academy of Sciences—National Research Council.

The group to which a country belongs determines the number of votes of that country in the general assembly. The first general assembly was set for March 6–8, 1952, in Rome, It.

The new Union was expected to do much to promote the cooperation of the mathematicians of the world and the wider dissemination of the results of mathematical research. (*See* also Standards, National Bureau of.) (A. A. At.)

Maurice and Laura Falk Foundation, The: *see* Societies and Associations, U.S.

Mauritania: *see* French Union; French West Africa.

Mauritius. British colony in the Indian ocean with island dependencies, of which the largest are Rodriguez and Diego Garcia. Area: Mauritius 720 sq.mi.; Rodriguez 42 sq.mi. Pop.: (1950 est.) 489,000; (1944 census) Mauritius 419,185 (57% Indo-Mauritian), Rodriguez 11,885, Diego Garcia 501, other dependencies 1,077. Languages: Creole *patois,* Hindi, French and English. Religion: mainly Roman Catholic among those of European, African or mixed descent. Capital, Port Louis. Governor in 1951, Sir Hilary Blood.

History.—The malaria eradication campaign, which had been successful by April 1950 in reducing by about 80% the incidence of malaria in the treated areas, had by the end of that year virtually eliminated the disease from the island. Efforts during 1951 and the remaining year of the scheme were being concentrated on consolidation and the ensuring that no new infection was introduced from overseas. A development loan of £2,615,000 was over-subscribed and additional taxation to meet its charges was successfully levied. Income tax and a noncontributory old age pension scheme were also introduced. Another experiment begun during the year was the export of locally grown tobacco to the British market. Nearly 45,000 lb. were exported in January.

Education.—Primary pupils (1950) 51,281; 2 government secondary schools and several grant-aided; 1 teachers' training college.

Finance.—Currency, Mauritius rupee (Rs.1 = 21 cents U.S.). Budget (1950 act) revenue Rs. 55,100,000; expenditure Rs. 50,200,000.

Foreign Trade.—(1950) Imports £13,000,000; exports, £11,300,000. Principal exports: sugar, fibre, tea. Production (1950): sugar 456,000 tons, tobacco 427,500 kg., aloe fibre 1,173 tons, tea 750,000 lb.

(K. G. B.)

Maybank, Burnet Rhett (1899–), U.S. senator, was born at Charleston, S.C., on March 7. After service with the U.S. navy during World War I, he graduated from the College of Charleston, then entered a cotton export firm. He was an alderman of Charleston from 1927 to 1931, mayor of the city from 1931 to 1938 and governor of South Carolina from 1939 to 1941. He was elected U.S. senator from South Carolina on the Democratic ticket in 1941 to fill the unexpired term of James F. Byrnes when the latter was appointed to the U.S. supreme court. Maybank was re-elected to the senate in 1942 for the term 1943–49 and in 1948 for the term 1949–55. In Jan. 1949 he was named chairman of the senate banking and currency committee.

In the senate, Maybank ordinarily followed the Democratic party line. He did, however, support the Taft-Hartley law and joined the southern Democrats in blocking civil rights legislation. In Jan. 1950 he introduced a $2,200,000,000 housing bill for construction of more than 200,000 homes. After the Chinese intervention in Korea, he favoured use of the atom bomb by U.S. forces. In 1951 he again parted with the administration when he opposed its attempts to institute price rollbacks.

Meat. The average U.S. civilian in 1951 ate about 141 lb. of meat as compared with 143.7 lb. in 1950, but only 126.2 lb. prewar; of the total for four types, beef accounted for 58 lb. (63 lb. in 1950); veal declined from 7.9 lb. in 1950 to 7 lb. in 1951; mutton and lamb dropped 25% from 4 lb. to 3 lb.; and pork increased 6%, from 68.8 lb. in 1950 to 73 lb. in 1951. The total of approximately 22,365,000,000 lb. for the year was slightly more than the production for 1950, but very definitely lower than the 23,370,000,000 lb. for the year which had been forecast late in 1950.

Supply prospects for the year ahead, as forecast, were for an increase of more than 1,000,000,000 lb. over the 1951 supply, to 23,550,000,000 lb., an increase primarily in beef, which would

Table I.—*U.S. Meat Production*

(In millions of pounds, dressed weight)

	1952*	1951	1950	1948	1947	Average 1937-41
Beef.	10,000	9,000	9,543	9,079	10,429	7,196
Veal.	1,250	1,050	1,216	1,412	1,599	1,022
Lamb and mutton.	600	515	599	750	802	884
Pork.	11,700	11,800	10,751	10,205	10,601	8,573
Total. . . .	23,550	22,365	22,109	21,446	23,431	17,675

*Forecast by U.S. Department of Agriculture.

depend upon a slowdown in the rate of herd building. Though the prospect of a cut in the spring pig crop for 1952 indicated that pork would no longer be in a position to meet extra demands of meat eaters, there were indications that chickens, which provided 4,511,000,000 lb. of meat in 1951 as compared with 4,069,000,000 lb. in 1950, and turkeys which contributed 837,000,000 lb. in 1951 (only 755,000,000 lb. in 1950), would be available in equal if not larger amounts in 1952.

Fish, 11.4 lb. of which were consumed per person in 1951 and 1950, were expected to continue in abundance. Storage stocks and imports increased during the year.

Tailored price ceilings were imposed on beef in May 1951; ceiling prices on beef at wholesale and retail, except for minor adjustments, were not changed. Slaughter quotas on cattle, calves, hogs and sheep and lambs were banned by amendments to the Defense Production act. Rollbacks scheduled for Aug. 1 and Oct. 1 were cancelled. There were rumours of black markets, of producer strikes, of consumer strikes and of a complete breakdown in meat production and distribution. Plentiful supplies of pork, chicken, turkey and fish were probably to be credited with the situation remaining fairly well in hand.

As to prices, the spread between beef and pork was abnormally wide during the year, with the better cattle near $40 per hundredweight much of the year, and with butcher hogs below $20 per hundredweight during periods of heavy movement. Actually, though there were sharp fluctuations during the year, the index of prices farmers received for meat animals in Dec. 1951 was 379 as compared with 360 a year earlier.

Beef imports into the United States from Canada increased sharply, particularly before August. The U.S. imported about 35,000,000 lb. of hams, shoulders and bacon in 1951, more than 10,000,000 lb. of it from Canada and more than 13,000,000 from the Netherlands. The U.S. meat market was sufficiently attractive, price-wise, to draw Irish beef and Icelandic lamb. U.S. exports of meat and meat products in 1950–51 were 122,104,000 lb. valued at $37,437,000, very little more than in the previous year.

Meat output in the principal livestock countries of the world (excluding the far east) was estimated at 72,500,000,000 lb. in 1950, a new record, 5% more than in the previous year and about 6% more than prewar. Leading countries were the U.S. (22,236,000,000 lb.), Argentina (4,930,000,000 lb.), France (4,310,000,000 lb.), western Germany (3,596,000,000 lb.), Brazil (2,947,000,000 lb.), the U.K. (2,631,000,000 lb.), Australia (2,248,000,000 lb.) and Canada (1,916,000,000 lb.).

Meat consumption per capita in that year in some of the more important meat-consuming countries was: Argentina, 232 lb.; Uruguay, 230 lb.; New Zealand, 219 lb.; Australia, 214 lb.; U.S., 133 lb.; Canada, 129 lb.; Paraguay, 125 lb.; Denmark, 124 lb.; the U.K., 110 lb.; France, 102 lb.; Sweden, 99 lb.

Table II.—*Production of Meats in Principal Producing Countries*

(In millions of pounds, carcass meat basis)

	Beef		Pork		Lamb	
Country	1950	Average 1934–38	1950	Average 1934–38	1950	Average 1934–38
United States	10,768	7,974	10,867	7,337	601	871
Argentina.	4,300	3,645	300	225	330	370
Brazil	2,350	1,821	530	369	39	15
France	2,161	2,200	1,763	1,494	243	222
United Kingdom	1,419	1,393	878	1,012	334	447
Australia	1,390	1,275	173	211	685	716
Western Germany	1,314	1,550	2,161	2,500	44	45

International trade in meat in 1950 amounted to nearly 4,000,000,000 lb., still substantially less than the prewar average of 4,550,000,000 lb. Argentina, in spite of reduced supplies, contributed about one-fourth of the total, new Zealand 19%, Denmark 15%, Australia 12%, Uruguay 7%, and Canada 5%. Argentina's exports declined in 1951 and were officially restricted in spite of making cattle delivery compulsory.

In the U.K., fresh meat consumption in the first half of 1951 was only about half the level of 1050; the ration was cut very severely and the matter became a political question of serious import. An effort to increase home-grown supplies was made as well as to find more foreign supplies, even in France. A 15-year Anglo-Australian meat production agreement was signed, guaranteeing minimum prices equal to those paid Australia in 1950–51 for six years on beef and veal and three years on mutton and lamb. The Anglo-Uruguayan contract was renewed, and Britain and Argentina signed a new agreement in April after a ten-month deadlock, the new agreement calling for somewhat less meat and higher prices (as high as £146, or $410.60, per long ton) for chilled beef. (*See* also AGRICULTURAL RESEARCH ADMINISTRATION; LIVESTOCK; VETERINARY MEDICINE.)

(J. K. R.)

Medical Rehabilitation of the Disabled.

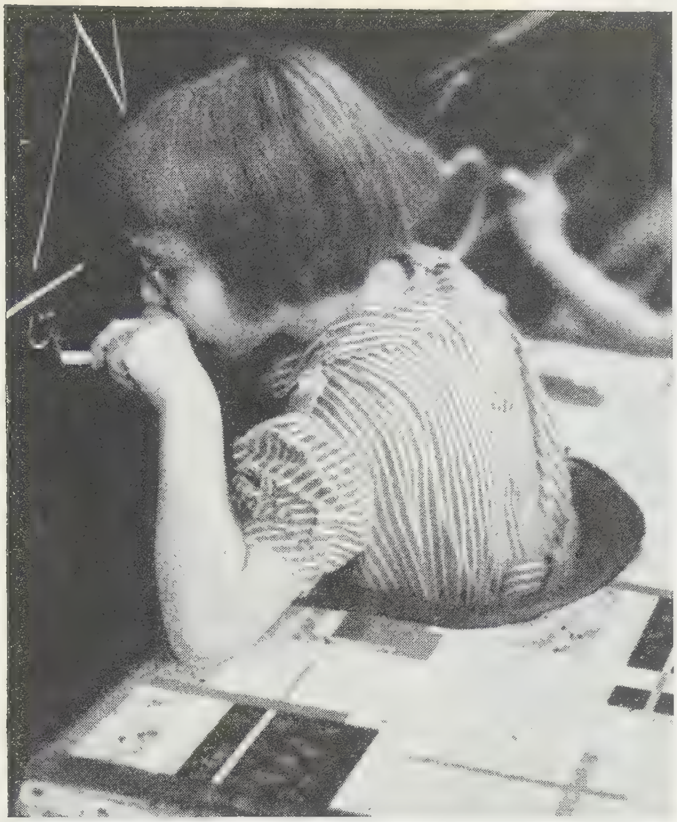
The rapid expansion of international rehabilitation efforts and the continued need to rehabilitate and place more handicapped workers in defense production were the two outstanding highlights of medical rehabilitation of the disabled during 1951.

As the tempo of defense production increased in both the United States and Great Britain, handicapped workers found their services and skills more readily accepted by industry. In the United States 277,000 handicapped workers were placed in jobs through the joint efforts of the federal-state employment services, an increase of 100,000 over the previous year. Several hundred thousand other handicapped workers found jobs by themselves or with the aid of voluntary agencies. The Office of Defense Mobilization appointed a special task force to study methods of rehabilitating more handicapped workers and placing them in jobs in support of the mobilization program.

Efforts to rehabilitate and place more handicapped workers in defense efforts were handicapped by the lack of rehabilitation programs in general hospitals and the lack of trained personnel, particularly of physicians and physical therapists. This need was accentuated not only by the needs arising from mobilization, but also by the increase of chronic disease resulting from increasing age level of the population. For example, while the population of the United States had doubled after 1900, the number of persons over 65 had almost quadrupled. Although disability strikes all ages, it is found much more frequently in the older age groups. In one comprehensive study, the ratio of acute and chronic illness among persons over 65 years of age was found to be 279 per 1,000 as contrasted with 171 per 1,000 among persons of all ages.

Although progress was slow because of the lack of both personnel and funds, there were indications during the year that a growing number of general hospitals were starting rehabilitation services. Among 1,600 hospitals of 50 beds and more responding to a questionnaire sent by the Commission on Chronic Illness, 65 reported they were operating organized rehabilitation services. Eighteen of these were functioning in special wards; in the other 47, the rehabilitation patients were not segregated. It was significant that a substantial number of those with rehabilitation services were located in general hospitals of less than 250 beds.

A fundamental change in policy affecting the rehabilitation



CEREBRAL PALSY VICTIM at a special public school class in New York city for children similarly handicapped. Blackboard writing (above) is made easier for them by support from a "standing table" and writing chalk set in rubber for easier grasping

of military casualties in the United States was made when the department of defense and the Veterans administration announced that military casualties whose disabilities were so severe as to require extended rehabilitation and would preclude return to active military duty would be transferred as soon as possible to the specialized rehabilitation centres of the Veterans administration. The new plan, it was stated, would insure better rehabilitation services for such casualties and would save highly trained personnel by eliminating rehabilitation services in the three military services which would duplicate those provided by the Veterans administration.

In the international field, a new rehabilitation unit was established in the Division of Social Affairs of the United Nations to co-ordinate the fellowship, technical assistance, consultation and publication services of the United Nations and its specialized agencies. As a result, it was expected that the international exchange of students, consultants and technical data would be greatly increased.

During the year a number of international conferences dealing with various aspects of rehabilitation were held. Among these were the second International Poliomyelitis conference in Copenhagen, Den., the organization meeting of the World Confederation for Physical Therapy in Copenhagen, the second International Gerontological congress in St. Louis, Mo., and the fifth world congress of the International Society for the Welfare of Cripples in Stockholm, Swed.

Among the most heartening reports at the latter meeting was that of L. Guttmann of the Spinal Injuries centre at Stoke Mandeville, Eng., who said that of more than 700 paraplegics trained in this centre, 74% were living out of the hospital and most were employed full time.

The conclusion of the poliomyelitis conference which was arranged by the Danish National Foundation for Infantile Paralysis and the National Foundation for Infantile Paralysis of the United States was that although the long-range objective of a single vaccine that would provide protection from poliomyelitis had not been achieved, prospects were becoming increasingly hopeful. It was noted that as a result of improved methods and rehabilitation, there was much less physical disability from this disease. (*See* also VOCATIONAL REHABILITATION, OFFICE OF.)

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FILMS OF 1951.—*The Undefeated* (British Information Services and Brandon Films, Inc.). (H. A. RK.)

Medicine.

Great changes were occurring in medical practice in 1951 because of the development of new methods of diagnosis and treatment of disease. Pneumonia, which not long before had been second in the list of causes of death, had moved down to fifth. Accidents had moved up to fourth place. The leading causes of death in 1951, contrasted with 1901, follow:

1901	1951
Tuberculosis	Heart disease
Pneumonia	Cancer
Diarrhoea and enteritis	Brain haemorrhage
Heart disease	Accidents
Early infancy and congenital malformations	Nephritis
Brain haemorrhage	Pneumonia and influenza
Accidents	Tuberculosis
Cancer	Premature birth
Bronchitis	Diabetes
Diphtheria	Congenital malformations
Typhoid	Suicide
Influenza	Cirrhosis of liver
	Ulcer of the stomach

Bronchitis, diarrhoea and enteritis, diphtheria and typhoid were no longer among the leading causes of death in 1951. Many other infectious diseases formerly responsible for thousands of deaths were now controllable by new drugs. Indeed, progress in the discovery of new pharmaceuticals and expansion of use of products already known represented the outstanding medical advances of 1951.

Research with cortisone and ACTH proved to be the centre of interest in various aspects of medical progress during 1951. The specific action of these substances in controlling inflammation gave opportunity for use in a great variety of disorders concerned with the collagen or connective tissue system of the body.

Especially significant was the development of cortisone in a new form (Compound F); the original cortisone was Compound E of the adrenal hormones. Cortisone was developed in the form of tablets which can be taken by mouth. A new form of ACTH was offered which when injected acts for a longer time than did the first form.

These drugs were tried particularly in inflammatory conditions affecting the eye and for the prevention of sympathetic ophthalmia. Other uses were for toxaemia of pregnancy; intractable asthma; sarcoidosis; haemolytic anaemia; thrombocytopenic purpura, in which there is a lessened number of blood platelets; snake bite; and various forms of allergy and nervous disorders. (*See* CORTISONE AND ACTH; ENDOCRINOLOGY.)

Drugs.—Approximately 160 preparations of antibiotics were under investigation in 1951, including substances derived from many common plants and living materials such as tomatidine from the tomato, radicin from radishes, lupulin from hops, garlicin from garlic and fumagillin from a fungus that causes aspergillosis.

The leading products were still penicillin, streptomycin, chloromycetin, aureomycin and terramycin. Applied locally only were bacitracin and tyrothricin. Intensive research was being made on an antibiotic that may attack virus diseases, especially small viruses, such as those that cause poliomyelitis and epidemic encephalitis. Two such experimental substances were called viscosin and ehrlichin.

Interest was shown in the possible combination of several antibiotics in one dosage to reach a greater variety of germs and also to attack organisms that may have developed resistance to a single antibiotic. Aureomycin, chloromycetin and terramycin were shown capable of interfering with the action of penicillin, but the reverse was not true.

Germs may develop resistance to antibiotics after a time so that a new one must be substituted. Tuberculosis of the meninges or coverings of the spine used to be almost invariably fatal. One clinic reported more than 90% of the cases ended in death. With streptomycin and PAS, or paraminosalicylic acid, less than 15% died. The germs could become resistant to streptomycin but substitution of viomycin overcame them.

The sulfonamide or sulfa drugs continued to be studied. There was a trend toward using combinations of several such drugs in order to get a total beneficial effect with less toxic effect. Most widely used of the sulfa drugs was sulfadiazine, with sulfamerazine and a new preparation called gantrisin, which was widely used because of lessened toxicity, closely following.

Interest in synergism in the use of drugs was revived since various ways in which one drug may enhance or improve the action of another had been shown. Thiamin aids the action of local anaesthetics on the nerves. Potassium iodide improves the action of streptomycin in tuberculosis. Hyaluronidase has a spreading action which improves the rapidity of absorption and therefore the action of injected drugs.

Many new products were tested for action on high blood pressure; the most effective apparently was hexamethonium bromide, whose action is so efficient that danger may result from too sudden and too complete reduction of pressure.

"Dromoran" was the name given to a new opium derivative used for controlling pain. This product brought medicine closer to the development of a long-sought objective—a synthetic morphine.

Benemid, a carinamide, was proved valuable for elimination of uric acid in gout.

Banthine, welcomed for its effect on the sympathetic nervous system, and particularly on gastric ulcer, was found useful for controlling excessive sweating called hyperhidrosis.

Flies and mosquitoes developed resistance to DDT and then became susceptible to a new insecticide called "pyrolan."

The antihistaminic drugs, useful in a wide variety of allergies, were tested against poison ivy, dysmenorrhoea, colds, food poisoning, drug sensitivities and many other disorders which seemed to be associated with release of histamine in the body.

Radioactive Isotopes.—Radioactive iodine was shown to be especially useful in overcoming excessive action of the thyroid gland and greatly reduced the use of the thiouracils and also surgical procedures. The isotope likewise was found to be useful in more accurate determination of the basal metabolism. A radioactive substance called gold 198 when taken into the body localized in tumours of the ovary with results similar to those secured with deep X-ray treatment. Cobalt 60 was investigated as a substitute for radium in the treatment of cancer and even as a substitute for X-ray machines. Many other radioactive substances were used for the diagnosis of the rate of blood flow, for localizing brain tumours and for other uses depending on the tendency of certain elements to localize in certain tissues of the body.

Surgery.—The great numbers of men wounded in war and injured in industry in 1951 put new emphasis on methods and devices of rehabilitation. A new artificial limb was developed which was held in place by suction, making supporting straps unnecessary. Another invention was a small motor to aid motion.

MEDICAL STUDENTS at St. Louis university, Mo., listening simultaneously to the heartbeat of a patient. Sounds were picked up by a sensitive microphone and transmitted to earphones held by each student to his stethoscope diaphragm, a method of mass teaching introduced in 1951

New plastic procedures were worked out for replacing a lost thumb with a transplanted finger.

Surgery of the heart and blood vessels improved greatly in techniques, so that literally thousands of operations were now being done for narrowing of the heart valves and narrowing of the aorta, the large blood vessel leading from the heart; for improving the circulation of "blue babies"; and for aiding circulation to the vital organs such as lungs, brain, liver and the heart itself.

For revival when the heart stops during surgery, a technique was developed which involved opening the chest and massaging the heart with the hand and utilizing electric shock to stimulate movement of the heart. In one instance a patient was kept alive for several hours by this artificial method until the body recovered ability to renew the automatic action of the heart.

Wide success of surgery of the lung was reported—removing one or more lobes or an entire lung with complete recovery or long survival. Primary cancer of the lung was increasing in frequency, and some surgeons insisted on a relationship between excessive cigarette smoking and cancer of the lung and also on the effects of other irritant substances.

Vitamins.—Vitamin B_{12} was proved to be the most stimulating blood-producing substance. More emphasis was placed on the effects of vitamin P on the blood capillaries. Pyridoxine from the vitamin B complex was associated particularly with seborrhoeic or oily conditions of the skin. Vitamin nutrition is influenced by the antibiotic drugs, and addition of even small amounts of penicillin, aureomycin or terramycin to the diets of animals greatly increases their growth.

Cancer.—Removal of both adrenal glands in cases of cancer served to bring about striking improvement in 7 of 14 patients who were kept alive by administration of the newly isolated adrenal hormones such as cortisone and desoxycorticosterone. New blood tests for cancer were nearing perfection. Nitrogen mustards and urethane seemed to have influence in leukemia as did also certain antifolic acid substances called A-methopterin and A-denopterin. The uses of the Papanicolaou test were expanded to cover cells derived from lungs, lower bowel, stomach and other areas of the body. More attention was given to the possibility that some forms of cancer are related to virus transmission, since research on the Bittner virus showed that it can be transferred in the milk of mice and cause cancer in mice with hereditary strains of the disease. Studies showed that cancer of the breast has a specific hereditary tendency and is about three times more common among daughters of women with breast cancer than it is in the general population. Cancer of the breast develops about ten years earlier in the daughter than in the mother.

More evidence developed that a close relationship exists between the glandular activities and the growth of the cells seen in cancer.

Other Developments.—New research on virus disorders established viruses as causative in herpangina and pleurodynia, also called Bornholm disease. The virus responsible was now known as the Coxsackie virus, first isolated in a community of that name in New York.

Three types of the poliomyelitis virus immunologically distinct had been recognized as responsible for infantile paralysis epidemics in the United States. A specific vaccine had been worked out and was under test in 1951, as was also gamma globulin, which seemed to be effective in preventing the disease when given soon enough in adequate dosage. A blood test was also under process of perfection.

A new method of artificial respiration was being used as a substitute for the well-established Schafer method. In the new method, known as the Holger Nielson or hip-lift method, the worker kneels in front of the patient and raises the patient's hips. In the Schafer technique the worker kneels astride the patient, facing the same way, and presses down. (M. Fi.)

Chiropractic.—By the close of 1951, more than 32,000,000 persons had received chiropractic treatment since the profession was founded by Daniel David Palmer in 1895. Nearly 2,000,000 new patients are treated by approximately 22,000 doctors of chiropractic each year.

As of 1951, the National Council on Education had accredited 14 chiropractic colleges, teaching a minimum standard of four academic years, comprising at least 4,000 hours of instruction. Legislative regulation on a four-year basis had been achieved in 44 states, 5 Canadian provinces, the District of Columbia, Alaska and Hawaii. (L. M. R.)

Osteopathy.—A research program both fundamental and clinical in nature on the further development of the osteopathic concept was under way during 1951 in each of the colleges of osteopathic medicine. A U.S. navy research grant to one of the colleges also became effective in 1951. Grants in cancer teaching had been made to all these colleges by the United States public health service. Other research projects were financed directly by the profession through the Osteopathic Progress fund, which was also responsible in large part for the maintenance and expansion of the colleges. The fund, supported almost exclusively by the profession with an accomplished goal of $7,000,000, had a continuing goal in 1952 of $22,500,000, necessarily widened to include the general public.

There were six accredited osteopathic colleges in the United States during 1951 which admitted students who had 60 semester hours of preosteopathic (premedical) credit as a minimum. (R. P. K.)

Great Britain.—The 20,000 general medical practitioners in the United Kingdom did not possess any representative body of their own, such as the three royal colleges, though they were the largest section of the profession. True, there was a section of general practice in the Royal Society of Medicine and a general practices committee of the British Medical association; but John Hunt and F. M. Rose, who sponsored the project in letters to the *Lancet* and the *British Medical Journal* (Oct. 13, 1951), wanted a college of general practitioners which would be an academic headquarters, run for practitioners by practitioners, to develop medical education, encourage research and raise the status and quality of general practice, perhaps granting a diploma on the lines of the fellowships of the existing royal colleges. This was no new idea, for a college of general practitioners had come close to being established by act of parliament about 100 years before, when it was proposed by Sir James Graham, then home secretary, as a step toward settling the constant squabbles between the various professional bodies; that scheme fell through because of dissension among the practitioners themselves, and order was not fully restored until the General Medical council was formed in 1888.

The new plan was warmly supported by the presidents of the royal colleges and in principle by the medical journals. The *Lancet* feared that it might extend the fragmentation of the profession, and therefore advocated a faculty of general practitioners attached to all three royal colleges. The scheme's sponsors, however, thought that if a college was impossible, a better alternative would be an academy of general practice, linked with the royal colleges, the Society of Apothecaries (one of the companies or guilds of the city of London, granting a recognized medical qualification, the L.M.S.S.A.) and the British Postgraduate Medical federation (a constituent institution of London university co-ordinating postgraduate teaching in London). The best choice seemed to be the academy, for which there was an admirable precedent in the United States.

(*See* also ALLERGY; BACTERIOLOGY; BIOCHEMISTRY; BIRTH CONTROL; BLOOD, DISEASES OF; CANCER; CHEMOTHERAPY; DENTISTRY; DERMATOLOGY; DIABETES; EAR, NOSE AND THROAT, DISEASES OF; ENDOCRINOLOGY; EPIDEMICS AND PUBLIC HEALTH SERVICES; EYE, DISEASES OF; GYNAECOLOGY AND OBSTETRICS; HEARING; HEART AND HEART DISEASES; HOSPITALS; INDUSTRIAL HEALTH; INFANTILE PARALYSIS; MALARIA; MEDICAL REHABILITATION OF THE DISABLED; NARCOTICS AND NARCOTIC TRAFFIC; NUTRITION, EXPERIMENTAL; PHYSIOLOGY; PSYCHIATRY; PSYCHOSOMATIC MEDICINE; PUBLIC HEALTH ENGINEERING; RESPIRATORY DISEASES; RHEUMATIC DISEASES; STOMACH AND INTESTINES, DISEASES OF; SURGERY; TROPICAL DISEASES; TUBERCULOSIS; VENEREAL DISEASES; VETERINARY MEDICINE; VITAMINS AND NUTRITION; X-RAY AND RADIOLOGY.) (E. C-J.)

FILMS OF 1951.—*First Aid on the Spot, First Aid Series* (six filmettes) (Encyclopædia Britannica Films Inc.).

Merchant Marine: *see* SHIPPING, MERCHANT MARINE.
Mercury: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Metallurgy. The defense program furnished the impetus for the development of many new and interesting metallurgical developments during 1951, some of the more important of which are described briefly in the following paragraphs.

Bismuth.—Ductile wire and ribbon of bismuth were developed. Bismuth has unique electrical properties that make it useful in certain types of electrical instruments.

Cast Iron.—Gray cast iron in which the carbon has been spheroidized by the addition of nickel has about double the tensile strength of ordinary cast iron, with no decrease in machinability. Annealing reduces the tensile strength but develops a remarkable degree of ductility, indicated by 17%–23% elongation.

Cobalt.—The demand for cobalt was so enhanced by its use in high-temperature alloys for jet engines and gas turbines that not only were civilian uses curtailed but steps were also taken to reduce the cobalt content of the alloys in use and to develop others with lower cobalt content.

To help offset the cobalt shortages, a cobalt smelter, to be supplied with ore from Idaho, was under construction at Garfield, Utah in 1951.

Magnesium.—The substitution of magnesium for zinc in dry battery cases promised double life and a higher and more constant voltage.

Platinum.—New smelting and refining facilities were being installed in South Africa for treatment of the local platinum ores and concentrates that in the past had been sent to England. Platinum output had already been increased in 1951.

Silver.—A silver-clad sheet steel became available as a substitute for brass, nickel and nickel silver. It can be stamped, bent, drawn, spun, brazed and soldered.

Titanium.—The production of high-purity titanium metal was passing from the pilot plant stage into full commercial output. After production as metal sponge the metal is melted in an arc or induction furnace and cast into ingots weighing up to 1,000 lb. Ingots may be rolled, forged or drawn. Extensive development work was under way on the uses of pure metal and of numerous alloys in the cast, rolled and forged condition. The metal was quoted in 1951 as sponge, powder, forgings, round or square bars, plated, sheets, strip and wire at prices ranging from $5 to $15 per pound.

Continuous Casting.—The use of continuous casting advanced well past the experimental stage, and was in commercial use in a number of plants. (G. A. Ro.)

Metal Prices and Production: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Meteorology.

Most meteorologists saw little reason to believe that the efforts of cloud seeders had made much difference in the amounts or distribution patterns of rainfall during 1951. Their exhaustive studies of weather maps and precipitation statistics showed nothing out of the ordinary in weather and climate, since these are always "unusual." In a paper published in the February issue of the *Bulletin* of the American Meteorological society, H. G. Houghton summarized existing knowledge and conclusions in words which probably expressed the consensus of authoritative meteorological opinion on the subject. He stressed the importance of further research to determine the practical possibilities. Economic and commercial incentives had reinforced scientific curiosity to urge experimentation and research that would bring answers to questions about artificial rain making and would also advance meteorological knowledge in many other ways.

Cloud Physics Research.—The natural formation of rain and snow in the atmosphere involves many complex variables—air pressure, temperature, humidity or vapour pressure, wind flow, vertical air currents, electrical charges and probably other unknown quantities. Better understanding of the behaviour of these variables in the free air and especially an understanding of their interrelations were foremost in interest for research meteorologists in 1951. Answers to these questions were necessary not only for intelligent application of cloud seeding techniques for precipitating rain or snow but also for progress in meteorological science in general and for improvements in weather forecasting in particular. It was generally agreed that only in part could the facts be determined by common laboratory research methods where space limitations prevent exact duplication of the gross processes that occur in the atmosphere. Much research would have to be performed through observations and measurements from aircraft flown into rain-forming clouds where observers could study nature at work in creation of clouds and snow or rain.

Research workers were agreed upon several basic principles established by recent studies. In the laboratory as well as in the atmosphere, water vapour (gaseous) does not condense into water droplets (visible) at ordinary temperatures unless suitable nuclei are present, even though the vapour is cooled far below normal saturation point. Usually there are enough nuclei present in the air to permit almost unlimited condensation as separate small droplets without coalescence into drops sufficiently large to fall as rain unless some mechanism is present to interrupt multiplication of droplets.

Most meteorologists apparently believed there are at least two such mechanisms to account for natural formation of rain. The first and best known is precipitation of ice crystals either spontaneously from water vapour or on suitable nuclei in the very cold air at high altitudes. When ice crystals fall among supercooled cloud droplets they grow rapidly into snow flakes at expense of the cloud droplets because of differences in saturation vapour pressures with respect to ice and water. Transformation from water droplets into ice particles in these circumstances is phenomenal and has been repeatedly demonstrated in the laboratory and in the atmosphere. In large clouds the ice particles may grow to good-sized flakes and fall to the ground either as snow or as rain after gathering the water from many droplets during descent. In the tropics, however, rain occurs without the initial ice particle stage. There the mechanism of rain formation may depend on presence of larger drops whose rates of fall would be different from those of smaller droplets and which might therefore grow by accretion from collisions with smaller droplets. Just how this mechanism would operate in nature was unknown and it was the object of intensive research by Ross Gunn in his laboratory in an 800-ft. mine shaft in Arizona, and by the Cambridge Research laboratory and the Massachusetts Institute of Technology, where radar was being used to assist in studies of cloud physics. Many other investigators were at work on these problems either in field observations or in theoretical studies. In Australia, E. G. Bowen tried introducing large water droplets into convectional clouds near their bases and reported some success in initiating showers by this means.

Tornado Forecasting Research.—To study synoptic conditions that give rise to tornadoes the weather bureau organized a network of closely spaced stations in southeastern Kansas and northern Oklahoma. The network of 135 stations was equipped in a few places with open-scale microbarographs which would record pressure-jump phenomena. The study was based on the assumption that the intersection of two pressure-jump lines would be significant in locating where tornadoes might develop. During 1951 this network was not traversed by a tornado and the studies were not conclusive. Some progress in forecasting tornadoes was reported by E. J. Fawbush, R. C. Miller and L. G. Starrett at Tinker Air base, Oklahoma City, Okla. Although the physical basis for their forecasting criteria was not completely understood, their practical rules based on moisture content and instability of the air masses aloft gave success in a number of cases where they forecast tornadoes. In other places radar equipment was in use to "see" destructive thunderstorms and possibly tornadoes after they actually formed at

Table I.—*Monthly and Annual Mean Temperature and Departure in F° in U.S. Cities, 1951*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Anomaly*
Albuquerque, N.M.	37	40	46	55	67	75	83	77	72	59	52	36	57	+2
Baker, Ore.	25	32	33	47	53	57	69	66	60	36	36	24	46	normal
Chicago, Ill.	24	27	35	47	62	67	73	70	63	55	33	26	49	normal
Columbia, S.C.	47	50	56	62	71	79	81	82	76	68	51	51	64	normal
Columbus, O.	32	32	41	50	63	73	76	74	66	57	38	32	53	+1
Corpus Christi, Tex.	58	59	67	71	78	84	86	86	82	76	63	62	73	+3
El Paso, Tex.	44	48	55	61	73	81	86	83	78	68	51	46	64	+2
Fresno, Cal.	46	50	54	61	68	74	79	78	75	63	56	45	62	normal
Little Rock, Ark.	43	46	53	59	71	78	82	83	73	64	46	45	62	normal
Los Angeles, Calif.	54	53	57	58	60	65	69	67	67	66	61	54	61	—1
Macon, Ga.	50	51	58	64	72	81	82	84	78	69	52	52	66	+2
Miami, Fla.	66	65	70	73	76	80	81	83	83	78	71	73	75	—0.5
Minneapolis, Minn.	9	18	21	42	62	65	72	68	57	49	26	16	42	—2
New York, N.Y.	37	37	42	52	62	69	75	74	67	59	43	39	55	+2.5
North Platte, Neb.	25	32	32	44	58	62	71	71	59	48	34	21	46	—1.5
Phoenix, Ariz.	53	55	61	68	78	84	93	88	85	73	60	53	71	+1
Roseberg, Ore.	42	45	45	55	59	67	69	69	67	55	49	40	55	+1.5
Salt Lake City, Utah	31	38	39	52	60	65	78	74	67	52	39	29	52	+2
Seattle, Wash.	40	44	43	54	57	64	67	64	62	54	48	40	53	+2
Spokane, Wash	27	32	34	48	54	61	71	68	60	46	36	22	47	—1.5
Washington, D.C.	40	39	46	56	65	74	79	77	70	62	44	41	58	+2.5

*Difference between the average temperature for the year 1951 and the normal annual temperature

Table II.—*Monthly and Annual Rain or Snow and Departure from Normal, in U.S. Cities, 1951*

(Data in inches of rainfall)

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total 1951	Anomaly*
Albuquerque, N.M.	0.4	0.3	0.3	0.4	0.1	T	0.9	2.2	T	0.4	0.1	0.3	5.4	−2.7
Baker, Ore	1.2	0.8	1.3	0.6	1.0	0.6	0.2	0.5	0.1	0.9	0.7	0.8	8.6	−4.6
Chicago, Ill.	1.8	2.6	2.8	4.6	4.9	2.0	5.0	4.9	5.3	2.7	3.7	2.8	43.2	+10.3
Columbia, S.C.	1.5	1.3	4.5	4.0	0.1	4.8	4.4	0.8	3.0	0.6	1.9	3.1	29.8	−12.8
Columbus, O.	3.8	3.0	3.9	2.9	3.2	4.7	0.9	0.3	3.1	1.4	4.4	5.1	36.8	+ 0.4
Corpus Christi, Tex.	0.6	1.1	2.4	0.6	0.9	4.0	0.2	0.1	14.5	0.9	1.4	0.1	26.9	+ 0.5
El Paso, Tex.	0.3	0.6	0.6	0.5	T	T	2.5	0.7	0.1	0.4	0.1	0.7	6.5	− 2.7
Fresno Cal.	1.9	1.6	0.3	1.6	0.1	0.1	0	0	0	0.3	1.0	2.9	9.6	+ 0.2
Little Rock, Ark.	4.3	4.1	2.0	3.8	1.6	4.9	7.6	0.8	4.0	3.7	4.4	5.3	46.4	− 2.0
Los Angeles, Calif.	2.8	0.8	0.3	1.4	0.1	T	0	0.1	T	0.2	0.7	4.6	11.1	− 4.2
Macon, Ga.	1.4	1.7	3.0	2.9	1.1	5.5	6.9	3.1	3.3	0.6	4.2	4.7	38.3	− 6.6
Miami, Fla.	0.2	2.3	0.9	5.3	2.2	5.2	7.5	5.3	3.2	8.0	0.7	0.4	41.1	−16.6
Minneapolis, Minn.	0.4	1.7	3.0	1.9	4.1	5.5	5.4	1.9	5.8	1.4	2.1	1.2	34.6	+ 6.9
New York, N.Y.	3.4	3.2	5.1	2.1	5.3	2.7	5.1	1.5	0.7	4.9	7.3	3.9	45.2	+ 2.3
North Platte, Neb.	0.2	1.4	0.2	2.2	7.1	10.5	5.5	2.3	2.1	1.0	0.3	0.6	33.4	+15.1
Phoenix, Ariz.	1.6	0.1	0.2	1.6	0.2	T	1.3	5.3	0.3	0.8	0.8	0.5	12.8	+ 5.0
Roseberg, Ore.	6.9	5.5	3.3	0.9	1.3	0	T	0.1	1.0	5.4	5.3	8.9	37.54	+ 5.2
Salt Lake City, Utah	1.2	0.7	1.3	2.6	1.3	0.1	1.7	2.9	T	2.8	1.6	2.6	17.49	+ 2.9
Seattle, Wash.	6.1	6.9	2.7	0.5	1.4	0.3	0.1	0.7	2.0	4.7	5.0	4.2	34.6	+ 0.5
Spokane, Wash.	3.2	1.6	1.7	0.4	0.7	1.0	0.4	0.4	0.5	3.3	1.9	4.3	19.3	+ 2.7
Washington, D.C.	2.4	2.6	3.2	3.9	3.2	9.3	2.5	2.0	1.9	1.7	5.0	4.8	42.5	+ 0.3

T denotes a trace of precipitation less than 0.01 in.
* 1951 excess or deficiency from normal annual rainfall

Table III.—*Clear Sky, during Daytime, in U.S. Cities, 1951**

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average	Anomaly†
Albuquerque, N.M.	75	73	68	71	74	91	74	69	91	81	74	64	76	normal
Baker, Ore.	32	46	56	79	71	74	94	88	86	57	44	35	67	+ 8%
Chicago, Ill.	44	36	50	36	63	56	66	55	62	57	48	42	53	− 6%
Columbia, S.C.	56	70	56	74	87	66	63	73	54	53	60	42	64	+ 2%
Columbus, O.	37	41	52	45	66	51	63	65	64	68	38	42	54	− 1%
Corpus Christi, Tex.	61	71	69	79	69	81	92	93	64	62	35	44	70	+ 5%
El Paso, Tex.	80	79	72	80	85	96	76	77	92	82	83	73	81	+ 1%
Fresno, Cal.	48	79	87	84	96	98	99	100	99	96	83	56	87	+ 7%
Little Rock, Ark.	50	52	51	60	95	61	73	79	69	66	47	46	64	+ 2%
Los Angeles, Calif.	71	78	77	50	79	58	81	80	82	85	72	61	73	+ 1%
Macon, Ga.	66	72	57	80	89	81	82	90	71	76	67	50	75	+10%
Miami, Fla.	69	66	64	60	76	69	51	58	58	58	56	58	61	−5%
Minneapolis, Minn.	56	42	45	36	59	54	68	46	46	44	38	38	49	− 7%
New York, N.Y.	53	59	58	65	65	63	68	70	65	57	59	52	62	+ 2%
North Platte, Neb.	46	49	63	55	47	48	53	52	58	59	56	49	53	−16%
Phoenix, Ariz.	88	89	89	83	95	97	93	82	96	93	86	68	89	+ 4%
Roseberg, Ore.	20	28	46	74	70	91	84	89	74	31	24	14	59	+12%
Salt Lake City, Utah	37	52	59	68	67	76	84	74	91	57	54	35	65	+ 1%
Seattle, Wash.	25	43	50	76	67	74	72	55	54	32	19	23	53	+10%
Spokane, Wash.	29	34	37	75	53	59	81	74	63	28	16	12	51	− 3%
Washington, D.C.	55	58	55	48	58	60	75	74	60	46	48	43	58	+ 1%

*This table gives the per cent of time between sunrise and sunset during which the sky was clear.
†The difference between the average for the year 1951 and the normal annual per cent of daytime clear sky.

sufficient distance to permit issue of warnings 30 minutes or more in advance of their arrival. Results in this method also were still inconclusive. Other studies directed toward identification and tracking of fronts and severe storms were published by M. H. Gilmore in his paper on frontal microseisms and by G. P. Cressman in his paper on the development and motion of a typhoon in the western Pacific. These papers were indicative of the breadth of meteorological research.

Meteorological Meetings and Publications.—The annual scientific sessions of the American Meteorological society were held in New York city the last week in Jan. 1951, in conjunction with the meetings of the Institute of the Aeronautical Sciences. The society adopted by an overwhelming vote of the membership a code of ethics for guidance of professional meteorologists. An international conference on atmospheric turbulence was held in Cambridge, Mass. in June to bring together research studies on the structure of turbulent flow, its effects, especially in eddy fluxes and eddy diffusion, and the latest problems of evaporation and interchange of heat and moisture between the ocean's surface and the overlying air. The conference was attended by representatives from research institutions in Australia, Canada, the United Kingdom, Japan and many universities and laboratories in the United States. Other noteworthy international meetings were held by the World Meteorological organization, in Paris, and by the Meteorological association of the International Union of Geodesy and Geophysics, in Brussels, Belg., during the latter part of August. Among the publications welcomed by meteorologists everywhere were the *Compendium of Meteorology,* compiled and published by a special board of editors under direction of the American Meteorological society, and the sixth revised edition of the *Meteorological Tables,* a much-enlarged volume published by the Smithsonian institution late in 1951 with the collaboration of the U.S. weather bureau.

World Meteorological Organization.—In Paris during March 1951, the 73-year-old International Meteorological organization was dissolved and the new World Meteorological organization, whose convention had been drawn up in Washington, D.C., in 1947 and subsequently ratified by most of the principal nations, came into being. Approximately 60 states and territories were members of the organization. In December the World Meteorological organization became a specialized meteorology agency of the United Nations.

The technical work of the organization was to be carried on through six regional associations and eight technical commissions. The latter comprised the commissions of bibliography and publications, instruments and method of observations, aerology, climatology, agricultural meteorology, maritime meteorology, synoptic meteorology and aeronautical meteorology. The Executive committee of the World Meteorological organization was to be responsible for general conduct of the technical program of the organization between the congresses of the organization, which were expected to be held at intervals of two to four years.

Anomalies in the Weather of 1951.—Jan. and Feb. 1951 were not unusual in the average distribution of winter temperature in the United States except for southern Texas, where freezing temperatures for the second successive year caused wide-

CHARTING WINDS by tracking a balloon at the U.S.A.F. air weather station in Orlando, Fla., where a study of thunderstorms was conducted in 1951

spread loss of fruit orchards. Relatively, the warmest weather was in Maine, where the winter temperature averaged about 6° F. higher than normal. In precipitation, however, there were serious deficiencies in the northern plains states and over most of the southern half of the country, especially serious in southern California, Arizona and southern Texas where the rainfall was only about 10% of normal for the season. Dry weather which prolonged the drought of 1950 brought water shortages in many places more critical than any time in recorded history.

At the beginning of January, snow covered the northern states practically everywhere north of the 40th parallel, except in the lower portions of Oregon. In the northern Cascades snow was 5 ft. deep or more, and in northern New England, New York, Wisconsin and Minnesota the depths were generally 12 in. or greater. Notwithstanding normal temperatures for the winter as a whole, the first week brought a cold air mass with temperatures almost 40° below zero in Minnesota and Wisconsin. Freezing weather extended southward over most of Texas. Cities along the Gulf coast recorded minima between 24° and 30° F. The last week in January brought another of the abrupt temperature changes for which the middle west is famous. On Jan. 26 the temperature at Goodland, Kan. rose to 79°. Eighteen hours later it had fallen to 3° as result of an arctic air mass which brought blizzard conditions in the northern Rockies and eventually carried freezing temperatures southward to many places on the Gulf coast. In Montana a temperature of 55° below zero was recorded at West Yellowstone.

Early in February an unusually heavy and widespread storm of sleet and freezing rain moved from southern Texas to the middle Atlantic coast, affecting most of the eastern states and causing severe damage to forests. Highway travel became impossible or extremely hazardous in many places. Schools were closed and in some cities power, water and communications were interrupted for two days or more. Another severe ice storm occurred in a wide belt from west central Texas to northwestern Missouri and southern Iowa on Feb. 15 and 16. The last of February the weather turned unseasonably warm with the average temperature for the week soaring to 18° above normal in Minnesota, but this was quickly followed by colder weather with heavy snows in the Dakotas, Minnesota, Iowa and Wisconsin giving an accumulation of snow in many localities to depths of 24 to 28 in. In sharp contrast to the week of warm weather in February, the average temperature for Montana and the Dakotas for the week ending March 13 ranged from 20° to 35° below normal. The lowest recorded at this time was 34° below zero in Montana. Snow remained on the ground the last of March to depths of 25 to 30 in. in Minnesota and northern Wisconsin. This month on the whole had temperatures below normal in all states west of the Mississippi, the greatest departure being 12° below normal in Montana, while the southern and eastern parts of the country enjoyed temperatures 2° to 4° above normal. Precipitation continued much below normal in the southwest.

April and May were characterized by unusually heavy rainfall in parts of the plains states, rains which saturated the soil and set the stage for the floods which occurred in July. The tropical revolving storms known as West Indian hurricanes rarely appear before June or July and do not reach their maximum frequency until September and October, but in 1951 an unusual hurricane skirted the coast of southern Florida on May 17 and moved slowly northward during the next few days. Its intensity was not sufficient to cause the gale winds and torrential rains usually brought by these cyclones.

Late in May winterlike invasions of cold air carried temperatures to readings below freezing in portions of northern Michigan and Minnesota, and during the first week in June another cold air mass brought snow and freezing temperatures to the northern plains states and extended as far south as Kansas. The mean temperature for the first week in June was 15° below normal in Montana and Wyoming. In the east, it was slightly above normal, the greatest average departures being 6° in the vicinity of New York city and Knoxville, Tenn. For the spring months as a whole temperatures averaged up to 4° below normal in the states from Louisiana and Mississippi to the Dakotas, Montana and Washington, and 2° to 4° below normal in the eastern and southwestern parts of the country. Precipitation anomalies were not significant except in Iowa, Nebraska, Kansas and Oklahoma, where for three months the precipitation was almost twice the usual amount. By the last week in June the continued heavy rains had brought flood stages to many of the rivers. In central and northeastern Kansas rainfall for the week ending June 26 amounted to 8 or 9 in.

The July floods in Kansas and Missouri aroused great interest not only because of their magnitude and the suffering and devastation they brought but also because many people thought they were the result of widespread discharge of silver iodide and dry ice into the atmosphere by commercial rain makers and individual ranchers in the semiarid regions of the west all the way from Mexico to the Canadian border. Most places in vicinity of the cloud seeding operations continued in need of rain, while the great plains states far to the east, where persistent spring rains had already given an excess of moisture, were the scene of still greater rainfall during June and July. Many residents in the affected areas said cloud seeding was responsible for the floods through some sort of delayed action or remote distance effect, but studies of synoptic weather analyses embracing the movements of air masses and interaction of frontal systems showed that the rains resulted from natural causes without any apparent influence by artificial seeding of clouds. This conclusion was substantiated later in August when the prolonged dry weather in the southwest was relieved by heavy rains associated with the aftereffects of a hurricane in conjunction with a common cold front without benefit of dry ice or silver iodide.

Table IV.—*Monthly Mean Temperature in F° in Cities of the World—1951*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North America												
Bermuda	64	63	64	66	70	74	77	79	78	70	72	69
Havana	68	68	73	75	77	80	80	81	79	77	75	71
Juneau	19	22	26	41	49	52	60	56	49	40	37	22
New Orleans	57	58	62	67	75	82	84	86	81	75	62	60
San Francisco	52	53	52	52	58	59	59	62	61	62	55	53
Vancouver	36	38	38	49	54	61	65	62	58	50	45	38
Winnepeg	—3	5	14	36	49	59	66	62	55	45	30	10
South America												
Buenos Aires	75	69	66	60	59	55	55	51	55	60	70	75
Rio de Janiero	78	79	77	73	73	69	66	67	70	72	73	75
Europe												
Athens	51	53	56	60	70	75	80	82	78	65	60	55
Berlin	34	36	37	49	55	64	67	68	60	50	45	40
London	41	40	42	46	52	59	64	63	60	52	44	40
Paris	42	41	43	48	54	61	65	63	60	53	45	40
Rome	48	50	50	56	62	71	75	76	73	63	55	50
Africa												
Cairo	58	59	64	70	78	80	82	83	80	75	65	62
Capetown	66	68	66	63	60	57	54	56	58	60	65	67
Asia												
Calcutta	67	74	82	87	90	87	85	86	85	80	75	70
Tokyo	38	40	47	56	64	70	76	80	75	60	51	45
Australia												
Melbourne	74	71	68	56	54	52	50	49	55	60	60	62
Pacific												
Honolulu	73	72	73	75	77	78	80	80	79	79	75	73

Table V.—*Monthly Rainfall, in inches, in Cities of the World—1951*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
North America												
Bermuda	8.3	3.5	5.1	3.0	5.9	1.2	2.1	4.1	8.0	5.2	6.3	2.1
Havana	0.4	0.8	1.2	3.9	0.4	1.6	5.5	9.9	9.1	8.0	2.4	1.8
Juneau	2.0	2.4	3.9	3.5	2.0	3.9	2.8	2.7	6.1	7.0	3.2	3.4
New Orleans	5.1	2.0	3.5	7.9	1.6	3.1	3.5	5.1	2.0	1.0	2.1	4.9
San Francisco	3.1	2.0	1.2	0.8	0.4	T	T	0.1	0.1	2.1	1.0	2.9
Vancouver	7.9	7.1	4.3	1.6	2.8	0.2	0	0.8	1.1	4.9	5.8	7.8
Winnepeg	0.4	0.8	0.3	1.2	2.5	2.4	1.6	4.3	2.0	1.0	1.1	2.1
South America												
Buenos Aires	3.9	5.9	1.2	2.0	8.7	0.8	0	4.3	3.3	3.1	4.0	4.1
Rio de Janiero	5.9	7.1	9.4	4.7	4.7	0.4	0.4	0.8	2.1	4.2	3.0	5.1
Europe												
Athens	4.7	0.8	1.2	0.4	0.8	0	T	2.1	1.1	2.0	1.2	1.8
Berlin	2.4	1.2	2.4	1.2	2.8	3.1	1.6	1.2	1.0	1.1	2.0	3.7
London	2.8	5.1	2.8	2.0	2.1	0.8	0.7	3.1	2.0	1.1	2.1	1.9
Paris	2.0	2.8	2.1	1.2	4.7	3.1	1.2	3.9	4.1	1.8	2.9	0.9
Rome	4.7	3.5	2.6	1.2	2.7	0.4	0	0.8	2.1	1.9	4.9	5.1
Africa												
Cairo	T	0.2	T	0	0.5	0	0	0	0.1	T	0.5	0.9
Capetown	0.8	0	0	5.1	1.6	5.9	2.8	1.9	2.7	0.9	1.1	0.2
Asia												
Calcutta	0	0	3.9	1.2	3.1	9.4	13.0	12.9	8.7	5.9	0.9	T
Tokyo	1.6	4.7	5.9	7.1	3.5	5.5	6.3	8.7	3.0	4.9	6.8	4.9
Australia												
Melbourne	1.2	5.5	0.2	3.1	3.9	2.8	2.8	2.8	2.1	3.9	6.2	1.3
Pacific												
Honolulu	1.2	3.1	20.9	0.4	0.2	0.4	0.3	1.2	4.9	1.2	1.7	0.9

T denotes a trace of precipitation, less than 0.01 inch.

The July floods came from a long accumulation of rainfall beginning in April, increasing in amount during May and June and culminating in July with totals up to 12 and 15 in. in eastern Kansas and western Missouri during the two-week period ending July 17. These amounts were almost half the normal rainfall for the entire year. The soil had become so saturated that the water could no longer infiltrate into it but poured into the Missouri basin which was already filled to capacity and therefore overflowed. The vast quantities of moisture precipitated as rain had come from the Caribbean and the Gulf of Mexico borne on southerly winds in the upper air over Kansas. The behaviour of the fronts and cyclones was a common phenomenon to synoptic meteorologists and the heavy rainfall a usual result. Cold air masses that came down from northern Canada and the arctic from time to time lifted the moist southerly winds and produced the heavy rains. The fronts and air masses together with the resulting weather were unusual only in respect to their persistence in the same general region. In most cases such synoptic situations are displaced eastward and the locus of heavy rainfall moves on, but persistence of conditions like those over Kansas from May to July 1951 are not uncommon in meteorology. Their repeated appearances over the same river basin with such great flood potential was obviously coincidental.

A tornado associated with a cold front that moved across Minnesota on July 20 brought thunderstorms and heavy precipitation with total rainfall of eight and one-half inches within 24 hours at Maple Plains. The week ending July 31 saw temperatures normal or above almost everywhere in the United States. Weekly average temperatures were 9° above normal in the Dakotas. Heavy rains continued in the central Missouri valley through much of July and August and an all-time record was established for the year at Manhattan and Wichita, Kan., with totals of 60 and 50 in., respectively, highest previous annual amounts being 44 and 43 in.

By the end of August the prolonged and serious shortage of water in Arizona and other parts of the southwest had been relieved in most places by heavy rains which came as aftereffects of a distant tropical cyclone over Mexico assisted by cold air masses from the far north. The previous year (1950) was distinguished in Arizona by the least precipitation for any year since the beginning of meteorological records there (1895). Water reserves in the Salt river basin had dropped to approximately 5,000 ac.-ft. by Aug. 25, 1951, and extremely high temperatures aggravated the dry conditions. Meteorologists had long known that tropical cyclones were the means of lifting enormous quantities of water vapour from the ocean's surface into the upper air and transporting it hundreds of miles until it might eventually be precipitated as rain in connection with frontal systems in extratropical regions. A hurricane which traversed the Caribbean and crossed the coast into Mexico on Aug. 22 provided the moisture aloft which the winds eventually carried northward to Arizona where cold fronts were encountered and the moisture released, thus reversing the regime of dry weather that had held control in the southwest for so long. During the five days ending Aug. 30 more than 13 in. of rain fell on central Arizona. Reservoirs that had been almost dry received 200,000 to 300,000 ac.-ft. of water in storage. Later in the year snow to depths of 50 in. in some places was deposited on mountain ranges to give some assurance of a fair supply of water for the immediate future. The gross causes which led to these changes in moisture and precipitation regime in the southwest were clearly shown in the synoptic weather analyses, and there was no apparent connection with artificial cloud seeding. A few cloud seeders had surmised that excessive seeding might inhibit rather than contribute to formation of showers and there were at least some theoretical grounds for thinking so, but in both cases—the drought in Arizona and the floods in Kansas—the weather regimes changed from dry to wet or vice versa as a result of well-defined and large-scale changes in air masses and without regard to the presence or absence of silver iodide and dry ice discharged into the air by cloud seeders.

The first week in September brought temperatures up to 12° above normal in the eastern and southeastern half of the country and 9° below normal in Montana. This set the pattern for outbreaks of polar air over the northwest heralding an early touch of winter. Frost and below-freezing temperatures were rather general in the northern portion of the Rocky mountain region and on the high plateaus as far south as northern New Mexico and Arizona by mid-September. Another outbreak of cold air over the Great Plains brought frost to western portions as far south as Kansas in mid-September. The entire central portion of the country experienced subnormal temperatures, reaching 9° below normal for the week in Kansas. The Pacific coast states were above normal as were the Atlantic coast states, where departures were as much as 9° higher for the week than the weekly normal. For the month of September as a whole Montana averaged 6° above normal with lesser subnormalities in other north central states. The western, southern and eastern states were mostly 2° to 4° above normal.

For the last three months of 1951 weather was unusually close to normal for the continent as a whole. Average temperatures during October were within 4° of the long-term averages in most parts of the United States. In November they were somewhat below normal except in Maine and along the Pacific coast. Maximum departures in the averages for the month were reported in Missouri, where they were about 6° below the normal 40° to 45°, and along the Minnesota-Wisconsin border where they averaged 8° below the normal 30°. Except for a few isolated spots where rainfall was very heavy, the precipitation amounts were not unusual for the season. December averages in parts of the east gave good illustration of the anomalies that may be hidden in monthly averages. The figures for the month as a whole were only slightly above normal except in the southeast where they reached 15° to 25° above normal for several days, but the actual temperatures in the east during the first half of December contrasted sharply with those during the remainder of the month, thus balancing the two extremes to give an average near normal. Some of the coldest December weather for many years occurred in parts of the east during the last two weeks of the year.

Extraordinarily large storms in the North Atlantic during late December, resulting to a considerable extent from the circulation that brought cold weather to the mid-Atlantic states, caused much damage to maritime shipping. (*See* also DISASTERS; FLOODS AND FLOOD CONTROL.)

FILMS OF 1951.—*Clouds* (Almanac Films, Inc.); *The Clouds Above* (Bailey Films); *Weather* (Gateway Productions, Inc.). (F. W. RR.)

Methodist Church. World Methodism, on Aug. 28, 1951, opened its eighth decennial Ecumenical conference in Oxford, Eng., the city of its birth. Ministerial and lay delegates from 17 autonomous Methodist bodies and from 42 countries spent ten days in reviewing their common history, defining doctrinal emphases and comparing their programs of educational, missionary and philanthropic services.

Seeking a medium for closer fellowship, these independent bodies authorized a permanent secretariat to maintain offices in London and New York. Sentimentally moved by being housed in the colleges where, because of their self-imposed disciplines of worship, study and social service, John and Charles Wesley were first called "Methodists," the delegates took first steps toward the creation of a Wesley Memorial house in this university city as a residence for Methodist students. A third joint project authorized was a year of evangelism (1953) to be simultaneously observed by all Methodist bodies.

Membership figures for the major independent branches of John Wesley's "world parish," reaching to 90 countries and islands, were reported at Oxford as follows: the Methodist Church in Great Britain, 1,050,000 (including 300,000 in overseas missions); the Methodist Church (U.S.A.), 9,785,640 (including 850,000 in overseas missions); African Methodist Episcopal Church (U.S.A.), 1,166,301; African Methodist Episcopal Zion Church (U.S.A.), 588,000; Colored Methodist Episcopal Church (U.S.A.), 385,000; Free Methodist (U.S.A.), 50,177; Wesleyan Methodist Church (U.S.A.), 32,479; Methodist Church of Brazil, 35,000; Methodist Church of Mexico, 21,000; Methodist Church of South Africa, 460,000; the Methodist Church of Korea, 23,730; the Methodist Church of Australasia, 400,000 (including 200,000 in mission churches in the South Pacific); Methodist Church of New Zealand, 35,000 (not including 196 churches on Solomon Islands and New Guinea). Nineteen other independent small Methodist bodies, mostly in the U.S., had a total membership of 76,800. The total figures for world Methodism, because of lack of full co-ordination and different principles of compilation, could not be reported exactly. The membership total of 14,000,000 was thought to be about right, and the total for the Methodist community was estimated at about 40,000,000.

What follows pertains to the Methodist Church, the organization formed in 1939 by the reunion of three major U.S. bodies. To this church, three out of four Methodists of the world belonged in 1951.

Three large-scale national conferences marked the year: July 21–24 brought 2,000 rural laymen and ministers to Sioux City, Ia., to confer with experts and to exchange ideas in the second quadrennial National Town and Country conference. On Aug. 27 the National Methodist Youth convocation registered 4,900 young people who spent five days at Purdue university, West Lafayette, Ind., in developing the theme: "Christian Living in Our Time." An October week end (12–14) saw 1,200 couples from 48 states arrive in Chicago to hear addresses and to discuss the study reports of preceding months in the first National Conference on Family Life.

Bishop Arthur J. Moore of Atlanta, Ga., president of the board of missions and the 1951–52 president of the council of bishops, presided by invitation over a general conference of the Methodist Church of Korea in Pusan in November. The Rev. Hyung Ki Lew, who had been educated in the United States, was elected bishop to succeed Bishop You Soon Kim, who had been arrested and reported executed by North Koreans. Despite destruction of church property and the assassination and imprisonment of leaders, church membership in Korea had increased. Twenty-three young men were ordained at the session.

Only seven Methodist missionaries, of what in 1939 were 275, remained in China at the year's end. Most of them had been reassigned, in many cases to places with Chinese population. In addition to the routine commissioning of enough life-service missionaries to maintain the existing contingent of 1,200 in regular foreign service, 33 young persons were trained and sent to Africa for three-year terms as a special project. The Woman's Division of Christian Service selected and prepared 40 young women for two-year home missionary assignments. A special project of the Woman's division was the financing and publishing of a 700-p. compilation of *States Laws on Race and*

Color.

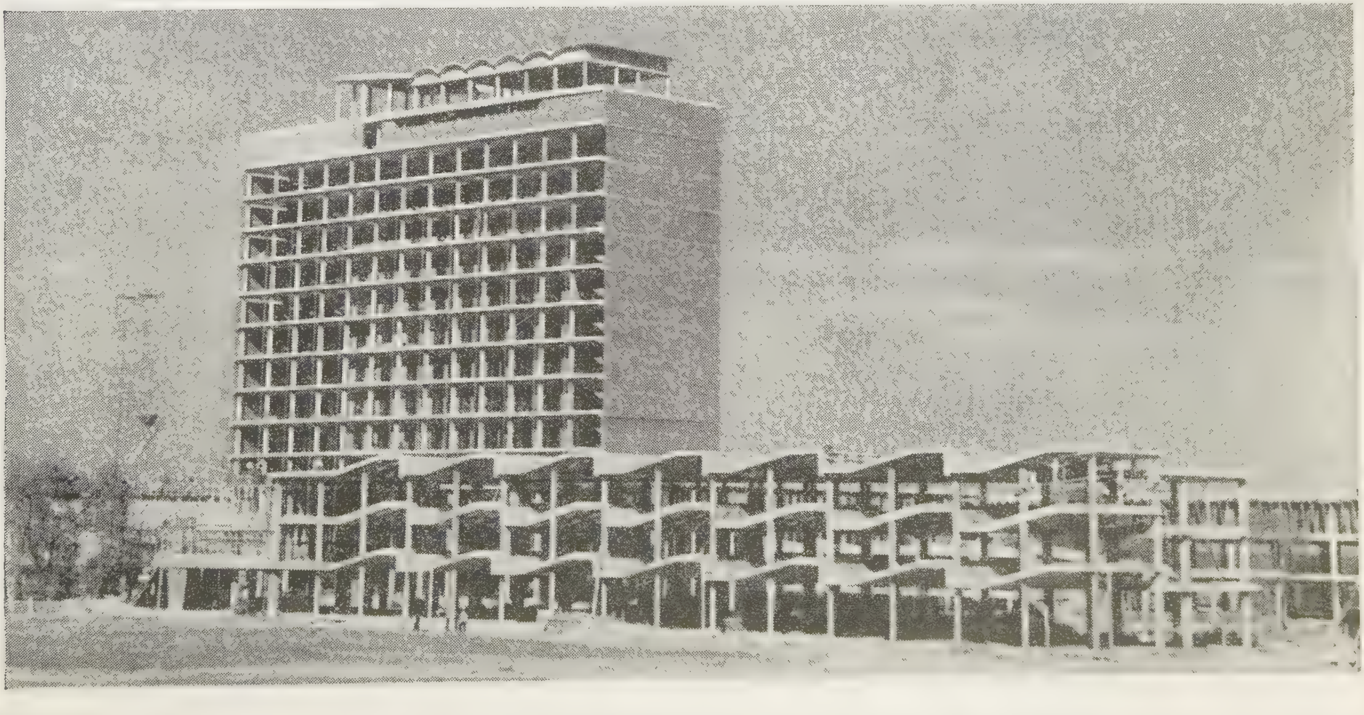
Nearly 5,000 displaced persons had been sponsored and placed in new homes by the Methodist Committee for Overseas Relief, and during the 1951 fiscal year, $979,858 was distributed in relief.

Scholarships for graduate work in the U.S. and other countries had been provided for 600 students from 64 countries, since World War II, of whom 135 received grants for 1951–52. During the year 387 scholarships were given and 1,235 loans made to U.S. students.

The Methodist Publishing House closed its year with combined net sales of $13,865,007, an all-time high. The board appropriated $400,000 for the aid of retired ministers. The net worth stood at $12,699,101. Employees numbered 1,698. Most significant of the 53 books published was vol. vii, the first to be issued, of the 12-vol. *Interpreter's Bible,* which was being prepared by scholars of numerous denominations.

Statistics as of the close of 1951 were: churches, 39,961; members, 9,065,727 (not including 784,880 preparatory members or 850,000 members in mission lands); contributions for all purposes, $268,623,814; benevolent gifts, $40,120,363; $82,000,000 paid for new buildings and improvements; the Woman's Society of Christian Service, membership 1,630,666, amount raised, $21,717,500; church school membership, 6,022,013, average attendance at Sunday schools, 3,014,054. (*See* also CHURCH MEMBERSHIP.) (R. SY.)

Mexico. A federal republic of Middle America lying between the United States on the north and Guatemala and British Honduras on the south, Mexico has an area of 760,373 sq.mi.; population (July 31, 1951): 25,715,350. Capital: Mexico City. Chief cities (July 31, 1951): Federal District, including Mexico City (3,049,367); Guadalajara (379,401); Monterrey (330,012); Puebla (210,533); Mérida (159,405); Torreón (128,557); San Luis Potosí (126,601); León (122,680); Cuidad Juárez (121,912); Veracruz (113,803); Tampico (97,673); Aguascalientes (93,432); Chihuahua (86,796); Saltillo (69,874); Mexicali (64,701); Morelia (60,650); Pachuca (58,698); Culiacán (49,801); Matamoros (43,830). Language: Spanish, with an estimated 6.29% (1940) speaking Indian tongues only. Religion: predominantly Roman Catholic. President, 1951: Miguel Alemán.



CLASSROOM BUILDING (foreground) at the new campus of the University of Mexico near Mexico City under construction in 1951. Classrooms were built with sloping floors

History.—Continued material prosperity, accelerated growth in industry and in agricultural development and concern over the rising cost of living were among highlights of 1951 for the Mexican nation. The flight of refugee capital into the republic which began in 1950 continued into 1951, causing dollar reserves to soar to $344,000,000 and creating speculation that the peso might be revaluated or permitted to seek its own level. By summer, however, the flow of gold and dollars into the republic had levelled off, and talk of peso revaluation ceased.

In an effort to curb inflationary trends created by excessive money in circulation, the government instituted drastic controls. Despite such controls, which caused a serious rift between government and industry, the cost of living reached an index of 401 on July 1, compared with 375 for Jan. 1 and 100 in 1939. In protest against price ceilings, many Mexican retailers openly boycotted the sale of controlled goods, contending that ceilings did not permit sufficient profit.

Against this background, Finance Minister Ramón Beteta reported that Mexico's national income had reached approximately $3,500,000,000, and the government's income for 1951 totalled about $497,625,700.

Continuing the trend which marked the republic as the United States' best Latin-American customer in 1950, Mexico bought so heavily during 1951 as to produce its worst trade balance in many years. Eased import restrictions and "war scare" purchasing gave additional impetus to buying. During the first six-month period, the republic imported about $337,000,000 worth of U.S. goods, exporting only $174,000,000. World imports through September doubled 1950's level, totalling $676,000,000, and exports were up 56% as of the same date. Canada proved to be Mexico's second-best trader, and west Germany emerged as one of the republic's major sources of supply, exporting some $10,900,000 in goods to Mexico between January and August and increasing its imports from the republic to 72,000,000 pesos for the same period. Between July 1950 and June 1951, imports from Great Britain doubled in value over the same period a year previously, and exports to the United Kingdom were five times as great as in 1949.

Mexico marched forward industrially in 1951. Before 1947, for example, about 97% of certain types of electrical household appliances were of foreign make; by 1951 nearly all such appliances were either manufactured or assembled in the republic. Expansion was marked in the extractive industries, notably in petroleum and in sulphur. A rich coal strike in the state of Oaxaca led to estimates that the area would produce enough coal to meet Mexico's needs for two centuries. Oil discoveries in the state of Tabasco prompted Antonio Bermúdez, head of Pemex, to predict that the state would soon be "a second Venezuela."

Labour's "share-the-wealth" hopes appeared nearer fruition as its efforts to seek enforcement of a profit-sharing provision in the constitution gained some congressional backing. The republic signed a six-month pact with the United States that would send an estimated 300,000 workers to U.S. fields in 1951. U.S. immigration and naturalization officials reported that illegal entrance of Mexicans into the U.S. had reached "invasion" proportions, and the Mexican government sought assurance that the U.S. would punish farmers who employed "wetback" labour.

In the political arena, Pres. Miguel Alemán made good his "no re-election" promise as the official government party, Partido Revolucionario Institucional (P.R.I.), announced the candidacy of Interior Minister Adolfo Ruiz Cortines for the July 1952 elections. Cortines promised to continue Alemán's policy of close U.S.-Mexican amity, and startled the nation by denouncing one-party government. Gen. Miguel Henríquez Guzmán, backed by the Federation of Peoples' Parties; Efraín González Luna, conservative National Action party; and Gen. Cándido Aguilar Vargas also were announced as candidates, but it was generally conceded that, with P.R.I.'s backing, Cortines would be Mexico's next president.

Education.—Education is free, compulsory and secular. In June 1950 an estimated 3,986,428 students were enrolled in 29,036 schools and taught by 90,212 teachers and professors. There were 3,096,537 illiterates as of Sept. 1950 (Mexican government estimate).

Defense.—As of Sept. 1, 1951, there were 58,400 men in the air and ground forces, 3,400 of whom were assigned to the air force. As of the same date, the air force had an estimated 270 planes. As of Jan. 1, 1952, the ministry of marine was operating 3 gunboats, 4 frigates, 1 armed transport and 22 coast guard vessels.

Finance.—The monetary unit is the peso of 100 centavos. In June 1949 the peso was stabilized at 11.56 cents, U.S. currency, or 8.65 pesos to the dollar. In this article, dollar sums are based on this rate of exchange.

The federal budget for 1951 totalled $358,700,000, and was distributed as follows: legislative $2,300,000; interior $2,300,000; foreign relations $5,400,000; finance $12,100,000; defense $31,800,000; agriculture $5,500,000; communications $62,200,000; economy $2,900,000; education $41,100,000; health $16,100,000; marine $9,000,000; hydraulic resources $37,700,000; military industry $2,700,000; investments $20,300,000; additional expenditures $17,700,000; public debt (including amortization) $83,500,000; other items $6,200,000.

The federal budget as presented in Dec. 1951 to the chamber of deputies for 1952 totalled $462,000,000.

Estimated national income for 1950 was $3,445,086,000. Provisional federal tax receipts for 1950 totalled $411,815,000. Public debt as of Dec. 31, 1950, was: internal $383,722,500; external $149,121,300, including railway debt. Notes in circulation as of Nov. 30, 1951, were valued at $359,024,100.

Gold and foreign exchange holdings as of June 30, 1951, totalled $244,000,000.

Trade and Communications.—Imports for the period Jan.-Sept. 1951 totalled 5,179,705,798 pesos, exports 3,894,070,237 pesos. There were approximately 16,500 mi. of railroad in Mexico in 1949. As of Oct. 1951 there were 14,032 mi. of passable roads, 9,261 mi. of which were paved. Passenger car registrations as of Dec. 1949 totalled 160,580, and trucks 106,321. A total of 26,041,104 mi. were flown by all air lines operating in Mexico in 1950, including American Airlines, Pan American World Airways, T.A.C.A., the principal Mexican lines, and 31 smaller companies. Passengers carried on all lines in 1950 totalled 1,032,413.

In Nov. 1951 the republic had 276,000 telephones. In Dec. 1951 standard broadcast radio stations totalled 230; television stations 2.

Agriculture.—Agricultural production for 1950–51 (in metric tons) included: maize 3,400,000; wheat 360,000; sugar 700,000; beans 235,000; chick-peas 75,000; coffee 72,600; henequen 83,000; barley 114,000; tobacco 700,000; cotton (bales) 1,220,000; linseed 40,000; cottonseed 387,090; vanilla 175,000.

The estimated number of animals in 1951 included: cattle 14,600,000; sheep 6,000,000; hogs 6,000,000. (Totals for other animals had not been revised since 1940.)

Manufacturing.—The total value of Mexican industrial production in 1950 was 4,778,353,904 pesos. Leading industries included cotton thread and cloth with production valued at 881,845,339 pesos; beer 450,930,395 pesos; cigarettes and cigars 430,054,183 pesos; iron and steel 420,179,005 pesos. Tourism produced approximately 2,000,000,000 pesos income during 1950 from 373,572 tourists.

Mineral Production.—A total tonnage of 861,220 in 1950 (excluding petroleum) was valued at $244,393,699. Leading in dollar values were petroleum (63,400,000 U.S. barrels); silver $1,528,470; iron $285,738; lead $238,078; zinc $220,654.

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FILMS OF 1951.—*La Paz* (Courneya Productions); *Mexican Agricultural Program* (Association Films, Inc.); *Native Arts of Old Mexico* (Pan American Union, Motion Picture Service). (C. D. HE.)

Michigan.

One of the north central group of states of the U.S., Michigan was the 26th state admitted to the union; it is popularly known as the "Wolverine State." Land area: 58,216 sq.mi. (excluding 39,960 sq.mi. of Great Lakes water surface); pop. (1950 census): 6,371,766, a gain of 21.2% since 1940. Estimated population, Jan. 1, 1952, 6,500,000. Of the state's population in 1950, 70.7% was urban and 29.3% rural (as compared with a 65.7 to 34.3 ratio in 1940). Whites composed 92.9% of the population, nonwhites 7.1% (as compared with a 95.9 to 4.1 ratio in 1940). Capital: Lansing (pop. 92,129). Larger cities were (1950 census): Detroit (1,849,568); Grand Rapids (176,515); Flint (163,143); Dearborn (94,994); Saginaw (92,918).

History.—Gov. G. Mennen Williams began his second term of office on Jan. 1, 1951, less than three weeks after the recount vote demanded by his Republican opponent in the election of Nov. 7, 1950, former Gov. Harry F. Kelly, had verified him as the voters' choice, and only two days after the Republican-dominated state legislature had ended the longest special session in the history of the state. The 66th legislature, convening on Jan. 3, was also strongly Republican, with 66 of the 100 members of the house and 25 of the 32 state senators of that party. In the senate the issue of greatest moment was the seating of two Democratic senators, Anthony J. Wilkowski and Charles C. Diggs, who had served prison terms. Both were denied seats, with the vote along strictly party lines. Peculiar interest attached to the case of Wilkowski, since a Republican senate about 14 years earlier, when the seat to which he had been elected remained vacant because of his serving a prison term, refused to unseat him; he had subsequently had two terms as a senator. In a special election, Diggs' son, Charles C. Diggs, Jr., was nominated and elected in his place; Wilkowski was defeated in an attempt at renomination.

Of the 850 bills introduced during the regular session of the legislature, 439 died in committee; about 270 were passed. The chief issues of the five-month session were "good roads" revenue, general fund taxes and the state budget. In the matter of taxes a bitter struggle between Governor Williams, who advocated a 4% corporation profits tax and no increase in the three-cent gasoline tax, and the Republican majority in the legislature, which opposed a corporation profits tax and favoured increasing the gasoline tax to five cents, resulted in the adoption of a one and one-half cent increase in the gasoline tax. At first, with the Democratic bloc in the house maintained intact, Governor Williams' veto of this measure was sustained by a single vote; however, a renewed attempt to override was successful when four Democrats deserted the governor's leadership. Among the chief accomplishments of the session were the passage of a revised unemployment compensation law—a Republican step approved by the Democratic minority and by labour lobbyists—and the restoration of the one-man grand jury law set aside two years earlier. The annual pay of legislators, increased by $500, was made $2,900, while their expense allowance was raised from $500 to $1,000. An 18th congressional district was created by dividing the 17th district which, with approximately 724,000 residents, was the third largest in the nation.

Chief state officers (elected in Nov. 1950) included G. Mennen Williams, governor; William C. Vandenberg, lieutenant governor; Fred M. Alger, Jr., secretary of state; Frank G. Millard, attorney general; D. Hale Brake, state treasurer; John M. Martin, Jr., auditor general. Of these, the governor was a Democrat, the others all Republicans.

Education.—In 1950–51 elementary school enrolment was 694,679 (preliminary) with 23,000 teachers; secondary school enrolment 371,532, with 15,000 teachers. There were 4,800 school districts. Institutions of collegiate rank numbered 40, with a combined enrolment of 83,650 as of June 30, 1951. Lee M. Thurston was superintendent of public instruction in 1951.

Social Insurance and Assistance, Public Welfare and Related Programs.—The department of social welfare reported that during 1951 the monthly average assistance loads and payments per case, and the total expenditures for assistance were (December estimated):

Program	Average case load	Average payment per case	Total assistance (annual)
Old-age assistance	95,878	$46.89	$53,950,000
Aid to dependent children	25,063	91.65	27,560,000
Aid to blind	1,852	52.26	1,161,000
Aid to the permanently and totally disabled	676	58.27	433,000
General assistance	24,614	40.14	11,858,000

As of June 30, there were 992 children who were wards of the state under the supervision of the Michigan Children's institute. As of the same date approximately 160 blind persons were employed at the Michigan Employment Institution for the Blind. The boys' vocational school was caring for 365 socially maladjusted boys; the girls' training school had an enrolment of 285 girls.

The various state institutions of correction and their populations as of June 1951 were as follows: State Prison of Southern Michigan, 6,170; Michigan reformatory, 1,287; Marquette branch prison, 966; Detroit house of correction, 424 (male, 146; female, 278); Cassidy Lake Technical school, 183; wayward minor boys in custody, 3. Total expenditures of the department of correction amounted to $8,787,758.49 (including $307,456.24 for capital expenditures).

Communications.—During the fiscal year ending June 30, 1951, the sum of $26,077,279 was expended for road and bridge construction, exclusive of the right of way; $14,860,285 for road maintenance; and $637,517 for bridge maintenance. During 1951, 503.4 mi. of state trunk-line highway and 278.5 mi. of county secondary roads were constructed. There were 105,735 mi. of highways in the state, including 92,209 mi. rural and 13,526 mi. urban. Railroad mileage totalled 6,807.

Banking and Finance.—As of Oct. 10, 1951, 342 state banks had total assets of $2,978,828,261.65; three industrial banks, $10,258,189.58; seven trust companies, $41,624,848.33. Total assets of 78 national banks in Michigan on June 30 were $3,326,206,000. There were 36 state-chartered and 34 federally chartered building and loan and savings and loan associations. Invested savings in the state-chartered associations totalled more than $121,000,000. Total state revenue for the fiscal year ending on June 30 was $593,622,188; total expenditures, $606,598,864. The total accumulated deficit was $40,850,260; the state had a bonded debt of $246,343,000.

Agriculture.—Michigan's production of field crops in 1951 was larger than a year earlier but smaller than the high level set in 1949. Total production of tree fruits and grapes dropped below a year earlier because of near failures in the peach and grape crops.

Table I.—*Principal Crops of Michigan*

Crop	1951	1950	Average 1940–49
Corn, all, bu.	69,056,000	61,022,000	59,089,000
Winter wheat, bu.	30,800,000	29,666,000	23,474,000
Oats, bu.	60,183,000	54,478,000	52,531,000
Potatoes, bu.	10,800,000	15,300,000	17,755,000
Barley, bu.	3,876,000	3,910,000	4,667,000
Beans, dry edible (100-lb. bags)	4,234,000	3,990,000	4,490,000
Hay, tons	3,882,000	3,495,000	3,768,000
Sugar beets, tons	589,000	1,020,000	704,000
Soybeans, bu.	2,460,000	2,280,000	1,593,000
Rye, bu.	868,000	870,000	930,000
Apples, commercial, bu.	9,085,000	7,020,000	6,850,000
Peaches, bu.	728,000	4,800,000	3,607,000
Cherries, tons	91,000	105,400	47,070
Grapes, tons	9,000	44,900	33,360
Pears, bu.	1,035,000	812,000	774,000
Plums, tons	4,800	5,500	4,330

Source: U.S. Department of Agriculture.

Table II.—*Principal Mineral Products of Michigan*

(Short tons, except as noted)

Mineral	Unit	1950		1949	
		Quantity	Value	Quantity	Value
Bromine	(lb.)	?	?	28,034,765	$7,023,211
Cement	(bbl.)	12,854,423	$29,619,766	12,747,791	28,823,055
Clays		416,023	380,511	368,578	333,249
Coal		11,500	116,380	11,450	115,912
Coke*		2,730,847	39,191,757	2,484,409	34,773,316
Copper		25,608	10,652,928	19,506	7,865,364
Gypsum		1,474,210	4,090,777	1,264,511	3,470,294
Iron ore		14,359,905	72,358,822	12,312,428	55,237,126
Iron, pig*		2,157,298	?	1,542,206	?
Magnesium compounds		34,000	3,871,000	23,700	2,719,000
Natural gas	(000 cu. ft.)	12,500,000	1,875,000	14,753,000	2,242,000
Natural gasoline	(gal.)	3,283,000	154,000	3,628,000	196,000
Petroleum	(bbl.)	15,811,000	42,690,000	16,517,000	45,420,000
Salt		4,446,667	18,178,765	4,064,106	16,009,117
Sand and gravel		24,556,911	16,699,203	20,475,996	13,992,903
Stone		19,095,540	15,391,366	16,546,670	13,387,334
Other minerals			?		4,505,392
Total			?		201,339,957

*Values for processed materials are not included in the totals.

Manufacturing.—The manufacturing industry continued to prosper in 1951—the only seriously retarding factor being limitations upon output established by the federal government in prosecuting its defense program. The automobile industry was particularly affected. By the end of the year, unemployment resulting from cutbacks in production in Detroit had reached alarming proportions, with some 120,000 jobless there; Governor Williams and Michigan senators and congressmen were making vigorous efforts to persuade the federal government to relax its restrictions. (L. G. V. V.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having a value in excess of $100,000, and the corresponding data for 1950.

Microbiology: *see* BACTERIOLOGY.

Middle East.

In the plans for organizing a common defense against potential Communist aggression, the countries of the middle east played from the beginning a great role. The first step toward United States initiative in such a defense effort was taken on March 12, 1947, when Pres. Harry S. Truman promised aid to Greece and Turkey in their struggle to maintain their freedom against encroachment by the U.S.S.R. The ancient importance of the middle east as a strategic centre of the old world had been enhanced in recent years by the growing importance of the rich middle eastern oil deposits. The events of 1951 underlined the importance of the area. The nationalization of the property of the Anglo-Iranian Oil company in Iran; the denunciation of the Anglo-Egyptian treaty of 1936 unilaterally by the Egyptian government before its expiration and the demand for the withdrawal of British forces from the Suez canal zone; the continuing bitter tension between Israel and the Arab states, fanned by the wretched misery of the 850,000 Arab Palestinian refugees; the assassination of King Abdullah of Jordan; the newly achieved independence of Libya which intended to join the Arab league and to apply for membership in the United Nations; and finally the revision of the Italian peace treaty of 1947 and of its clauses restricting Italy's military forces—all these events pointed toward the urgency of integrating the middle eastern countries into a united organization for the maintenance of peace.

For geographic reasons a middle east defense setup had to be based on Turkey and on the countries united in the Arab league. The Arab league included Egypt, Iraq, Syria, Lebanon, Saudi Arabia, Yemen and Jordan. The first six of these states were also members of the United Nations, where they closely co-operated with other Mohammedan countries like Pakistan, Indonesia and Iran, and with India. Though by the vastness of their territory, the potential wealth of their resources and their undeveloped manpower, the countries of the Arab league represented the strongest force among the indigenous elements in any mid-eastern unity project, Turkey was regarded as its keystone. Turkey had the largest and best equipped army in the middle east and was undoubtedly the best organized and most cohesive national entity in that area. From the beginning Turkey was eager to co-operate with the western powers. On the suggestion of the United States, Turkey and Greece were invited to become full members of the North Atlantic Treaty organization. Turkey also expressed its willingness to join in a middle east defense system.

Much more difficult was the attitude of the countries of the Arab league which neither in their national organization and cohesion nor in their military strength approached the standards achieved by Turkey. Their internal weaknesses were enhanced by their mutual jealousies and animosities which had prevented the Arab league from functioning with any degree of success. This became manifest in the war of 1948 between Israel and the Arab states in which the latter suffered an ignominious defeat as a result of their refusal to co-operate and of their general inefficiency. The same war, and the support given to Israel by the United States, left with the Arabs not only a profound fear of Israel's expansion but also a deep bitterness against the United States.

To meet the difficulties created by the Anglo-Egyptian dispute, the United States, Britain, France and Turkey proposed to the Egyptian government the establishment of an Allied middle east command in which the four nations, plus Australia, New Zealand and the Union of South Africa were willing to participate. Egypt was invited to take part as a founder member of the middle east command on a basis of equality and partnership with other founder members. The Allied Middle East Defense organization, the exact relationship of which with the North Atlantic Treaty organization remained to be worked out, was to take over, with Egypt's full and equal participation, the defense role assigned to Britain by the Anglo-Egyptian treaty of 1936. The Allied supreme commander's headquarters were to be located in Egypt's territory. Though some Arab states, especially Iraq and Syria, supported the general idea of such a middle eastern unity and found it advantageous for the growing strength and efficiency of their own armies, Egypt rejected the proposal. The four initiating powers declared their readiness to proceed in any case with the implementation of the plan. With Cairo eliminated as the headquarters for the new command, either Turkey or the island of Cyprus was regarded as its likeliest seat.

The Soviet Union protested on Nov. 21 the plans for creating a united middle eastern command. Strongly worded notes were sent to the initiating powers, to the Arab countries and to Israel. The soviet government considered the proposals by the United States, Britain and France as an expression of the aggressive plans of the North Atlantic treaty powers in an area situated not far from the borders of the Soviet Union. The realization of these plans would assure to the western governments the possibility of continuous interference in the internal affairs of the middle east countries and would deprive them of their national independence. In its reply on Dec. 19 the United States government made it clear that neither the middle east command nor the North Atlantic Treaty organization had any aggressive designs.

The united middle east command was designed, the United States note stated, to create a voluntary co-operative defense organization to provide for the security of the middle east area as a whole in the event that that area should become a target of outside aggression and to assist the states in the area to preserve and strengthen their independence and freedom so that their economic well-being and social institutions could develop in an atmosphere unclouded by fear for their security. States choosing to participate in the command would do so voluntarily as equal and sovereign members.

Thus in 1951 the foundations for establishing middle eastern unity were laid. A joint statement by the United States, Britain, France and Turkey on Nov. 10 declared that the middle east command would not interfere in problems and disputes arising within the area.

With the rise of Mohammedan hostility to the United States and Britain in Egypt and Iran, proposals were made to organize the middle east not in collaboration with the west but as the pivotal area of the Islamic world reaching from Morocco to Indonesia. In February a world Moslem conference attended by representatives of almost 40 nations held a 12-day session in Karachi, Pakistan, where the headquarters of a permanent organization were established. But this tie between the middle east and the whole Islamic world had equally not gone beyond the initial stage.

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(H. Ko.)

Middle East Defense Organization: *see* EGYPT; MIDDLE EAST.

Milbank Memorial Fund: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Milk: *see* DAIRY PRODUCTS.

Millikin, Eugene Donald

(1891–), U.S. senator, was born on Feb. 12 at Hamilton, O. He took his law degree from the University of Colorado, Boulder, in 1913 and was admitted to the Colorado bar the same year. During World War I he advanced from private to lieutenant colonel with the United States expeditionary forces in France and was awarded the Pershing citation for meritorious services. After the war he resumed law practice, also taking an active part in Republican politics. In 1941 he was appointed U.S. senator from Colorado to fill an unexpired term. He was elected in 1944 for the full term 1945–51 and re-elected in 1950 for the term expiring in 1957. In Jan. 1947 he was appointed chairman of the senate finance committee.

During 1950–51 Millikin was a leading critic of Secretary of State Dean Acheson and of U.S. policies in the far east. He supported the administration, however, in voting for the Universal Military Training and Service bill and the resolution which approved sending additional U.S. troops to Europe. A proponent of economy in government, he voted on Aug. 31 to reduce European economic aid by $500,000,000, and on Sept. 13 to cut the U.S. defense appropriation to $59,500,000,000.

Mineral and Metal Production and Prices.

In Table I there has been compiled as much of the world production of minerals and metals as can be included in two pages. Even after enlarging this table from one page to two, many minor producers and minor products cannot be included for lack of space. In the make-up of this table a new feature of arrangement has been used. A continental subdivision is the first stage, under which the countries are arranged, not in the usual alphabetical order, but in the order of relative commercial accessibility to the United States, so far as that can be judged. The only deviation from this arrangement is the grouping together of all soviet satellite countries, regardless of continental location, since not only is commerce with these countries so restricted as to be of minor importance, but in fact the commercial and political interests of this group are basically opposed to those of the United States.

In effect then, this table depicts not only the bulk of the world's output of minerals and metals, but at the same time roughly indicates the accessibility of these products to the United States.

Table II is a compilation of the prevailing prices for the leading minerals and metals as quoted on the New York and London markets at the opening and closing of the year 1951. In the United States after the sharp drop in prices that took place during March–June 1949, there was only a temporary recovery, and March 1951 prices were again down to about the same level as in June 1949. A definite upturn in prices started in April 1950, and was well under way before the Korean war gave it additional impetus and carried it on to a record peak in Feb. 1951. Price control measures brought moderate declines during March–September, followed by an upturn that brought the year-end level to a new record high. This trend can best be followed by citing the composite price index for nonferrous metals as compiled by the *Engineering and Mining Journal*, which were as follows: Feb. 1949, 185.75; June 1949, 131.20;

Table I.—*World Mineral and Metal Production in 1950*

(Metric tons unless otherwise specified; Th. indicates thousands, and Mi. millions of units)

Country	Aluminum (Th.)	Bauxite (Th.)	Antimony[1]	Arsenic[2]	Asbestos (Th.)	Barite (Th.)	Bismuth	Cadmium	Cement (Th.)	Chromite (Th.)	Coal (Mi.)	Coke (Mi.)	Cobalt	Copper (in ore) (Th.)	Copper (smelter) (Th.)	Diamonds (Th. carats)	Feldspar (Th.)	Fluorspar (Th.)	Fuel Briquets (Th.)	Gold (Th. oz.)	Graphite (Th.)	Gypsum (Th.)	Ilmenite (Th.)	Iron Ore (Th.)	Pig Iron (Th.)	Steel (Th.)
North America																										
United States	651.9	1,368.7	2,265	12,041	38.5	629.1	?	4,373.8	39,273	0.4	504.75	65.97	299	824.9	914.9	—	414.5	273.4	2,636	2,289	4.6	7,432.2	424.9	99,740	60,217	87,848
Canada	358.0	—	295	245	794.1	53.5	101.2	378.4	2,647	0.3	17.36	3.1 ?	284	238.5	217.9	—	29.2	59.1	460	4,431	3.2	3,256.4	91.2	3,309	2,260	3,070
Mexico	—	—	5,868	8,987	—	p	263	P	1,523	—	1	0.39	—	61.7	48.5	—	—	65.7	P	408	24.6	P	—	—	249	320 ?
Central America	—	—	p	—	—	—	—	—	1,590	0.3	—	—	—	—	—	—	—	—	—	296	—	—	—	420	—	—
West Indies	—	—	—	—	—	—	—	—	387	117.4	—	—	—	20.4	—	—	—	—	—	7	—	40 ?	—	12	—	—
South America																										
Colombia	—	—	—	—	—	p	—	—	580	—	1.1[9]	—	—	—	—	—	—	—	—	379	—	1.9	—	—	—	—
Venezuela	—	—	—	—	0.2[9]	—	—	—	501	—	p	—	—	—	—	25	—	—	—	34	—	2.1	—	190	—	—
Brit. Guiana	—	1,608.8	—	—	—	—	—	—	—	—	—	—	—	—	—	37	—	—	—	12	—	—	—	—	—	—
Surinam	—	2,080.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	—
Ecuador	—	—	—	—	—	—	—	—	58	—	—	—	—	0.5	—	—	—	—	—	92	—	0.4	—	—	—	—
Brazil	—	20.2[9]	—	959[9]	1.3[8]	6.0[9]	p	—	1,382	p	4 ?	0.29	—	—	—	200 ?	0.2[8]	0.5[9]	—	180 ?	0.1[9]	50.9[9]	0.7[9]	1,900	704	764
Peru	—	—	815[9]	980[9]	—	1.8[8]	215.5[9]	0.8[9]	331	—	p	—	—	29.9	22.9	—	0.2[8]	—	—	129	p	37.4[9]	—	—	—	—
Bolivia	—	—	10,275[9]	—	0.2[9]	—	8.2[9]	—	42[9]	—	—	—	—	4.7	—	—	—	0.3[9]	—	34[9]	—	—	—	—	—	—
Chile	—	—	—	—	0.3[9]	1.5[9]	—	—	513	—	2 ?	—	—	360.5	345.0	—	0.9[8]	—	—	207	—	60.3[9]	—	2,976	12	65
Argentina	—	—	—	p	p	P	42[7]	—	1,560	p	p	—	—	—	—	—	5.0[7]	2.4[7]	—	8[9]	p	P	—	p	p	—
Europe																										
Portugal	—	—	p	801	0.3	0.4[8]	—	—	573	0.5[9]	0.52	—	—	—	—	—	1.6[8]	—	78	10[9]	—	43.1[9]	p	p	—	—
Spain	2.2	12.2	400 ?	124[9]	p	7.7[9]	19.9[9]	—	2,521	—	11.53	0.95	—	6.8	5.4	—	1.7	32.7	1,092	13	0.3	2,251.8	0.8	2,079	680	779
France	61.0	804.4	330 ?	3,000[8]	1.1[9]	38.8[9]	30[9]	58.1[9]	7,208	—	52.50	7.01	—	0.5[8]	0.3[8]	—	42.0	40.0[9]	6,307	63	—	2,100	—	30,203	9,526	10,548
Un. Kingdom	29.9	—	—	p	—	96.3[7]	p	118.9	9,913	—	219.79	15.64	—	—	—	—	—	67.6[9]	1,406	—	—	1,175.6[8]	—	13,145	9,785	16,555
Belgium	—	—	—	1,909	—	P	—	148 ?	3,557	—	27.30	3.24	—	—	—	—	—	—	1,014	—	—	—	—	46	3,693	3,788
Netherlands	—	—	—	—	—	—	—	—	593	—	12.44	2.80	—	—	—	—	—	—	1,105	—	—	—	—	—	454	490
Germany	27.0	18[7]	—	P	—	183.5	p	5?[9]	11,900 ?	—	312.6 ?	27.63	—	1.4	200.6	—	49.5	33.9	18,630	P	6.2	344	—	11,410	9,768	13,276
Italy	37.1	153.4	400	1,440[9]	21.4	48.1	—	73[9]	5,004	—	1.81	1.50	—	p	p	—	14.3	31.6	p	11	3.9	298.2[7]	—	442	570	2,362
Switzerland	21.0	—	—	—	—	p	—	—	1,078	—	—	—	—	—	—	—	—	—	—	—	—	80	—	55	34	130
Austria	18.0	0.6	400 ?	p	—	10.8	—	—	1,280	—	4.5	1.0 ?	—	1.6	5.1	—	1.9	—	—	p	14.7	26.4	—	1,859	883	947
Greece	—	48.9[9]	1,505	13[9]	—	20.8	—	—	326[9]	12.6	0.2 ?	—	—	—	—	—	—	—	—	—	—	0.9[7]	—	41	—	26
Yugoslavia	2.5 ?	368[9]	—	—	—	p	p	—	1,300[9]	100	13 ?	—	—	40 ?	40 ?	—	—	—	P	P	—	p	—	800	210 ?	420
Norway	46.6	—	2,789[9]	—	—	p	p	71.4[9]	583	—	—	—	—	15.4	9.3	—	20.8	1.1[8]	—	P	19	—	105	430	220	70
Sweden	4.0	—	—	16,979[8]	—	1.9[8]	p	—	1,944	—	0.30	p	—	16.1	16.7	—	39.0	4.3[8]	55[9]	80[9]	—	—	—	13,927	848	1,438
Finland	—	—	—	—	8.4[9]	—	—	—	743	—	—	—	—	15.6	13.6	—	8.0	—	—	9	p	1.7[8]	—	—	63	105
Russian Bloc																										
U.S.S.R.	190 ?	500 ?[8]	P	P	P	P	p	P	10,500 ?	500 ?	264 ?	27 ?	—	218 ?	218 ?	—	P	P	P	7,000 ?	P	P	—	24,000 ?[7]	19,500 ?	27,000 ?
Czechoslovakia	—	—	2,000 ?	p	p	p	—	—	1,738[9]	—	45.96	4.88	—	—	—	—	P	—	543	2[7]	15[8]	—	—	1,600 ?	1,883	2,736
Poland	—	—	—	—	—	—	—	P	2,376	—	82.3 ?	5.92	—	—	—	—	—	—	802	—	—	26.4[9]	—	790	1,250 ?	2,305[9]
Hungary	14[9]	—	—	p	—	—	—	—	640[9]	—	11.8 ?	—	—	p	—	—	—	—	71[7]	2[7]	—	—	—	368	500 ?	1,022
Bulgaria	—	600 ?[9]	—	—	p	—	—	—	325[8]	p	6.87	p	—	—	—	—	—	—	P	P	p	5.0[8]	—	p	—	—
Rumania	—	p	—	—	—	—	p	—	650	—	3.0 ?	0.12	—	—	—	—	p	—	P	113[9]	—	p	—	395	243 ?	558 ?
China	—	—	6,000[9]	p	p	p	p	—	?	—	36 ?	0.3 ?	—	4.0	4.0	—	p	p	—	160 ?	P	55 ?[8]	—	P	1,022 ?	540 ?
Africa																										
French Morocco	—	—	670	—	0.5	4.9	—	—	321	—	0.37	—	390	p	—	—	—	p	35	p	0.1	30.1[9]	—	319	—	—
Spanish Morocco	—	—	144[9]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	p	—	—	860	—	—
Algeria	—	—	1,450	—	p	19.9	—	—	322	—	0.26	—	—	0.1	—	—	—	—	57	—	—	46.1	—	2,573	—	—
Tunisia	—	—	—	—	—	p	—	—	169	—	p	—	—	—	—	—	—	p	43[9]	—	—	22.1	—	758	—	—
Sierra Leone	—	—	—	—	—	—	—	—	—	22.1[9]	—	—	—	—	—	655	—	—	—	4	—	—	—	1,185	—	—
French Africa	—	10.1	—	—	—	—	—	—	—	—	—	—	—	—	—	338	—	—	—	250 ?	p	—	—	p	—	—
Gold Coast	—	116.8	—	—	—	—	—	—	—	—	—	—	—	—	—	950 ?	—	—	—	680 ?	—	—	—	—	—	—
Nigeria	—	—	—	—	—	—	—	—	—	—	0.57	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—
Belgian Congo	—	—	—	—	—	—	0.7	36	187 ?	—	0.15[9]	—	5,148	175.9	175.9	10,147	—	—	—	339	—	7.2	—	p	p	—
Angola	—	—	—	—	—	—	—	—	—	—	—	—	—	1.4	—	539	—	—	—	p	—	p	—	—	—	—
S. W. Africa	—	—	—	—	—	—	—	P	—	—	—	—	—	11.0	—	488	—	—	—	p	1.4	—	—	p	—	—
So. Africa	—	—	8,300	—	79.3	2.3	7.6	—	1,847	496.3	26.47	0.4 ?	—	34.0	33.3	1,748	5.1	7.2	—	11,664	0.2	103.7	—	1,189	733	755
No. Rhodesia	—	—	—	—	—	—	—	—	—	—	—	—	670	297.5	280.0	—	—	—	—	1	—	—	—	—	—	—
So. Rhodesia	—	—	21	114	64.9	0.3	—	—	69[8]	291.5	2.13	p	—	0.1	—	—	1.5	0.4	—	511	—	—	—	57	38	—
Tanganyika	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	195	—	—	—	65	—	—	—	—	—	—
Kenya	—	—	—	—	0.7[9]	—	—	—	—	—	—	—	—	—	—	—	p	—	—	23	—	0.6	—	—	—	—
Uganda	—	—	—	—	p	—	p	—	—	—	—	—	—	—	—	—	—	—	—	p	—	—	—	—	—	—
Madagascar	—	—	—	—	p	—	—	—	—	—	p	—	—	—	—	—	—	—	—	2	12.8	—	—	p	—	—
Egypt	—	—	—	—	0.3	p	—	—	1,000 ?	p	—	—	—	—	—	—	—	—	—	9	—	95.2[8]	0.3	p	—	—
Ethiopia	—	—	—	—	—	—	—	—	8[9]	—	—	—	—	—	—	—	—	—	—	43 ?	—	p	—	—	—	—
Asia																										
Cyprus	—	—	—	—	12.6[9]	—	—	—	—	14.9[9]	—	—	—	23.3	—	—	—	—	—	—	—	65.5	—	—	—	—
Israel-Jordan	—	—	—	—	—	p	—	—	380	—	—	—	—	—	—	—	p	—	—	—	—	23.6	—	—	—	—
Turkey	—	—	1,600	p	0.2[9]	—	—	—	387	350	3.72	0.31	—	13.3	11.7	—	—	—	40[9]	—	—	—	—	234	116	90
Iran	—	—	—	p	—	—	—	—	64	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
India	3.7	41.3[9]	—	—	0.1[9]	21.5[9]	—	—	2,652	19.7[9]	32.51	0.3 ?	—	7.0	6.7	—	0.9[9]	—	—	197	1.0	142.2	226.8[9]	3,000 ?	1,689	1,437
Pakistan	—	—	—	—	—	p	—	—	431[9]	18	0.4 ?	—	—	—	—	—	—	—	6	—	—	19	—	—	—	—
Burma	—	—	70[9]	—	—	—	p	—	—	—	—	—	—	—	—	—	—	—	—	p	—	—	—	p	—	—
Japan	24.8	—	161	1,627	4.9	14.2	33.0	903	4,458	32.0	39.72	1.34	—	39.3	84.7	—	13.2	2.4	915	132	3.8	114.5	—	910	2,286	4,848
Korea	1.3[8]	—	—	p	p	P	173.4[9]	—	168[7]	—	p	0.5 ?	—	p	p	—	—	P	168[9]	324[7]	40.7[9]	—	—	p	p	p
Philippines	—	—	—	—	—	—	—	—	292	250.5	0.16	—	—	3.0	—	—	—	—	—	334	—	2.9	—	599	p	—
Indo-China	—	—	—	—	p	—	—	—	144	—	0.50	—	—	—	—	—	—	—	12[8]	—	—	p	—	—	—	—
Malaya	—	—	—	—	—	—	—	—	—	—	0.42	—	—	—	—	—	—	—	—	18	—	—	25.3	507	—	—
Indonesia	—	551.1	—	—	—	—	—	—	38[8]	—	0.8 ?	—	—	—	—	—	—	—	2.5	32[9]	—	—	—	—	p	—
Thailand (Siam)	—	—	100 ?	—	—	—	—	—	166	—	—	—	—	—	—	—	—	—	—	p	—	0.2	—	—	—	—
Formosa	1.6[9]	—	—	—	—	—	—	—	332	—	1.40	p	—	1.2[8]	—	—	—	—	—	18	—	—	—	—	—	—
Oceania																										
Australia	—	3.1	222	257[9]	1.6[9]	6 ?	p	287.6	1,177	p	24.20	1.8	10	14.5	13.8	—	—	0.6[9]	420[7]	850	0.1	291.9[9]	12.5	2,403	1,101	1,400
New Caledonia	—	—	—	—	—	—	—	—	—	88.8[9]	—	p	—	—	—	—	—	—	—	—	—	15.2	—	15	—	—
New Zealand	—	—	p	19[9]	p	—	—	—	256	—	2.79	p	—	—	—	—	—	—	14[9]	76	—	—	—	—	p	—
New Guinea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75	—	—	—	—	—	—
Pacific Islands	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
World Total	1,480	8,550	50,000	43,000	1,206	1,210	1,500	5,817	131,500	2,277	1,794	177.6	7,100	2,496	2,687	15,300	671	758	65,706	31,600	134	18,750	732[9]	245,000	133,000	186,000

Table I.—*World Mineral and Metal Production in 1950 Continued*

(Metric tons unless otherwise specified; Th. indicates thousands, Mi. mil ions of units)

Country	Lead (in ore) (Th.)	Lead (smelter) (Th.)	Crude Magnesite (Th.)	Magnesium	Manganese Ore (Th.)	Mercury (Flasks)	Mica (Th.)	Molybdenum	Nickel (Th.)	Nitrogen[3] (Th.)	Peat (Th.)	Petroleum (Mi. bbl.)	Phosphate Rock (Th.)	Platinum[4] (Th. oz.)	Potash[5] (Th.)	Pyrite (Th.)	Salt (Th.)	Silver (Th. oz.)	Sulphur (Th.) (Long tons)	Talc (Th.)	Tin (in ore) (Long tons)	Tin (smelter) (Long tons)	Tungsten Conc.[6]	Vanadium	Zinc (in ore) (Th.)	Zinc (smelter) (Th.)
North America																										
United States	390.0	458.2	389.5	14,266	127.2	4,535	63.2	12,918	0.8	1,021.0	118.6	1,971.85	10,418.2	37.96	1,167.3	946.1	15,086.3	42,308	5,192.2	563.1	94	33,118	4,403	961[7]	565.5	765.2
Canada	154.1	154.6	P	1,606	—	—	1.6	—	111.6	143.7	62.3	29.15	0.1	269.44	—	227.2[9]	725.7	22,386	—	24.7	355	356	2	—	283.6	185.9
Mexico	238.1	230.8	—	—	32.4	3,713	p	—	—	13.1	—	72.44	—	—	—	—	157 ?	49,141	21[8]	—	290	290	67	—	223.5	53.5
Central America	0.9	—	—	—	p	—	—	—	—	—	—	—	—	—	—	—	63 ?	4,935	p	—	—	—	—	—	—	—
West Indies	p	—	p	—	78.9	—	—	—	—	—	—	20.79	104.2	—	—	—	209 ?	222	p	—	—	—	—	—	—	—
South America																										
Colombia	—	—	—	—	—	—	—	—	—	—	—	34.06	—	26.44	—	—	141.0	116	1.5	—	—	—	—	—	—	—
Venezuela	—	—	1.4	—	—	—	—	—	—	—	—	346.78	—	—	—	—	71.9[9]	—	—	—	—	—	—	—	—	—
Brit. Guiana	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Surinam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ecuador	0.2	—	—	—	—	—	—	—	—	—	—	2.63	—	—	—	—	34.9	276	p	—	—	—	—	—	—	—
Brazil	p	4 ?	43.1[9]	—	162.6	—	1.9[8]	—	p	0.8	—	0.28	4.6[9]	—	—	—	800.9[9]	13	—	7.2[9]	240 ?	240 ?	700	—	—	—
Peru	57.4	31.4	—	—	—	—	—	p	—	35.4	—	15.07	—	—	—	—	56.0[9]	13,053	0.3[9]	—	72 ?	—	390	436	73.8	1.3
Bolivia	26.4[8]	—	—	—	p	—	—	—	—	—	—	0.62	—	—	—	—	p	6,567	4.4[9]	—	31,213	393	2,461	—	19.6	—
Chile	2.9[9]	—	—	—	24.5	754[9]	—	800	—	252.6	—	0.63	13.4	—	P	—	47.7	747	6.9[9]	p	—	—	—	—	—	—
Argentina	20 ?	35 ?	—	—	p	—	0.3	—	—	—	P	23.35	—	—	—	—	400 ?	1,150	10?	p	300 ?	300 ?	p	p	12.7	7.5 ?
Europe																										
Portugal	—	0.6	—	—	0.8	—	—	—	—	—	0.4	—	—	—	—	613.5	10.7[8]	32[9]	—	—	690	240 ?	2,500	—	—	—
Spain	32.4	34.9	7.6	—	17	50,000 ?	p	p	—	6.6	—	—	24.1	—	152.0	1,306.9	860 ?	823	76	25.1	575	844	815	—	64.0	21.3
France	11.0	61.2	—	300	—	—	—	—	—	238.0	58.0[7]	0.91	73.8	—	1,017.8	205.9[9]	2,935.6[8]	550	66[8]	95.5	84	—	400	—	12.4	71.5
Un. Kingdom	3.1	3.1	—	4,900	—	—	—	—	—	262.2	—	0.34	—	—	—	13.2[9]	3,781?[9]	25[8]	—	2.6[8]	960	27,310	61	—	—	71.4
Belgium	—	62.1	—	—	p	—	—	—	—	171.1	—	—	50.8	—	—	p	—	—	—	—	—	9,512	—	—	—	177.3
Netherlands	—	—	—	—	—	—	—	—	—	139.0	—	4.90	—	—	—	—	412.6	—	—	—	—	21,027	—	—	—	19.3
Germany	44.8	99.4[9]	11.3[9]	?	p	p	—	—	—	511.7	1,203.2[9]	7.90	0.5[8]	—	911.6	525.4	2,470 ?	1,602[9]	—	31.0[9]	120 ?	120 ?	—	—	69.3	112.8
Italy	38 ?	37.5	0.2	—	16.2	40,060	p	—	—	169.0	P	0.06	—	—	p	895.5	1,500 ?	852	209.8	—	—	—	2	—	85.3	38.1
Switzerland	—	—	—	—	—	—	—	—	—	14.0	40.0[7]	—	—	—	—	—	94.0	—	—	—	—	—	—	—	—	—
Austria	4.4	10.9	543.8	—	—	p	0.4	p	—	75.0	—	6.15	11.5[7]	—	—	12.5	237.6	19	—	63.6	—	—	—	—	3.0	—
Greece	2 ?	2.1	26.3	—	1.2[9]	—	—	p	—	—	—	—	—	—	—	87.7	52.2[8]	P	—	2.5	—	—	—	—	3.2	—
Yugoslavia	80?	69.8 ?	p	—	14[9]	p	—	—	—	3.4	—	0.78	—	—	—	73?[9]	109?[9]	P	—	—	—	—	—	—	43.5	—
Norway	0.3[9]	—	1.1[9]	—	—	—	0.6	62	—	160.0	358.2	—	p	—	—	749.4	—	150 ?	—	55.0	—	—	—	—	6.9	44.0
Sweden	23.9[9]	14.5 ?	—	—	10.9[9]	—	p	9[9]	—	25.5	472.3[8]	—	1.6[9]	—	—	424.0[9]	p	1,292	—	11.3[9]	—	—	362	—	36.7	—
Finland	p	—	—	—	—	—	—	—	—	1.0	197.2[9]	—	—	—	—	210 ?	—	116	—	4.0	—	—	20	—	1.8	—
Russian Bloc																										
U.S.S.R	104 ?	104 ?	P	P	2,000?	P	P	p	P	—	32,000?[7]	266 ?	2,337?[8]	100 ?	P	P	P	P	p	—	—	—	1,500 ?	—	129 ?	129.?
Czechoslovakia	P	5.8[8]	173 ?	—	—	800[8]	—	—	—	30.3 ?	—	0.29	—	—	—	3.2[8]	P	1,600[8]	—	—	—	—	—	—	P	20[7]
Poland	17.9[8]	17.9[9]	3.8[7]	—	—	—	—	—	—	65 ?	P	1.21	p	—	—	81?[9]	800 ?	P	—	—	—	—	—	—	87.1[8]	87.1[8]
Hungary	0.3	p	—	—	40[8]	—	—	—	—	4 ?	86[7]	4.20	—	—	—	p	p	P	—	—	—	—	—	—	—	—
Bulgaria	—	—	—	—	p	—	—	—	—	—	—	—	—	—	—	—	120 ?	P	—	—	—	—	—	—	—	—
Rumania	3.5[7]	3.3[7]	—	—	65[9]	p	P	p	—	—	—	32 ?	p	—	—	—	314.5[7]	481[7]	—	p	—	—	—	—	p	—
China	p	4 ?	p	p	22[8]	290[8]	P	p	—	—	52,000	0.73	p	—	p	42.9[8]	2,500 ?	320	p	—	3,600 ?	3,600 ?	11,000 ?	—	—	p
Africa																										
French Morocco	47.4	—	—	—	287.3	—	p	—	—	—	—	0.31	3,872.3	—	—	1.5	100 ?	482	—	—	—	—	?	—	12.5	—
Spanish Morocco	p	—	—	—	0.8	—	—	—	—	—	—	—	—	—	—	—	p	—	—	—	—	—	—	—	—	—
Algeria	1.4	—	—	—	—	—	—	—	—	—	—	0.02	684.7	—	—	25.1	101.7[9]	30[8]	—	—	—	—	—	—	7.1	—
Tunisia	19.0	23.5	—	—	—	—	—	—	—	—	—	—	1,524.8	—	—	1.2	98.1[9]	157[9]	—	—	—	—	—	—	2.9	—
Sierra Leone	—	—	—	—	—	—	—	—	—	—	—	—	—	p	—	—	121.0	P	—	—	—	—	—	—	—	—
French Africa	1.8	—	—	—	—	—	—	—	—	—	—	—	110	—	—	—	p	—	—	—	67	—	—	—	0.6	—
Gold Coast	—	—	—	—	711.4	—	—	—	—	—	—	—	—	—	—	—	p	43	—	—	—	—	—	—	—	—
Nigeria	0.3[8]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	p	p	—	—	8,258	—	5	—	—	—
Belgian Congo	—	—	—	—	17.0	—	—	—	—	—	—	—	—	—	—	—	1.0[9]	4,460	—	—	13,700	3,238	164	—	76.3	—
Angola	—	—	—	—	9.3	—	p	—	—	—	—	—	—	—	—	—	40.5	—	—	—	—	—	—	—	—	—
S. W. Africa	34.0	—	—	—	—	—	—	—	—	—	—	—	0.6	—	—	—	17.8	844	—	—	100	—	4	295	11.5	—
So. Africa	0.5	—	11.8	—	790.9	—	1.4	—	0.8	—	—	—	51.8	150.66	—	36.0	116.2	1,119	—	—	720	717	96	—	—	—
No. Rhodesia	13.9	13.9	—	—	—	—	p	—	—	—	—	—	—	—	—	—	p	173	—	—	4	—	—	153[9]	23.1	23.1
So. Rhodesia	—	—	8.6	—	—	—	0.4	—	—	—	—	—	p	—	—	13.8	—	86	—	—	65	80	64	—	—	—
Tanganyika	—	—	p	—	—	—	0.1	—	—	—	—	—	0.5	—	—	—	14.2	31	—	—	121	—	15	—	—	—
Kenya	—	—	0.2	—	—	—	p	—	—	—	—	—	—	—	—	p	18.7	3	—	0.3	—	—	—	—	—	—
Uganda	—	—	—	—	—	—	p	—	—	—	—	—	0.5	—	—	—	7.4	p	—	—	198	—	217	—	—	—
Madagascar	—	—	—	—	—	—	0.8	—	—	—	—	—	p	—	—	—	p	—	—	—	—	—	—	—	—	—
Egypt	—	—	—	—	152.2	—	—	—	—	—	—	16.37	397.2	—	—	p	567.4	—	p	3.7	—	—	—	—	—	—
Ethiopia	—	—	—	—	—	—	p	—	—	—	—	—	—	0.36[9]	p	—	10.0[8]	—	—	—	—	—	—	—	—	—
Asia																										
Cyprus	—	—	p	—	—	—	—	—	—	—	—	—	—	—	—	655.1	—	P	—	—	—	—	—	—	—	—
Israel-Jordan	—	—	—	—	—	—	—	—	—	—	—	—	4?[8]	—	61.6[7]	—	15.0[7]	—	p	—	—	—	—	—	—	—
Turkey	0.3	—	0.5	—	20	p	—	p	—	1.0	—	0.05	—	—	—	—	305.0	P	5.7	—	—	—	—	—	p	—
Iran	—	—	—	—	p	—	—	—	—	—	—	242.48	—	—	p	p	—	—	—	—	—	—	—	—	—	—
India	p	0.6	92.0[9]	—	679.2	—	15.9	—	—	9.2	—	1.87	0.6[9]	—	P	p	2,662?	16	p	21.5[9]	—	—	—	—	—	—
Pakistan	—	—	—	—	—	—	—	—	—	—	—	0.80	—	—	—	—	380.5	—	—	—	—	—	—	—	—	—
Burma	5.2[9]	2.3[9]	—	—	p	—	—	—	—	—	—	0.45	—	—	—	—	31.7	415[8]	—	—	1,682	—	600	—	—	—
Japan	10.9	10.0	P	—	134.1	1,312	—	—	—	434.3	—	2.05	0.3	—	P	1,916.2	418.1	3,681	90.9	283.6	326	390	64	—	52.0	49.0
Korea	P	2.3[7]	—	—	p	p	P	11[9]	—	—	—	—	p	—	p	p	188.8[9]	167[7]	—	P	—	—	2,448[9]	—	P	—
Philippines	—	—	—	—	29.9	—	—	—	—	—	—	—	32.6	—	—	—	56.3	216	—	—	—	—	—	—	—	—
Indo-China	—	—	—	—	p	—	—	—	—	—	—	—	P	—	—	—	89.6	—	—	—	62	60 ?	—	—	—	—
Malaya	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	P	—	—	57,537	68,747	27	—	—	—
Indonesia	—	—	—	—	—	—	—	—	—	—	—	50.15	—	—	—	—	320.0	—	—	—	32,099	32	—	—	—	—
Thailand (Siam)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	P	—	—	—	10,364	2	855	—	—	—
Formosa	—	—	—	—	—	—	—	—	—	6.3	—	0.02	—	—	—	—	160.6	2	—	—	—	—	—	—	—	—
Oceania																										
Australia	222.4	164.2	34.1[9]	—	14.7	—	0.5	3	—	11.3	P	p	p	p	1.5[9]	114.0	248.9[9]	10,677	7.0	—	2,472	2,013	422	—	196.4	85.1
New Caledonia	—	—	—	—	1.8	—	—	—	6.3	—	—	—	p	—	—	—	—	—	—	—	—	—	—	—	—	—
New Zealand	—	—	0.6[9]	—	0.3[9]	—	—	—	—	2.2	—	p	—	—	—	—	—	200	—	—	—	—	24	—	—	—
New Guinea	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32[9]	—	—	—	—	—	—	—	—
Pacific Islands	—	—	—	—	—	—	—	—	—	—	—	—	1,696.4	—	—	—	—	—	—	—	—	—	—	—	—	—
World Total	1,657	1,700	2,150	40,000	5,500	123,000	100	14,400	145	3,956.8	?	3,796.66	21,250	585	4,400	11,200	48,000	192,000	5,700	1,330	166,400	172,600	27,750	?	2,101	1,943

Notes: A ? indicates an estimate or no data available. The letter "p" indicates a small production, unknown in amount or less than the minimum base of the table; "P" indicates a larger but unknown production.

[1] Metal content of ore. [2] White arsenic. [3] Nitrogen content of fertilizer compounds. [4] Includes all platinum group metals. [5] K_2O equivalent of salts produced. [6] 60% WO_3 basis. [7], [8], [9] indicate data for 1947, 1948 or 1949, where 1950 figures are lacking.

Table II.—*Mineral and Metal Prices in 1951*

New York market as reported by *E. & M. J. Metal and Mineral Markets*				Commodity	London market as reported by the *Metal Bulletin*							
Jan. 4	Dec. 27	Grade	Units		Grade	Units	Jan. 5			Dec. 14		
							£	s.	d.	£	s.	d.
19.00 ¢	19.00 ¢	99% ingot	Pound	Aluminum	98–99%	Long ton	124	..	..	124	..	..
$ 4.55	$ 5.625	50–55% Sb	S.T. unit	Antimony, Ore	50–55% Sb	Unit	..	30	6	..	42	6
35.28 ¢	53.35¢	Domestic, cased	Pound	Antimony	Domestic, 99%	Long ton	250	..	..	377	10	..
6.5 ¢	6.5 ¢	White oxide	"	Arsenic	Foreign, 99%	"	45	15	..	56	5	..
$ 1.56	$ 1.56	4% Be (a)	"	Beryllium-copper alloy	4% Be	(d)	14	10	..	1,695	..	..
$ 2.25	$ 2.25	Ton lots	"	Bismuth		"	..	17	..	..	28	..
$ 2.55	$ 2.35	Commercial sticks	"	Cadmium		"	..	18	6	..	18	6
$ 37.00	$ 44.00	48% Cr_2O_3, 3 Cr:1 Fe	Short ton	Chromium, Ore	Rhodesian, 1st grade	Long ton	10	11	..	13	..	..
$ 1.12	$ 1.12	97%, spot	Pound	Metal	98–99%	Pound	..	5	3	..	5	9
21.75 ¢	21.75 ¢	4–9% C, 65–69 Cr (a)	"	Ferroalloy	4–8% C, 60% Cr	Long ton	60	..	..	74	..	..
$ 2.10	$ 2.40	97–99% Co	"	Cobalt		Pound	..	15	6	..	20	..
24.20 ¢	24.20 ¢	Domestic	"	Copper	Fire ref., high grade	Long ton	201	10	..	226	10	..
24.425 ¢	27.425¢	Export	"	"	Electrolytic	"	202	..	..	227	..	..
$ 35.00	$ 35.00		Ounce	Gold	Official	Ounce	..	248	..	..	248	..
$ 2.25	$ 2.25	99.9% In	"	Indium		"	..	12	..	..	12	..
$200.00	$200.00	Sponge, powder	"	Iridium	Sponge, powder	"	69	..	..	69	..	..
$ 8.30	$ 8.30	Mesabi, nonbessemer	Long ton	Iron Ore			..	(e)	..	..	(e)	..
$218.42	$246.50	80%, Joplin, Mo.	Short ton	Lead, Ore			..	(e)	..	..	(e)	..
17.00 ¢	19.00 ¢	New York	Pound	Metal	Foreign, soft	Long ton	136	..	..	175	..	..
24.50 ¢	24.50 ¢	99.8% car lots	"	Magnesium, Ingots		Pound	..	2	1	..	2	4½
32.50 ¢	32.50 ¢		"	Sticks	Bars	"	..	2	7	..	3	1
94.00 ¢	$ 1.225	48% Atlantic ports	L.T. unit	Manganese, Ore	48–50% Mn	Unit	..	..	46½	..	70	..
35.5 ¢	35.5 ¢	96% Mn, 2% Fe	Pound	Metal	96–98% Mn	Pound	..	1	7½	..	2	½
$185.00	$185.00	78–82%	Long ton	Ferroalloy	78% Mn, 1% C	Long ton	90	..	..	40	12	8
$ 75.00	$ 75.00	19–21% Mn	"	Spiegel	20% Mn	"	17	16	..	22	..	..
$151.50	$213.50	(76 lb.)	Flask	Mercury	(76 lb.)	Flask	36	47	15	73	10	..
60.00 ¢	60.00 ¢	90% MoS_2 (b)	Pound	Molybdenum, Ore	85% MoS_2	Unit	..	103	4¼	..	103	4¼
$ 3.00	$ 3.00	99% Mo	"	Metal	Powder	Pound	..	35	..	..	40	..
$ 1.32	$ 1.32	55–65% Mo (a)	"	Ferroalloy	70–75% Mo (a)	"	..	8	6	..	9	6
50.50 ¢	56.50 ¢	Cathodes	"	Nickel	Refined	Long ton	406	..	..	454	..	..
$ 24.00	$ 24.00		Ounce	Palladium		Ounce	8	10	..	8	10	..
$ 75.00	$ 75.00	24% P	Long ton	Phosphorus, Ferro-	20–25% P.	Long ton	24	2	6	31	2	6
$ 90.00	$ 90.00	Wholesale	Ounce	Platinum		Ounce	30	2	6	30	2	6
$125.00	$125.00		"	Rhodium		"	42	10	..	42	10	..
$ 3.25	$ 3.25	99.5%	Pound	Selenium		Pound	..	23	3	..	23	3
20.00 ¢	20.00 ¢	97+% Si, spot	"	Silicon	98% Si	Long ton	120	..	..	185	..	..
12.00 ¢	12.40 ¢	50% Si (a)	"	Ferroalloy	45% Si	"	33	15	..	40	15	..
14.3 ¢	15.60 ¢	75% Si (a)	"	"	75% Si	"	49	..	..	56	2	6
80.00 ¢	88.00 ¢	Foreign, New York	Ounce	Silver	Official, spot	Ounce	..	..	70	..	77	..
$ 2.25	$ 2.25	60% Ta_2O_5 (a)	Pound	Tantalum, Ore	60–65% Ta_2O_5	Unit	13	..	..	21	..	..
$143.00	$143.00	Sheet	Kilo	Metal	Powder	Pound	..	(e)	..	..	(e)	..
$ 1.75	$ 1.75		Pound	Tellurium		Pound	..	14	4	..	19	..
$ 1.51	$ 1.03	Straits	Pound	Tin	99%+	Long ton	1,197	10	..	930	..	..
$ 1.40	$ 1.40	20–25% Ti (a)	Short ton	Titanium, Ferroalloy	20–25% Ti	"	100	..	..	175	..	..
$ 15.00	$ 17.00	56–59% TiO_2	Long ton	" , Ilmenite	50–52% TiO_2, Malayan	Long ton	7	..	..	..	(e)	..
4.0 ¢	5.75 ¢	94% TiO_2	Pound	" , Rutile	95% TiO_2, Australian	"	23	15	..	42	10	..
$ 56.50	$ 65.00	Domestic	S.T. unit	Tungsten, Ore	65%	Unit	..	420	..	..	522	6
$ 59.00	(e)	Chinese	"	"								
$ 3.25	$ 5.00	75–80% W (a)	Pound	Ferroalloy	80–85% W (a)	Pound	..	22	..	33	..	..
$ 4.15	$ 6.00	98.8% W	"	Powder	98–99% W	Pound	..	26	4	..	35	..
27.50 ¢	31.00 ¢	(c)	"	Vanadium, Ore	18–20% V_2O_5	Unit	..	80	..	..	(e)	..
$ 3.25	$ 3.10	(a)	"	Ferroalloy	35–60% V. (a)	Pound	..	15	..	15	..	..
$115.00	$135.00	60%, Joplin, Mo.	Short ton	Zinc, Ore	52% R/C	Long ton	..	nom.	..	..	none	..
17.50 ¢	19.50 ¢	St. Louis	Pound	Metal	G.O.B., foreign	"	151	..	..	190	..	..

(*a*) Per pound of base metal contained. (*b*) Per pound of MoS_2 contained. (*c*) Per pound of V_2O_5 contained. (*d*) January quotation, per pound of contained Be, plus 2s. 3*d*. per pound of alloy; December, per long ton of alloy, equivalent to £16 2s. 1*d*. per pound of Be on the January basis. (*e*) Not quoted.

Nov. 1949, 138.18; March 1950, 132.60; Feb. 1951, 194.06; Sept. 1951, 186.15; and Dec. 1951, 193.17. (*See* also articles on the various minerals and metals.) (G. A. Ro.)

Mineralogy. The name sabugualite was given by Clifford Frondel to a new uranium mineral, $HAl(UO_2)_4(PO_4)_4.16H_2O$, from three localities in Portugal (*American Mineralogist*, 36:671–679). Huttonite, a new monoclinic thorium silicate, $ThSiO_4$, from South Westland, N.Z., was described by A. Pabst (*ibid.*, 36:60–69). Priderite, a new potassium titanate mineral containing barium and iron, which occurs in the west Kimberly area of Western Australia, was reported by K. Norrish (*Mineralogical Magazine*, London, vol. xxix, pp. 496–501). In addition, the following new minerals were described at the meeting of the Mineralogical Society of America held in Detroit, Mich., Nov. 8–10, 1951: by D. B. Givens and C. W. Beck, a basic copper phosphate from Santa Rita, N.M. (name not yet assigned); by L. G. Perry, J. J. Fahey and E. H. Bailey, robinsonite, a lead antimony sulphide from the Red Bird mine, Pershing county, Nev.; by A. R. Graham and S. Kaiman, aurostibite, $AuSb_2$, from the Giant Yellowknife mine, Northwest Territories, and the Chesterville mine, Larder lake area, Ont.; by M. E. Mrose, hurlbutite, $Ca_2Be_2(PO_4)_2$, from the Smith mine, Chandler's Mill, Newport, N.H.

A detailed description of the work of the Diamond Research laboratory of Johannesburg, U. of S. Af., was given by R. S. Young (*Gems and Gemology*, vol. vi, pp. 327–333). The recognition of surface irradiated diamonds was discussed by F. H. Pough and A. A. Schulke (*ibid.*, vol. vii, pp. 3–11). The standardized nomenclature of gems, as adopted by American Gem society, March 18, 1951, was published in *Gems and Gemology*, vol. vii, pp. 58–67. Kay Swindler gave an interesting review of the progress made in advancing the study of gemology by the Gemological Institute of America in the 20 years since its founding in 1931 (*ibid.*, vol. vii, pp. 35–48).

The December number (vol. xxix, no. 211) of the *Mineralogical Magazine* (London) was issued in honour of Leonard J. Spencer's 50 years' service as editor of that publication. Spencer's long association with the British Museum was reviewed by W. Campbell Smith, and in addition there were 15 papers from Spencer's friends in nine countries.

During the year the following texts appeared: *An Index of Mineral Species and Varieties Arranged Chemically* by Max Hey, London; *Das Polarisationsmikroskop* by Conrad Burri, Zürich, Switz.; *Crystal Growth* by H. E. Buckley, New York and London; *Silicate Melt Equilibria* by Wilhelm Eitel. The fourth edition of *Mineralogy; An Introduction to the Study of Minerals and Crystals*, by E. H. Kraus, W. F. Hunt and L. S. Ramsdell also appeared.

The seventh meeting of the International Federation of the Industry, Craft, and Trade of Jewellery, Precious Stones, Gold and Silverware, and Horology, usually known as the B.I.B.O.A., held in London, May 23–26, 1951, was attended by about 200 delegates from European countries. Papers dealing with diamonds, pearls and precious stones were presented and important resolutions adopted. (*Summary Report of the British National Committee of B.I.B.O.A.*, London; also *Gemmologist*, London, vol. xx, pp. 149–150 and 167–168.)

The first award of the Mineralogical Society of America to a young mineralogist was presented to O. F. Tuttle of the Geophysical laboratory, Washington, D.C., in recognition of his significant and comprehensive investigation of the inversion temperatures of quartz.

For his many significant contributions involving the use of chemistry and physics in the study of geological problems, Martin J. Buerger, professor of mineralogy and crystallography at the Massachusetts Institute of Technology, Cambridge, was awarded the Arthur L. Day medal by the Geological Society of America. (*See* also CHEMISTRY; MINERAL AND METAL PRODUCTION AND PRICES.) (E. H. KR.)

Mining: *see* MINERAL AND METAL PRODUCTION AND PRICES. *See* also under various minerals.

Minnesota. A north central state, admitted to the union on May 11, 1858, Minnesota includes the northernmost land of the United States—the northwest angle. It is variously known as the "North Star" state, "Gopher" state, and "land of 10,000 lakes." Its water area covers 4,059 sq.mi. of its total area of 84,068 sq.mi. The population according to the 1950 federal census totalled 2,982,483, an increase of 6.8% over 1940. Of this total, 54.5% lived in cities of 2,500 or more and in the urban fringe areas; nonwhites represented slightly less than 1%. Three cities had a population of more than 100,000—St. Paul, the capital city, with 311,349; Minneapolis with 521,718, and Duluth with 104,511.

C. ELMER ANDERSON, Republican, who succeeded Luther W. Youngdahl as governor of Minnesota, Sept. 27, 1951

History.—The state legislature held its biennial session Jan. 2 to April 24, 1951. No major tax increases were voted and few additions or changes in state organization and services were made. Appropriations totalled $28,915,841, a 24% increase over the previous biennium. Most of this was absorbed by higher costs. The one new department created was for civil defense. On Aug. 9 Grand Portage was dedicated as a national historic site. During the year Gov. Luther W. Youngdahl resigned to accept a federal judgeship in Washington, D.C. Lt. Gov. C. Elmer Anderson was sworn in as governor on Sept. 27. The other chief officers of the state during 1951 were: secretary of state, Mike Holm; state auditor, Stafford King; state treasurer, Valdimar Bjornson; attorney general, J. A. A. Burnquist.

Education.—Approximately $140,946,000 was spent for education by the 6,479 public school districts in Minnesota for 1950–51. This amount provided for 348,675 pupils in 4,869 elementary schools, 179,560 in 645 secondary schools, 1,347 in 9 junior colleges and 175 in 12 teacher training departments. These pupils were taught by 12,360 elementary teachers, 8,921 secondary teachers, 139 teachers in junior colleges and 12 in teacher training departments. In addition, five teachers' colleges were operated from public funds. For the support of these public elementary and secondary schools, the state contributed $46,811,368, revenue from trust funds and the state income tax. Dean M. Schweickhard was commissioner of education.

Social Insurance and Assistance, Public Welfare and Related Programs.—In the fiscal year ending June 30, 1951, $51,627,780 was granted to a monthly average of 98.595 persons as compared with $46,400,407 to a monthly average of 104,700 in the previous year. Approximately 99,000 persons 65 years of age or over, 38.6% of this age group, were receiving either old-age assistance, old-age and survivors insurance or both in June 1951. On March 31, 1951, 9,578 children or 0.9% of the population under 21 years were receiving public welfare services.

Approximately 810,000 workers were covered by the Minnesota Employment and Security law during 1950. An estimated $9,200,000 was paid in unemployment compensation benefits during 1951. Concurrently about $58,000 was paid in unemployment and self-employment benefits to World War II veterans under the Servicemen's Readjustment Allowance program.

On Nov. 30, 1951, the state prison and two state reformatories had a total of 1,865 inmates. In addition there were 354 wards of the State Youth Conservation commission in correctional institutions while 165 more were in diagnostic centres. The state had eight mental hospitals and two for mental defectives and epileptics, containing 11,067 and 3,911 patients respectively.

Communications.—There were in 1951, 11,882 mi. of state trunk highways, 42,756 mi. of county roads, 56,648 mi. of township roads, 7,822 mi. of municipal streets and 2,014 mi. of parkway and institutional roads. The state highway department expended $46,056,373 during the fiscal year ending June 30, 1951, excluding principal and interest payments on bonded indebtedness reduced to $2,650,000.

Twenty-two railroads operated 8,350 mi. of main line trackage and 4,304 mi. of second main line, sidings, yards and switching trackage. There were 81 municipally-owned airports, 2 state-owned emergency landing strips, 29 privately-owned commercial fields, 17 seaplane bases, and 267 private landing strips.

Banking and Finance.—Minnesota's 676 state and national banks reported total resources on June 30, 1951, of $3,197,032,000, as compared with $3,196,070,000 for 678 banks on June 30, 1950.

Represented were 498 state banks, 1 mutual savings bank and 4 trust companies reporting deposits of $987,306,000 with resources of $1,069,949,000, a decrease of $3,838,000 in deposits and an increase of $2,293,000 in resources; 178 national banks reporting deposits of $1,964,126,000 with resources of $2,127,083,000, disclosing decreases of $9,419,000 and $1,331,000 respectively. There were 42 chartered savings, building and loan associations which reported resources of $106,191,000 as compared with 41 state chartered associations with resources of $98,345,000, while 30 federal savings and loan associations reported resources of $301,292,000 as compared with $266,440,000.

Total operating disbursements of the state government (exclusive of public debt redemption, stores for resale, annuities and pensions, land and interest in land) amounted to $401,446,189 for the fiscal year ending June 30, 1951, as compared with $486,479,797 for the year ending June 30, 1950. Concurrently the state's total indebtedness in bonds and certificates of indebtedness was $127,289,669.13, a decrease of $2,525,463.98. The four principal trust funds of the state—internal improvement land, swamp land, permanent school and permanent university funds—the income from which is devoted largely to schools, reached $201,944,964 on June 30, 1951 with $189,900,176 the previous year.

Agriculture.—During 1950 Minnesota farmers received $1,214,000,000 from the sale of crops, livestock and livestock products, to rank Minnesota fifth in the nation. Based on the trend for the first ten months of 1951, income was up 13% above 1950. This increase can be attributed entirely to a 25% increase in income from livestock and livestock products since income from crops was 15% below 1950.

Table I.—*Principal Crops of Minnesota*

Crop	1951	1950	Average 1940–49
Corn, all, bu.	215,038,000	197,030,000	219,083,000
Oats, bu.	212,764,000	188,737,000	174,751,000
Barley, bu.	38,555,000	36,308,000	30,714,000
Wheat, all, bu.	20,022,000	15,512,000	22,004,000
Flaxseed, bu.	10,845,000	13,387,000	13,929,000
Potatoes, bu.	11,900,000	16,275,000	18,147,000
Soybeans for beans, bu.	18,848,000	17,794,000	7,221,000
Hay, all, tons	6,921,000	5,669,000	6,277,000
Rye, bu.	2,850,000	2,349,000	2,632,000
Buckwheat, bu.	204,000	252,000	496,000
Apples, bu.	320,000	65,000	182,000

Source: U.S. Department of Agriculture.

Manufacturing.—In Oct. 1951 Minnesota's manufacturing employment reached 207,650 and showed an increase of 1.4% or 9,163 over Oct. 1950. Nonagricultural employment in 1951 ranged from a low of 759,508 in February to an all-time high of 830,650 in September. Value added by manufacture rose to an estimated $1,200,204,000 for 1950, ranking Minnesota 17th in the nation. This amount included food products, machinery (except electrical), printing, paper and fabricated metal products, in order of importance. (B. A. B.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Minnesota ranked tenth among the states in value of mineral production and first in iron ore.

Table II.—*Mineral Production of Minnesota*

(Short tons)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Clays	129,220	$ 151,074	133,565	$ 153,446
Coke*	833,861	13,030,429	781,943	12,693,926
Iron ore	72,283,410	311,716,341	62,656,960	239,858,902
Iron, pig*	652,257	—	455,378	—
Manganiferous ore	869,838	—	990,202	†
Sand and gravel	15,472,815	5,903,025	12,935,392	4,903,908
Stone	1,953,450	5,334,028	1,878,910	5,278,716
Other minerals		—		7,345,460
Total		—		257,540,432

*Values for processed materials are not included in the totals.
†Value included in other minerals.

Mint, United States: *see* COINAGE.

Miquelon: *see* FRENCH UNION.

Missiles, Guided: *see* MUNITIONS OF WAR.

Missions, Foreign (Religious).

In 1951 the most crucial areas in Christian foreign missions continued to be China and Korea. In China the Communists intensified their efforts to cut all ties between the churches and their connections in the west, and to render the churches subservient to their purposes. Missionaries, both Catholic and Protestant, were still leaving the country. In an effort to discredit them and their western associations, several, including some who had long applied for exit permits, were deported after public trials and denunciatory meetings on the charge that they were agents of foreign imperialism. Some were imprisoned and a few were killed or perished. Protestant churches were required to become fully independent of western financial assistance and any semblance of outside control. They were also constrained to join in the campaign to "resist America, aid Korea." Bonds were severed with the World Council of Churches and the Chinese president of that body, T. C. Chao, resigned. An effort was made, apparently with only slight success, to induce Chinese Catholics to set up a national church independent of Rome. Some prominent Chinese Christians were put under pressure to denounce missionary friends and fellow Chinese Christians for their western affiliations and alleged subversive activities. Christian schools were more and more brought under full government control and some were transformed fully into national institutions. Hospitals were also taken over by the state. Orphanages were expropriated or closed and some of the missionaries who had conducted them were accused of murdering infants.

All this was done in an effort to eliminate western influences. It was based on political or moral grounds, for religious liberty was still ostensibly guaranteed.

Both Catholics and Protestants reallocated numbers of their China missionaries in other lands and made provision for the training of Chinese Christians outside of China. Many China missionaries were assigned to Japan. Some were sent to the Chinese in Malaya. Others went to quite different peoples. The Catholics had theological seminaries in Manila for Chinese.

NUNS of the Sacred Heart Orphanage community in Nanking, China, being greeted by an Italian missionary in Hong Kong after they were deported by the Chinese Communist government in June 1951

In Korea, the continuation of war made missionary work difficult, even in areas protected by the armies of the United Nations. Some relief was administered through missionaries.

American Protestants became interested in Indonesia, until World War II almost exclusively a Dutch and German field. Since Dutch were usually unacceptable to the Indonesian Christians and difficulties stood in the way of sending many Germans, Indonesian church leaders were asking for aid from the United States, both in personnel and funds.

The increase of the missionary body in Japan, Protestant and Catholic, continued. The numbers of Christians in Africa south of the Sahara desert mounted, as in preceding years, and more U.S. Catholic missions were inaugurated in that area. Protestantism continued to grow in Latin America, in part through missions from the United States, in part by indigenous efforts. The Catholics of the United States reinforced their church in Latin America by sending priests.

Protestants were making a comprehensive study of "the missionary obligation of the church," which included both the theological and biblical basis and the program of missions, in preparation for a meeting of the International Missionary council in Germany in the summer of 1952.

(K. S. L.)

Mississippi.

A southern state of the U.S. admitted to the union in 1817, Mississippi is popularly known as the "Magnolia state"; area: 47,716 sq.mi. (47,248 sq.mi. land and 468 sq.mi. water); pop. (1950): 2,178,914, a decrease of 0.2% since 1940; capital: Jackson (98,271). Other cities of more than 20,000 population (1950 census): Biloxi (37,425); Greenville (29,936); Gulfport (22,659); Hattiesburg (29,474); Laurel (25,038); Meridian (41,893); Natchez (22,740); Vicksburg (27,948). Of the state's population in 1950, 607,162 or 27.9% were urban.

HUGH WHITE, Democrat, elected governor of Mississippi, Nov. 6, 1951

History.—For 1952–56 the elected officials of the state were: governor, Hugh L. White; lieutenant governor, Carroll Gartin; secretary of state, Heber Ladner; attorney general, J. P. Coleman; state treasurer, Newton James; auditor of public accounts, William D. Neal; superintendent of education, J. M. Tubb; commissioner of agriculture, S. E. Corley; commissioner of insurance, Walter Dell Davis; state tax collector, Mrs. Thomas L. Bailey; state land commissioner, Walter L. McGahey; supreme court clerk, Tom Q. Ellis.

In 1951 unusual activity centred around, first, a road-development program, and, second, the development and execution of plans for further expansion of schools and colleges for both white and Negro students.

A new college for Negroes was established at Indianola, a town in the Mississippi delta. Progress was made on the construction of new teaching and hospital buildings for the new four-year school of medicine of the University of Mississippi, located in the city of Jackson. The school was to be in operation by 1954, under the jurisdiction of, but separate from, the university at Oxford.

Education.—In 1950–51 there were 1,037 white elementary schools in Mississippi and 2,847 Negro elementary schools, a total of 3,884. The enrolment in elementary schools was 470,504, of whom 218,884 were whites and 251,620 Negroes. The state had 479 approved white high schools and 162 approved Negro high schools. The enrolment of these approved high schools plus enrolments in nonaccredited schools gave a total enrolment of 85,651 in 1950–51. There were 9,767 white elementary and high school teachers (including superintendents and principals) and 6,748 Negro elementary and high school teachers (including superintendents and principals), a total of 16,515 teachers. The total enrolment in white elementary and high schools was 281,510; in Negro elementary and high schools, 274,605.

Social Insurance and Assistance, Public Welfare and Related Programs.—From July 1, 1950, through June 30, 1951, the state department of public welfare in Mississippi paid $14,068,439 to 74,055 recipients of old-age assistance; $830,971 to 3,275 recipients of aid to the blind; $2,895,055.40 to 16,656 families for 47,059 dependent children; and $32,596 to 492 recipients for aid to the permanently and totally disabled. This program, which began in Dec. 1950, was made possible through legislation passed by the Mississippi legislature in its regular session in 1950. Special child welfare workers were assigned to 18 county departments of public welfare and to Oakley Training school. There were training units in two counties in which child welfare workers in training were given instruction before being assigned as workers to a county unit. The federal-state-county program of foster boarding care for children cared for 244 children in foster homes at a cost of $51,246.19.

Communications.—In 1950–51 the state maintained 7,349.1 mi. of highways. In 1950–51 the counties maintained approximately 53,751 mi. In the fiscal year 1949–50 the state maintenance expenditures were estimated at $4,073,891. The total mileage of railroads in the state on Dec. 31, 1951, was 3,838.28.

Banking and Finance.—On June 30, 1951, there were 177 state banks in Mississippi, with 23 branch banks and 39 branch offices; there were 24 national banks. The resources of the state banks were $596,424,340.22 and the total deposits were $551,404,185.16; the resources of the national banks were $228,042,482.31 and the total deposits were $213,079,331.44.

As of Dec. 31, 1951, the balance in the general fund account was $25,832,191.51; the special fund account was $27,631,283.35. On Dec. 31, 1951, the full faith and credit debt of the state of Mississippi was $4,807,000; outstanding highway bonds (payable from gasoline tax) amounted to $63,228,000, making a total debt of $68,035,000.

Agriculture.—The 1950 census reported 251,378 farms. The 1945 census reported 19,616,533 ac. in farms. In 1950 the cropland harvested was 5,789,000 ac. The 1949 receipts from farm marketings were $490,236,000, of which $376,282,000 were from crops and $113,954,000 from livestock products; the value of farm products consumed in farm households was $102,852,000.

Table I.—*Principal Crops of Mississippi*

Crop	1951	1950	Average 1940–49
Cotton (500-lb. bales)	1,620,000	1,332,000	1,644,000
Cottonseed, tons	645,000	534,000	680,000
Corn, bu.	38,141,000	52,123,000	44,756,000
Hay, tons	774,000	1,009,000	1,088,000
Oats, bu.	3,335,000	4,300,000	10,679,000
Sweet potatoes, bu.	1,320,000	3,420,000	5,134,000
Potatoes, bu.	522,000	816,000	1,632,000
Soybeans, bu.	5,950,000	8,950,000	1,362,000
Cowpeas, bu..	186,000	202,000	533,000
Sugar-cane syrup, gal. . . .	360,000	1,040,000	2,847,000
Sorgo syrup, gal.	390,000	650,000	1,602,000
Pecans, lb.	9,800,000	3,625,000	6,829,000
Tung nuts, tons	37,000	20,800	16,056
Peaches, bu.	416,000	286,000	815,000
Pears, bu.	198,000	221,000	341,000

Source: U.S. Department of Agriculture.

Manufacturing.—The value of manufactured products in Mississippi for the year 1950 was $914,000,000, as compared with $664,000,000 in 1949. Income from pay rolls and profits totalled $297,000,000 in 1950, as compared with $216,100,000 in 1949. (A. B. Bu.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of Mississippi*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays	561,951	$ 2,184,429	508,425	$ 1,653,473
Natural gas (thousand cu.ft.).	114,000,000	7,068,000	68,062,000	4,199,000
Natural gasoline (gal.) . . .	31,871,000	2,220,000	32,580,000	2,264,000
Petroleum (bbl.).	38,258,000	88,380,000	37,966,000	93,400,000
Petroleum gases (gal.) . . .	22,356,000	863,000	20,798,000	572,000
Sand and gravel	2,764,444	1,985,908	1,942,941	1,330,413
Other minerals		?		292,186
Total		?		$103,711,072

Missouri.

A west north central state of the U.S., Missouri was admitted to the union in 1821; it is popularly known as the "Show Me state." Area: 69,674 sq.mi., of which 448 are water. Pop.: (1950 census) 3,954,653 (61.5% urban, 38.5% rural); (1940 census) 90.5% native white, 6.5% Negro, 3% foreign-born white. Capital: Jefferson City (1950 census, 25,099). Largest cities (1950 census): St. Louis (856,796); Kansas City (456,622); St. Joseph (78,588); Springfield (66,731); University City (39,892); Joplin (38,711); Independence (36,963).

History.—The 66th general assembly convened in regular session on Jan. 3, 1951, and by the close of the year had not finally adjourned. Both houses had Democratic majorities, the house of representatives consisting of 85 Democrats and 67 Republicans (with two vacancies), the senate of 20 Democrats and 13 Republicans. An important statute enacted by the 66th general assembly was a more strict automobile drivers' license law.

The July 1951 flood along the Missouri river was the largest since 1844. Excessive rains in Kansas resulted in a rapid rise of the Kaw river. On July 13 the flooded Kaw topped the barrier protecting Kansas City's industrial district, engulfing the livestock, packing and manufacturing area. The rampaging waters of the Kaw then swept into the Missouri river, and, fed by high waters on tributary streams, meandered across the state and into the Mississippi. Farms and towns along the Missouri were inundated, roads were flooded and 11 lives were lost. All bridges across the Missouri were closed (except the Daniel Boone bridge near St. Louis).

The major state officers (1951), all Democrats, were: Forrest Smith, governor; James T. Blair, Jr., lieutenant governor; Walter H. Toberman, secretary of state; W. H. Holmes, auditor; M. E. Morris, treasurer; J. E. Taylor, attorney general.

Education.—For the school year ending June 30, 1951, the public school system consisted of 6,302 elementary schools, with 515,949 pupils and 17,642 teachers; 767 secondary schools, with 150,212 pupils and 7,414 teachers. For the same school year expenditures for public schools totalled $130,253,982. Hubert Wheeler was state commissioner of education.

Under the G. I. Bill of Rights and the Vocational Rehabilitation act for disabled veterans, 23,970 veterans of World War II were enrolled in schools and colleges in the state, 15,503 were receiving farm training and 2,984 job training on Nov. 30, 1951.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1951, unemployment insurance totalled $11,862,531, paid to about 185,000 persons. In Dec. 1950 about 44,300 received payments and in Dec. 1951, about 51,800. For the year ending June 30, 1951, old-age assistance amounted to $67,118,200, aid to dependent children $15,714,967, general relief $5,171,714, pensions for the blind $1,370,327 and aid to the disabled $2,378,844. In June 1951, 131,748 persons received old-age assistance, 23,833 families (59,196 children) aid to dependent children, 27,319 persons general relief, 2,767 persons pensions for the blind, 8,016 persons aid to the disabled. During the year ending June 30, 1951, the state penitentiary had an average of 3,001 inmates per day, the reformatory (Algoa) 444, and the expenditures for these institutions amounted to $2,174,538. On June 30, 1951, the three state training schools (Boonville, Chillicothe and Tipton) had a population of 272 boys and 161 girls, and for the year ending June 30, 1951, their expenditures (including a building program) totalled $1,267,458.

Communications.—On Dec. 31, 1950, Missouri had 18,947 mi. of state highways and 81,775 mi. of rural roads. During 1950 the state highway department spent $53,038,663 (state and federal funds), of which $27,417,865 was for construction and $11,533,135 was for maintenance. In 1951 railroad mileage totalled 6,735 mi. There were 1,198,202 telephones in use on Dec. 31, 1951.

Banking and Finance.—On June 30, 1951, Missouri had 497 state banks with deposits of $2,269,215 and resources (loans and investments) of $2,093,464; 79 national banks with deposits of $1,364,328 and resources (loans and investments) of $1,298,508; 152 savings and loan associations with resources of $354,386,412. During the fiscal year ending June 30, 1951, the receipts of the state treasury totalled $262,924,161; disbursements $259,390,836. The state debt (road bonds) on July 1, 1950, was $37,000,000 and on June 30, 1951, $30,000,000.

Agriculture.—During 1951 cash income from crops and livestock was $1,260,000,000; in 1950 cash income from government payments was $10,374,000. The value of Missouri's 1950 crops was $584,507,000 and the

Table I.—*Principal Crops of Missouri*

Crop	1951	1950	Average 1940–49
Corn, bu.	132,022,000	176,132,000	142,318,000
Winter wheat, bu.	22,406,000	23,782,000	22,658,000
All hay, tons.	4,961,000	4,648,000	4,387,000
Cotton, bales	320,000	254,000	375,000
Cottonseed, tons	138,000	110,000	160,000
Oats, bu.	27,738,000	47,610,000	44,949,000
Soybeans, bu.	25,800,000	27,807,000	9,730,000
Rye, bu.	275,000	330,000	488,000
Tobacco, lb..	5,000,000	5,390,000	6,047,000
Potatoes, bu.	1,456,000	2,096,000	3,446,000
Sweet potatoes, bu..	275,000	350,000	714,000
Sorghum for grain, bu. . .	391,000	615,000	916,000
Sorgo syrup, gal..	150,000	120,000	371,000
Apples, bu.	1,280,000	1,020,000	1,213,000
Peaches, bu..	602,000	950,000	752,000
Pears, bu..	132,000	135,000	218,000
Grapes, tons	3,600	4,600	4,490

Source: U.S. Department of Agriculture.

Table II.—*Principal Industries of Missouri*

Industry	Value added by manufacture 1947	1939
Food and kindred products (including malt liquors, meat packing, etc.)	$331,753,000	$128,606,000
Transportation equipment (including motor vehicles)	173,131,000	40,558,000
Apparel and related products	130,549,000	43,127,000
Chemicals and allied products (including drugs and medicines)	129,257,000	53,208,000
Leather and leather products (including footwear)	117,333,000	56,958,000
Printing and publishing industries	116,327,000	49,733,000
Fabricated metal products	112,587,000	35,353,000
Machinery (except electrical)	109,412,000	23,519,000
Electrical machinery	89,212,000	28,299,000

Table III.—*Mineral Production of Missouri*

(Short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Barite	212,736	$ 1,924,520	186,891	$ 1,497,985
Cement (bbl.)	9,779,657	22,751,226	8,518,636	19,347,814
Clays	1,532,685	4,329,456	1,468,516	3,962,674
Coal	2,963,081	12,368,575	3,647,456	14,919,384
Copper	2,982	1,240,512	3,670	1,445,980
Iron ore	217,435	?	161,895	*
Lead	134,626	36,349,020	127,522	40,296,952
Lime	1,035,176	9,447,669	878,561	8,035,117
Sand and gravel	6,232,411	5,267,939	5,193,672	4,346,681
Silver (oz.)	236,273	213,617	123,413	111,695
Stone	10,300,400	14,406,627	9,562,720	13,969,008
Tripoli	?	?	15,888	505,851
Zinc	8,189	2,325,676	5,911	1,465,928
Other minerals		?		1,381,431
Total		?		$111,286,500

*Value included in other minerals.

value of the 1951 crops, harvested from 12,685,800 ac., was estimated at $560,642,000. Unfavourable planting conditions, the abandonment of acreage because of floods and wet weather, and the winter killing of small grains, caused the 1951 production of the state's principal crops to be the lowest in several years.

Manufacturing.—The number of persons employed in Missouri's manufacturing industries in 1947 was 327,515, and salaries and wages totalled $827,184,000. The value added by manufacture of products in 1947 totalled $1,623,145,000, compared with $581,804,000 in 1939, when the previous U.S. census of manufactures was taken. (R. P. Br.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Missouri ranks first among the states as a producer of lead.

Mohammedanism: *see* Islam.

Molybdenum: *see* Mineral and Metal Production and Prices.

Monaco.

This sovereign principality on the Mediterranean coast, 9 mi. E. of Nice, Fr., is bounded on all land sides by the French *département* of Alpes Maritimes. Area: 0.6 sq.mi. Pop. (1946 census): 19,242, including 1,975 Monacans, 10,522 French and 6,745 other foreigners; (1951 est.) 20,000. Ruler: Prince Rainier III; minister of state: Pierre Voizard.

History.—In March 1951 the inauguration of the statue of the prince's great-grandfather, Albert I, took place. The statue, in bronze and representing the prince at the helm of his yacht, was erected on a platform in St. Martin's gardens close to the Oceanographical museum and overlooking the Mediterranean.

Prince Rainier instituted a prize of 1,000,000 fr. and appointed a committee to decide to whom it should be given for the best literary work. The winner for 1951 was Julian Green. The 21st International Automobile rally was held in January and a cup to be called Prince Rainier III of Monaco cup was presented for the first time to the winner. An international committee was formed to standardize touristic terms, and the first meeting was held in Monaco during August.

On Dec. 23, at the palace of Monaco, Robert Schuman, French minister of foreign affairs, and Pierre Voizard, minister of state, signed a new Franco-Monegasque treaty to replace those of April 19, 1912, June 26, 1925, and April 23, 1945.

Education.—Schools (1949–50): primary 9, pupils 1,494, teachers 85; secondary 3, pupils 312, teachers 38.

Finance.—Budget (1950 actual): revenue 1,085,538,272 fr., expenditure 1,182,829,773 fr. (including 126,047,371 fr. extraordinary for equipment and reconstruction). One franc = .2857 U.S. cents. (K. E. E.)

Monetary Units: *see* Exchange Control and Exchange Rates.

Mongolian People's Republic.

Chronologically the first soviet-dominated people's republic (founded on July 11, 1921), Mongolia is bound on the north by the Asiatic part of the Russian S.F.S.R., and on the east, south and west by China. Area: 606,000 sq.mi. Pop.: no census has ever been taken and estimates vary from 850,000 (soviet, 1941) to 2,078,000 (Chinese, 1945). United Nations est. 1950 was 900,000. Capital: Ulan Bator (pop., 1951 est., 80,000). Language: Mongol. Religion: Lama-Buddhism. Chairman of the presidium of the Great Hural in 1951, G. Bumatsende; chairman of the council of ministers and commander in chief, Marshal Choi-Balsan.

History.—For the first time since the foundation of the republic a general election took place on June 10, 1951, for the Great Hural, which, under the constitution of 1940, was the highest state authority, one deputy being returned per 1,500 inhabitants and universal franchise operating from the age of 18, together with a common right of election. According to an official communiqué of the central electoral commission, there were 295 constituencies in which 489,031 persons recorded their votes, or 99.92% of the electorate; 487,358 (99.67%) of votes were for candidates of the bloc of the Mongolian People's Revolutionary (Communist) party and nonparty citizens. In Ulan Bator, the capital, 48,776 voters went to the polls out of a registered total of 48,790 and only four voted against the official candidates. If these figures were correct, the population of Mongolia could not be much more than 800,000.

When unveiling a monument to Joseph Stalin at Ulan Bator on July 11, and also in an article published in July by the Moscow monthly *Bolshevik*, Choi-Balsan summarized the achievements of his government. Great strides had been made in combating illiteracy. Whereas 30 years earlier there was only one school in Mongolia, in 1951 there were many secondary and technical schools and one primary school in every *somon* (the country was divided into 18 *aimak* or provinces and 322 *somon* or districts). From cultural darkness the country had progressed by 1951 to 87% adult literacy. There were 8 national and 19 local newspapers and 16 periodicals.

According to Choi-Balsan, livestock breeding, the basis of Mongolian economy, had increased by 150% in the 30 years of independence. Since soviet sources attributed about 12,500,000 head of livestock to Mongolia in 1921, it would appear that in 1951 livestock numbered more than 31,000,000 head, the official target of the Mongolian postwar five-year plan for 1952. Choi-Balsan, however, abstained from proclaiming that part of the five-year plan had thus been fulfilled a year in advance. Industrialization, too, was making progress. The total yearly value of the industrial production, which was 77,000,000 tugriks in 1940, increased to 196,000,000 tugriks in 1950. In that year alone coal production at Nalaikha increased by 25% and that of woollen fabrics by 20%. By 1950 27 times more butter was being produced than in 1945.

Finance.—Budget (1951 est.): revenue 351,400,000 tugriks; expenditure 346,400,000 tugriks. The Mongolian tugrik was at parity with the rouble. The theoretical exchange rate, therefore, was: £1 = 11.20 tugriks and U.S. $1 = 4 tugriks. (K. Sm.)

Montana.

A northwestern state of the United States, Montana is popularly known as the "Treasure state." Land area: 145,878 sq.mi.; water area 1,260 sq.mi.; pop. (1950 census): 591,024, an increase of 5.6% over the population of 1940. Principal cities: Helena, the capital (17,581); Great Falls (39,214); Butte (33,251); Billings (31,834); Missoula (22,485); Bozeman (11,325); Anaconda (11,254); Kalispell (9,737);

Miles City (9,243); Havre (8,086). The urban population was 258,034 or 43.7% as compared with 37.8% in 1940. The Indian population numbered about 18,000.

History.—Incumbents in the principal state offices in 1951 were John W. Bonner (Dem.), governor; Paul Cannon (Dem.), lieutenant governor; Sam W. Mitchell (Dem.), secretary of state; Arnold H. Olsen (Dem.), attorney general; John E. Henry (Rep.), treasurer; John J. Holmes (Dem.), auditor; and Mary M. Condon (Dem.), superintendent of public instruction. In the biennial election of 1950, Republicans gained control of both houses of the state legislature.

In 1951 as the first part of a long range program for reorganization of the state government, a law was enacted consolidating the most valuable parts of the budget act of 1919 and the offices of state accountant and state purchasing agent under one head known as the state controller. Appointed by the governor for eight years with the consent of the senate, not removable except for cause and unable to succeed himself, it was expected that this act would guarantee the political independence of the controller, give him central control over all spending as well as budgeting, and make him the principal liaison agent between the executive and the legislature. Governor Bonner appointed A. M. Johnson as the first controller under this act in 1951. An additional act by the 1951 legislative session set up a nonpartisan Commission on Reorganization of State Government composed of eight members, four from the house and four from the senate, which was empowered to make a complete and constructive study of the entire organization and structure of state government in Montana. This commission was given authority to subpoena or requisition information necessary to make a thorough investigation of all state offices, boards, bureaus and institutions with the purpose of recommending the consolidation, reorganization or abolition of those not deemed essential to the welfare of the people of the state. The sum of $25,000 was appropriated for its work and the commission was to report to the state legislature in Jan. 1953.

Initiative measure no. 54, passed at the 1950 general election, providing for $22,000,000 (to be raised by an excise tax on cigarettes) for an honorarium or adjusted compensation for residents of the state in active duty in the armed forces of the United States in World War II, was upheld as constitutional by the Montana supreme court in Jan. 1952, thus voiding an earlier Montana supreme court decision in 1922 which held that a bonus was unconstitutional.

Education.—There were 1,180 elementary schools in Montana in 1951, with an enrolment of 80,589 and a teaching staff of 3,692. There were 176 high schools with 26,867 students and 1,496 teachers. The total cost of operating elementary and secondary schools was $26,000,000 in 1951, exclusive of expenditures for capital outlay, debt service, transportation and lunches.

Social Insurance and Assistance, Public Welfare and Related Programs.—Approximately 23,137 persons received public assistance in 1951. Grants totalling $11,912,036 were distributed as follows (figures in parentheses indicate the average number of recipients per month): old-age assistance (11,654) $7,345,846; aid to dependent children (8,529) $2,471,592; aid to needy blind (536) $372,070; subsistence (838) $330,113; medical care (834) $172,318; aid to disabled (850) $579,356; hospitalization (509) $591,281; burials (37) $49,460. Unemployment benefits of $2,568,298 were paid to 16,268 persons, an average of $17.76 per week for 8.9 weeks, or $157.87 per claimant. Correctional institutions with their average populations and total expenditures for 1951 were: Montana state prison, 570 inmates, $435.996; state industrial school, 125 inmates, $181,778; vocational school for girls, 36 inmates, $98,423.

Communications.—In 1951 the state highway commission maintained 8,297 mi. of highways, of which 854 mi. were unsurfaced. State highway expenditures in 1951 were $20,645,155, including federal aid. The local rural mileage system totalled 60,984 mi. The total number of airports listed on the U.S. aeronautical charts for Montana in 1951 was 118, not including 200 landing strips intermittently used by farmers and ranchers within the state boundaries. The railway mileage was 5,241. The number of telephones was 152,800.

Banking and Finance.—There were 110 banks in the state in 1951. The 39 national banks had total deposits of $265,985.000, and their total assets were $280,778,000. State banks had total deposits of $258,581,481, and their assets were $273,012,600. There were 16 building and loan associations with assets of $25,133,758. For the fiscal year ending June 30, 1951, the net state revenue, all sources, was $79,228,275, and the expenditures were $75,923,255. The gross debt of the state on July 1, 1951, was $6,586,000 and the net debt $5,423,791.

Table I.—*Principal Crops of Montana*

Crop	1951	1950	Average 1940–49
Wheat, bu.	97,988,000	91,434,000	68,845,000
Hay, tons	2,363,000	2,651,000	2,612,000
Barley, bu.	12,880,000	23,430,000	14,692,000
Sugar beets, tons	544,000	744,000	816,000
Oats, bu.	10,200,000	15,651,000	12,486,000
Potatoes, bu.	2,150,000	2,700,000	2,100,000
Alfalfa seed, bu.	157,000	161,000	120,000
Corn, bu.	2,392,000	3,492,000	3,059,000
Dry beans, 100-lb. bags	141,000	161,000	311,000
Flaxseed, bu.	198,000	561,000	1,418,000
Mustard seed, lb.	18,700,000	17,100,000	25,658,000

Source: U.S. Department of Agriculture.

Table II.—*Industrial Products in Montana*

Products	1950	1949
Cheese, lb.	3,010,000	2,965,000
Butter, lb.	8,340,000	8,025,000
Ice cream, gal.	2,797,000	2,964,000
Beet sugar, cwt.	1,570,000	1,940,000
Beer, bbl.	199,302	200,594
Gasoline, gal.	293,240,097	255,169,417
Electric power generated, kw.hr.	3,135,752,000	2,915,361,000
Lumber, bd. ft.	—	458,520,000

Table III.—*Mineral Production of Montana*

(Short tons, except as noted)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Coal	2,520,166	$ 5,861,194	2,766,003	$ 6,311,539
Copper	54,478	22,662,848	56,611	22,304,734
Gold (oz.)	51,764	1,811,740	52,724	1,845,340
Lead	19,617	5,296,590	17,996	5,686,736
Manganese ore	131,201	6,139,585	122,382	5,068,425
Natural gas (thousand cu. ft.)	42,000,000	2,520,000	35,291,000	1,962,000
Natural gasoline (gal.)	4,116,000	350,000	3,602,000	210,000
Petroleum (bbl.)	8,112,000	20,440,000	9,118,000	23,520,000
Petroleum gases (gal.)	6,324,000	450,000	6,060,000	431,000
Phosphate rock	235,385	1,496,537	397,789	2,574,330
Sand and gravel	9,044,125	5,140,207	6,682,144	3,365,472
Silver (oz.)	6,590,747	5,964,959	6,327,025	5,726,277
Stone	919,090	949,545	602,890	563,465
Zinc	67,678	19,220,552	54,195	13,440,360
Other minerals		?		4,936,368
Total		?		$97,946,046

Agriculture.—Despite some drought and much bad weather at harvest time, Montana's wheat crop set an all-time high in 1951. With the exception of mustard seed, the volume of all other crops harvested was less than in 1950. The aggregate value of all crops was $307,000,000, an increase of $9,000,000 above the 1950 value. Wheat accounted for 63% of the total, followed by hay with 22% and barley with 4%. Total acreage of all crops harvested was 9,313,000, an increase of 185,000 over the acreage harvested in 1950.

Manufactures.—The total value added by manufacture (1947 census) in the 652 manufacturing establishments in Montana in 1947 was $92,258,000, as compared with $38,828,000 for 552 establishments in 1939. Reports of the state unemployment compensation commission showed that during the fiscal year 1950–51 an average of 18,130 persons were employed in manufacturing in Montana, with total wages of $62,990,385. Official estimates by the state employment service listed total employment figures for all Montana in 1950–1951, aside from agriculture, as 150,800. Electrical power to a total of 3,234,500,000 kw.hr. was generated in the state in 1951. (E. E. B.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951. Montana ranks third among the states as a producer of copper.

Montreal. A city in the province of Quebec, Canada, first called Ville Marie, Montreal was founded in 1642. Preliminary figures of the 1951 official census of Canada gave the city a population of 1,002,703, and that of greater Montreal 1,370,044.

The port of Montreal is the largest in Canada. Deep-sea arrivals in 1951 (commercial) numbered 1,186, with a net tonnage of 4,230,000. The number of coastal or inland vessel arrivals (commercial) in 1951 was 3,152, with a net tonnage of 3,450,000.

The total of cargo tonnage which passed through the port during 1950 was 15,315,533; this consisted of 8,579,034 inward (foreign 6,292,018, domestic 2,287,016) and 6,736,499 outward (foreign 3,435,195, domestic 3,301,304).

The assessed value of real estate (1951) was $1,557,008,439, of which $1,193,740,926 was taxable and $363,267,513 was exempt from taxation.

In 1951, building permits were issued for 9,721 new buildings having a value of $191,082,200, and for 2,731 repairs having a value of $10,881,900.

Bank debits for 1950 were $32,847,407,939, and bank clearings for 1951 were $26,602,217,000. (J. A. Ma.)

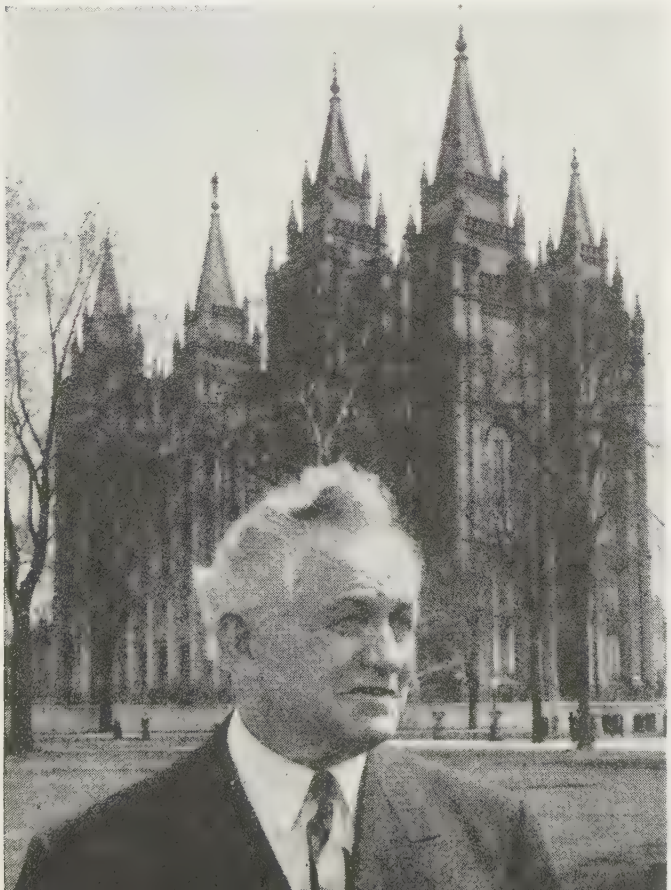
Montserrat: *see* Leeward Islands.

Mormons. On April 4, 1951, George Albert Smith, president of the Church of Jesus Christ of Latter Day Saints, died at his home in Salt Lake City, Utah. This dissolved the first presidency of the church, the highest authority therein. On April 8, 1951, David Oman McKay was ordained as president of the church and as prophet, seer and revelator for the church in a meeting of the Council of the Twelve and the Patriarch of the church held in the Salt Lake Temple. On the day following, in a solemn assembly of the priesthood of the entire church (a constituent assembly) he was sustained by the assembly as president of the Church of Jesus Christ of Latter Day Saints and as prophet, seer and revelator thereto.

President McKay had been ordained an apostle of the church in 1906; was general superintendent of the church Sunday schools, 1918–34; was church commissioner of education, 1919–21; second counsellor in the first presidency, 1934–51, first under Pres. Heber J. Grant, then under Pres. George Albert Smith; and was sustained as president of the Council of the Twelve in 1950.

During 1951, 78 chapels were completed and dedicated in the stakes of the church, and 32 in the missions (United States and Canada); there were approximately 12,000 convert baptisms, probably the largest number for any one year in the history of the church; 54 production projects were added to the church welfare plan; 11 additional stakes and 116 additional wards were created. (*See* also Church Membership.) (J. R. Cl.)

DAVID O. McKAY, who succeeded George A. Smith as president of the Church of Jesus Christ of Latter-Day Saints (Mormons) in Salt Lake City, Utah, in April 1951



Morocco, French. A sultanate of northwest Africa, with both Mediterranean and Atlantic coastlines, divided into unequal parts, the French protectorate described from 1947 as potentially an associated state of the French union, the Spanish protectorate consisting of a northern and a southern zone (*see* Spanish Colonial Empire) and the international zone of Tangier (*q.v.*). Areas and populations are shown in the table.

	Area (in sq. mi.)	Population (1950 est.)
French protectorate	153,870	8,410,000
Spanish protectorate*	17,631	1,192,000
Places of Spanish sovereignty†	823	206,000
Tangier	232	111,000
Total	172,556	9,819,000

*Including the southern zone, comprising 10,039 sq.mi. but only about 12,000 inhabitants.
†Alhucemas, Ceuta, Chafarinas, Melilla, Peñon de Veles and the Ifni territory (741 sq.mi.).

In the French protectorate the population was estimated in 1949 at 9,200,000, mostly Arabs and Berbers who are Moslem and speak Arabic (64%) or Berber (22%) or are bilingual (14%). The 1947 census revealed a European population of 325,000 including 266,133 French. The Jewish community numbered 225,000. Chief towns (pop. 1947 census): Rabat (cap., 161,416); Casablanca (551,222); Marrakesh (238,277); Fez (200,946); Meknès (159,811). Ruler in 1951: Sultan Sidi Mohammed ben Youssef III; grand vizier: Si Mamri; French residents general: Gen. Alphonse Juin and (from Oct. 3) Gen. Augustin Guillaume.

History.—At the end of 1950, Istiqlal (nationalist) members had left the council of government, and Thami el-Glaoui, pasha of Marrakesh, had protested to the sultan about his keeping Istiqlal members in his cabinet and refusing to sign the *dahirs* (laws) for reform that were presented by General Juin. Serious developments in the crisis took place in Feb. 1951. Pres. Vincent Auriol sent a message, and as tribes from the mountains converged on Fez and Rabat the sultan signed a protocol of agreement with the residency (Feb. 25).

Dissolving his cabinet, the sultan declared that Morocco expected the dawn of a new era in its relations with France. Si Mamri, the grand vizier, added: "We condemn the methods of a certain party, which rely on intimidation and force." Of especial significance were two *dahirs* signed by the sultan: one to set up *jemaa* (municipal councils) in the rural communes; the other to broaden the electorate for the chambers of agriculture and commerce. Distorted accounts of the affairs—there was talk of a bombardment of Fez—gave rise to anti-French demonstrations in Egypt at the beginning of March. In April Moroccan nationalists signed a pact of union at Tangier, undertaking not to negotiate with the French authorities within the framework of the existing regime.

On Nov. 2 elections to the chambers of commerce and agriculture were boycotted by the Istiqlal. Five people were killed and 40 wounded in disturbances at Casablanca. The states of the Arab league brought the question of Morocco to the attention of the United Nations, but discussion was postponed by the assembly.

Nine large bases for U.S. forces were being prepared in pursuance of the North Atlantic treaty.

Education.—Schools, French zone (1950): primary and secondary, pupils, Moslem 120,000, European 72,400, Jewish 31,800; institutions of higher education 3, students 1,725.

Finance.—Budget, French zone (1951 est.): balanced at 60,856,000,000 fr. Monetary unit: Moroccan franc=metropolitan franc=.2857 U.S. cents (Sept. 1951).

Foreign Trade.—French zone (1950): imports 114,810,000,000 fr. (including 78,181,000,000 fr. from the French union); exports 65,799,000,000 fr. (including 30,719,000,000 fr. to the French union). Principal exports: phosphate rock 12,777,000,000 fr.; preserved fish 8,982,000,000 fr.; cereals 7,398,000,000 fr.; citrus fruits 3,911,000,000 fr.; vegetables 4,436,000,000 fr.; lead 2,176,000,000 fr.; linseed 1,864,000,000 fr.

Transport and Communications.—French zone (1950): railways (normal gauge only) 1,690 km., including 719 electrified; roads 9,181 km.; motor vehicles 65,000; ships entered at Casablanca 6,238; aircraft landed 6,395.

Industry.—French zone, production (metric tons, 1950): phosphate rock 4,022,000; coal 637,000; iron ore 319,000; manganese 257,000; lead ore 65,000; zinc ore 22,000; oil 39,000; cement 321,000; electricity 481,000,000 kw.hr. (Hu. De.)

Morocco, Spanish: *see* Spanish Colonial Empire.

Morse, Wayne Lyman (1900–), U.S. senator, was born on Oct. 20 near Madison, Wis. He received his bachelor's degree from the University of Wisconsin, Madison, in 1923 and his master's degree in 1924; he took law degrees from the University of Minnesota, Minneapolis (1928) and Columbia university (1932). In 1924 he was appointed assistant professor at the University of Minnesota, serving until 1928. He was assistant professor of law (1929–30) and associate professor (1930–31) at the University of Oregon, Eugene; he was dean and professor of law 1931–44. Meanwhile he had served as special assistant to the U.S. attorney general (1936–39), Pacific coast arbitrator for the U.S. department of labour in the shipping industry (1938–42), chairman of the president's railway emergency board (1941) and member of the national war labour board (1942–44). In 1944 he was elected U.S. senator from Oregon as a Republican; he was re-elected in 1950 for the term 1951–57.

A member of the progressive Republican group in congress, Morse frequently backed the Democratic administration's policies. On Feb. 26, 1951, he declared that if the Republican platform for the 1952 national elections was "isolationist," he would "take a long walk." During the MacArthur hearings he supported the state department and the administration and denounced the Republican minority report which criticized Gen. Douglas MacArthur's dismissal by Pres. Harry S. Truman. On July 6 Morse and Sen. Brien McMahon introduced a senate resolution asking for an investigation of any foreign lobbies that might have influenced the foreign policy of the United States after 1941.

Mortgages, Farm: *see* Farm Credit Administration; Farmers Home Administration.

Mortgages, Home: *see* Housing.

Moscow. Capital of the Union of Soviet Socialist Republics and of the Russian Soviet Federated Socialist Republic, Moscow had in 1950 an estimated population of 7,000,000.

During 1951 about 735,000 square metres of floor living space were completed, which was 224,000 sq.m. more than in 1950, about 300,000 sq.m. more than in 1949 and almost twice as much as in 1940. Included in this were three skyscrapers, one in the Lenin hills to be Moscow State university, another an administrative 30-story building in Smolenskaya square and the third a 34-story block of flats on the Kotelnicheskaya embankment. Twenty-four schools with a seating capacity of 20,640 and 58 kindergartens for 5,320 pupils were also completed.

A new section of the great circular or *bolshoye koltso* underground railway between Kursky and Byelorussky railway stations added 4 stations (to the existing 35 stations) and 6.7 km. of track to the Moscow *metropoliten* which by the end of the year covered more than 100 km.

The western colony continued to dwindle. Many foreign diplomatic missions drastically reduced their staffs and, following the example given by New Zealand in the preceding year, Iceland closed its legation. These moves were dictated by the high cost to western countries of being represented in Moscow. With an official exchange rate of four roubles to the U.S. dollar the soviet capital was the most expensive city in the world, typical prices to foreigners ranging from 12 cents for a newspaper to $16.80 for a square meal. The Moscow budget estimates for 1950 planned for a revenue of 3,504,800,000 roubles but the actual total was 4,130,100,000 roubles. The estimated revenue for 1951 was 3,538,700,000 roubles. (K. Sm.)

Mossadegh, Mohammed (1880–), Iranian statesman, was born at Tehran, the son of Mirza Hedayat, for 30 years minister of finance.

He served his apprenticeship as financial agent in the province of Khurasan. He studied in Paris and later at the University of Neuchâtel, Switz., where in 1914 he received his degree of doctor of laws.

He was for a short period minister of justice (1920), of finance (1921) and of foreign affairs (1922), but was not popular with Iranian officialdom because of his insistence on cutting salaries and dismissing useless office holders. During 1923–27 he was member for Tehran of the *majlis*, but had to retire from public life because of his opposition to Riza Khan Pahlavi who in Dec. 1925 was proclaimed new shah of Iran. Mossadegh returned to politics in 1944, was elected to the *majlis* and put through a bill forbidding the government to grant an oil concession to anyone without legislative permission. As leader of the small National Front party (with 8 seats out of 136) he succeeded in convincing the *majlis* to reject on Nov. 26, 1950, the supplementary oil agreement signed by the government with the Anglo-Iranian Oil company. On March 15, 1951, mainly under his pressure, the *majlis* passed the Oil Nationalization act. On April 28 he was elected prime minister with the purpose of enforcing the act. On Oct. 8 he arrived at New York city to present Iran's case before the U.N. Security council and returned to Tehran on Nov. 23. (*See* also Iran.)

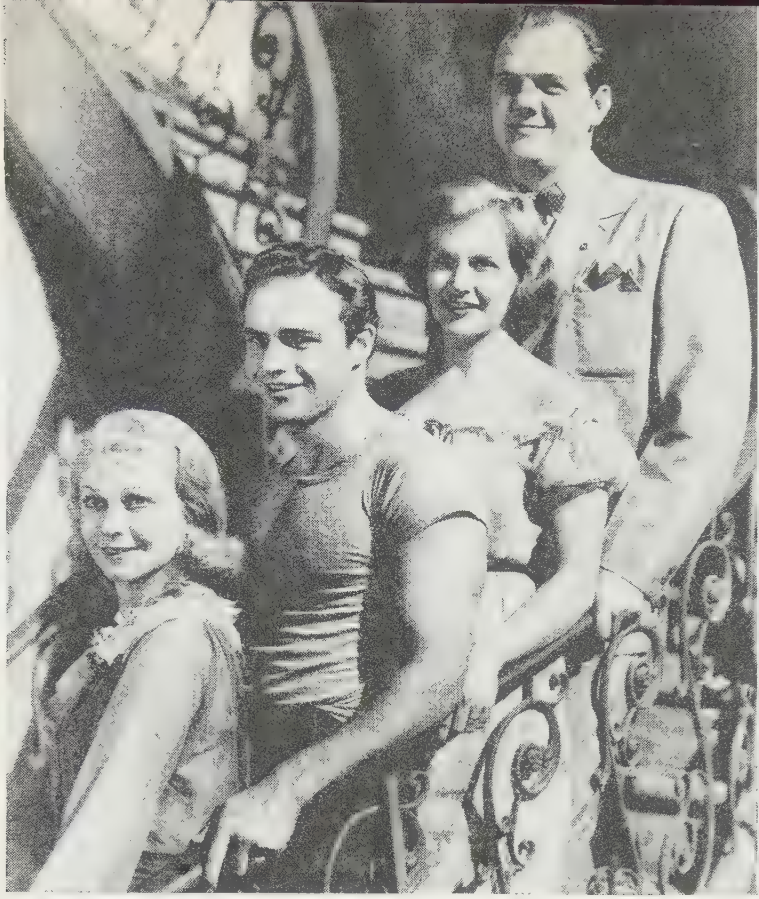
Motion Pictures. The U.S. motion-picture industry in 1951 halted and reversed the unfavourable business trends which had beset it since 1947. The upturn was by far the industry's most significant development of the year, since it indicated that the business had confounded its prophets of doom and had survived what was possibly the gravest crisis in its history. Estimates of the degree of box-office improvement varied from 4.1% to as high as 20% in certain areas.

Many factors entered into the upturn, in addition to better pictures which resulted in greater attendance. They included adjustment to television's worst competitive effects; larger number of films in colour, always a box-office stimulant; an increase in the number of theatres, particularly drive-ins; improvement in foreign revenues; slashes in production costs; excellent position in regard to excess profits tax; good effects of the fall promotion campaign entitled "Movietime, U.S.A."; and greater co-ordination of various industry elements in matters affecting their common welfare under the auspices of C.O.M.P.O. (Council of Motion Picture Organizations).

Paul Raibourn, vice-president of Paramount Pictures and one of the industry's leading economic authorities, estimated that the business volume of the industry in 1951 was from 6% to 8% greater than in 1950. A 10% decline at the beginning of the year, he stated, was offset by later business volume which exceeded the preceding year by as much as 20%.

One of the most significant indications of the change in the industry's outlook was 20th Century-Fox's full restoration of cuts in the salaries of 130 top executives which had been made as an economy measure in 1950. The restoration was based on the company's earnings during the final six months of 1951.

Unspectacular but steady gains in weekly attendance also reflected the upturn. From a low in weekly U.S. attendance of around 53,000,000, the figures climbed to around 55,000,000 to

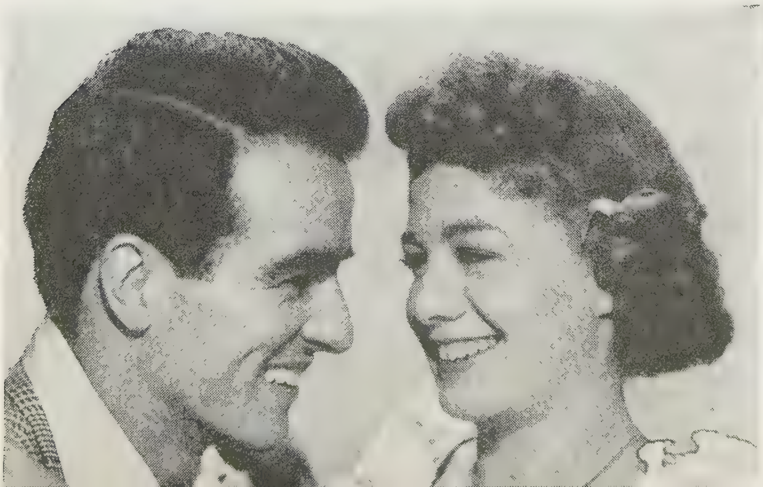


VIVIEN LEIGH (left) was chosen the best actress of the year for her role in *A Streetcar Named Desire*. The awards for best supporting actress and actor went to Kim Hunter (third from left) and Karl Malden (right). Behind Miss Leigh is Marlon Brando, who also starred in the Charles K. Feldman Group production, presented by Warner Bros.

HUMPHREY BOGART in a scene from *The African Queen*; for his performance in this jungle film, made in the Belgian Congo, he received the Academy award as the best actor of the year

Award winners among the films and players selected by the Academy of Motion Picture Arts and Sciences for highest achievement in 1951

(Above) GENE KELLY (left) and Georges Guetary in *An American in Paris*, a musical which was judged the best picture of the year and won other honours, including best scoring, best photography, best art direction (colour) and best costume design



(Left) *A PLACE IN THE SUN*, in which Montgomery Clift and Shelley Winters made a romantic team, won the award for best directing for George Stevens and best film editing for William Hornbeck

60,000,000 weekly.

Box-Office Receipts.—Gross revenue in 1951 appeared certain to exceed substantially the 1950 total world gross of approximately $2,220,500,000, of which the U.S. gross amounted to $1,320,000,000. After noting a $25,100,000 jump in the grosses of nine major film and theatre corporations over 1950 in a nine-month period, weekly *Variety* estimated the total business of 131 top-grossing pictures as running to $221,175,000 in the U.S. and Canada, as compared with $210,565,000 for the top-grossing pictures of 1950.

On Jan. 1, 1951, there were 19,797 U.S. indoor motion-picture theatres and 3,323 drive-in theatres, according to the U.S. department of commerce. These 23,120 theatres had a total seating capacity of 14,684,150—an increase of 21.1% over capacity in 1948, when a similar study was made.

Plant Investment and Profits.—Capital investment of the United States motion-picture industry amounted to $2,922,000,000 in physical properties and real estate, with $2,740,000,000 covering theatres, $141,000,000 studios, $25,600,000 as distribution's share and $16,000,000 embracing miscellaneous categories.

Higher taxes were offset by economies which reduced production costs from 25% to 35% below 1947 figures and thus enabled companies to maintain continuing profits, with the likelihood that the $50,000,000 total profit of the major film companies in 1950 would be matched or slightly exceeded in 1951.

Production; Foreign Sales and Imports.—Hollywood feature productions approved by the Production Code administration in 1951 totalled 370, in contrast to 379 in 1950. Foreign features approved by the P.C.A. in 1951 totalled 63, in contrast to 50 approved in 1950. Included under "foreign features" were films made outside the U.S. by Hollywood companies, such as *Quo Vadis,* which was shot in Rome.

The P.C.A. approved 383 short subjects in 1951, compared with 447 in 1950. Hollywood feature films released in the U.S. during 1950 totalled 383 with a slight drop indicated for 1951. The number of films in colour in 1951 exceeded 100, considerably more than in 1950 and 1949.

The foreign market for U.S. films expanded during 1951, as the total of film theatres in the world rose to 99,617, an increase of 8,000 over the preceding two years. Progress in easing currency and quota restrictions, as well as better pictures, also were important factors; dollar remittances from abroad for 1951 were estimated at between $120,000,000 and $125,000,000 as compared with previous figures of about $100,000,000 annually. The total estimated gross of U.S. pictures abroad amounted to $900,500,000 in 1950, and 1951 figures indicated the 1950 gross would be exceeded by $50,000,000 to $75,000,000.

Showings of foreign films in the U.S. increased during the year, as indicated by the fact that the number of foreign films approved by the P.C.A. in 1951 rose by 13 over 1950.

Trends in Production.—The popularity of religious subjects set against spectacular backgrounds, revived by Cecil B. de Mille's *Samson and Delilah* in 1950, reached a peak in 1951 with *David and Bathsheba,* the top-grossing film of the year, and the release, toward the year's end, of Metro-Goldwyn-Mayer's *Quo Vadis.*

Colourful musicals, numerous comedies, a wide range of war stories, several excursions into the classics, a number of biographies, fantasies, adventure epics, science-fiction features and films on political, racial and social themes—such as *I Was a Communist for the FBI, Storm Warning, The Well* and *Sound of Fury*—rounded out the extensive assortment. Many of the films, such as *The Red Badge of Courage,* also had historical backgrounds.

Large-scale westerns were not so prominent among box-office leaders as in previous years, and films with crime, gangster, psychological and horror themes continued their relative decline.

At the close of 1951, the major studios alone had poured approximately $285,000,000 into films of all types.

***Motion Picture Herald* and Film Critics' Polls.**—U.S. exhibitors, by confidential ballots cast in the annual poll of the *Motion Picture Herald,* chose the following as the ten top box-office stars for 1951: John Wayne, Dean Martin and Jerry Lewis, Betty Grable, Bud Abbott and Lou Costello, Bing Crosby, Bob Hope, Randolph Scott, Gary Cooper, Doris Day and Spencer Tracy.

The New York Film Critics in Dec. 1951 announced the following choices: best English-language motion picture of the year, Warner Bros. Pictures, Inc., *A Streetcar Named Desire;* best foreign-language picture, *Miracle in Milan;* best actress, Vivien Leigh in *A Streetcar Named Desire;* best actor, Arthur Kennedy in *Bright Victory;* best director, Elia Kazan, for *A Streetcar Named Desire.*

Academy Awards.—The Academy of Motion Picture Arts and Sciences announced in March 1951 the following awards for 1950 (*see* photographs on page 473 for 1951 awards):

Thalberg Memorial award, Darryl F. Zanuck. Best picture, *All About Eve,* a 20th Century-Fox Film Corp. production. Best performances: actor, José Ferrer in *Cyrano de Bergerac,* Stanley Kramer production, United Artists corporation; actress, Judy Holliday in *Born Yesterday,* Columbia Pictures Corp.; supporting actor, George Sanders in *All About Eve,* 20th Century-Fox; supporting actress, Josephine Hull in *Harvey,* Universal International Films, Inc. Best direction, Joseph L. Mankiewicz for *All About Eve,* 20th Century-Fox. Writing: (screen play) Joseph L. Mankiewicz for *All About Eve,* 20th Century-Fox; (motion-picture story) Edna and Edward Anhalt for *Panic in the Streets,* 20th Century-Fox; (story and screen play) Charles Brackett, Billy Wilder and D. M. Marshman, Jr., for *Sunset Boulevard,* Paramount Film Corp. Best art direction: black and white, Hans Dreier and John Meehan for *Sunset Boulevard,* Paramount; colour, Hans Dreier and Walter Tyler for *Samson and Delilah,* Cecil B. de Mille, Paramount. Best cinematography: black and white, Robert Krasker for *The Third Man,* Selznick Enterprises, London Films production; colour, Robert Surtees for *King Solomon's Mines,* Metro-Goldwyn-Mayer Pictures. Best sound recording, W. D. Flick and Roger Heman for *All About Eve,* 20th Century-Fox. Short subjects: cartoon, *Gerald McBoing-Boing,* United Productions of America, Columbia, (Stephen Bosustow, executive producer); one-reeler, *Grandad of Races,* Warner Bros. Pictures, Inc. (Gordon Hollingshead, producer); two-reeler, *In Beaver Valley,* Walt Disney, RKO release (Walt Disney, producer). Best film editing, Ralph E. Winters and Conrad A. Nervig for *King Solomon's Mines,* Metro-Goldwyn-Mayer. Best scoring: musical picture, Adolph Deutsch and Roger Edens for *Annie Get Your Gun,* Metro-Goldwyn-Mayer; dramatic or comedy picture, Franz Waxman for *Sunset Boulevard,* Paramount. Best original song, "Mona Lisa" from *Captain Carey, U.S.A.,* Paramount (music and lyrics by Jay Livingston and Ray Evans). Best special effects, Lee Zavitz for *Destination Moon,* George Pal Productions, Eagle Lion Classics. Best set decoration: black and white, Sam Comer and Ray Moyer for *Sunset Boulevard,* Paramount; colour, Sam Comer and Ray Moyer for *Samson and Delilah,* Cecil B. de Mille, Paramount. Costume design: black and white, Edith Head and Charles LeMaire for *All About Eve,* 20th Century-Fox; colour, Edith Head, Dorothy Jeakins, Elois Jenssen, Gile Steele and Gwen Wakeling for *Samson and Delilah,* Cecil B. de Mille, Paramount. Best documentaries: short subjects, *Why Korea?,* 20th Century-Fox Movietone (Edmund Reek, producer); feature, *The Titan: Story of Michelangelo,* Michelangelo company, Classics Pictures, Inc. (Robert Snyder, producer). Foreign-language film award, *The Walls of Malapaga.* Special awards: Louis B. Mayer for pioneering leadership in the motion-picture industry; George Murphy, for his services in interpreting the film industry correctly to the country at large. Special awards, scientific or technical: James B. Gordon and the 20th Century-Fox camera department for the design and development of a multiple-image film viewer; John Paul Livadary, Floyd Campbell, L. W. Russell and the Columbia Pictures sound department for the development of a multitrack magnetic rerecording system; Loren L. Ryder and the Paramount studio sound department for the first studio-wide application of magnetic sound recording to motion-picture production. (A. Ar.)

Educational Motion Pictures.—Much of the scope and nature of educational motion-picture production in 1951 can be described by reporting the film production activities of ten producers. The ten producers listed in the table were representative of U.S. commercial educational sound motion-picture film producers. To this must be added the film production activities of U.S. government agencies, the information offices of other governments and hundreds of industrial and manufacturing groups, all of whom produced films for general information purposes. Many of these films were of such content that they could be used in schools for educational purposes.

Representative Educational Motion-Picture Production, 1951

Name of producer	Number of films produced	Titles reserved for television	Titles of representative films
Academy Films	4	all	*Nile River*
Bailey Films	12	all	*Art in Our World* *Artist and Nature*
Arthur Barr Productions	6	none	*Geysers and Hot Springs*
Coronet Films	70	4 groups of 13 subjects	*Are You Ready for Service?*
Encyclopaedia Britannica Films Inc.	50	all	*Booker T. Washington* *Monarch Butterfly*
Johnson-Hunt Productions	4	none	*Parallel Lines* *Two-Part Singing*
McGraw-Hill Text-films	40	21	*Mt. Vernon in Virginia*
United World Films	24	all	*Unlocking the Atom*
Young America Films, Inc.	16	12	*The Outsider* *The Other Fellow's Feelings*

Encyclopædia Britannica Films led 1951 production with films presenting biographical sketches of great Americans. Such films as *Thomas Jefferson, Benjamin Franklin* and *Booker T. Washington* were representative. Young America Films made a contribution to the study and practice of human relationships with such films as *The Other Fellow's Feelings* and *The Outsider*. McGraw-Hill Text-films continued to produce films for use in teacher-training situations both in service and in professional education classes for teachers in training. The series of *Are You Ready for Service?* films, produced by Coronet Films, was aimed at intelligently conditioning high-school-age youth toward a wholesome outlook about induction into the armed forces.

Film production budgets for 1951 were in general increased, mostly because of increases in local school film purchases. The greatest increase in film purchases was by newly created school film libraries.

The most significant effort in the use of films in adult education continued to be through the agency of the United States department of agriculture and the land-grant agricultural colleges. Production of informational or land-use educational films, once launched and accomplished entirely by the department of agriculture, had become widely supplemented by local college production throughout the United States. A 1951 report, *Agricultural Films Produced by Agricultural Colleges, State Extension Services, Universities and Other State Agencies,* motion picture service, U.S.D.A. (July 1951), revealed that almost every state in the union contributed to the production of educational films dealing with some important aspect of farming and farming methods.

Formerly the institution known as the University Press or College Press was engaged in disseminating socially valuable information learned through service and research. By 1951 most of the great U.S. universities and colleges were distributing similar current information through the medium of the 16-mm. sound motion-picture film. Such films were being produced in college and university divisions specifically established for film production. This development had become significant enough to warrant the formation of a professional group known as the College and University Film Producers association.

A total of 287 educational film libraries announced from 200 to more than 6,000 film titles available for school use in 1951. These 287 educational film libraries were listed as being departments of city, county, college or university institutions. In addition there were more than twice that number of similar libraries listed as having 175 or fewer titles available. All these were exclusive of parochial, religious and commercial film rental libraries.

California, Virginia, Texas, New York and Illinois led in the establishment of decentralized film library service to public schools.

Professional training in 16-mm. sound motion-picture film production was added to the curricula of many colleges and universities in the United States. Representative universities offering such training during the year were the University of Southern California; the state universities of Indiana, Iowa, Michigan and Wisconsin; Boston university; and Syracuse university.

While the school use of educational films climbed to its highest peak in the history of U.S. education, several national organizations continued to sponsor programs of acquainting the adult population of the United States with the power of the educational film. The American Library association guided educational film use research for public enlightenment at the adult level in several states. The Educational Film Library association served more than 600 members with information about currently released educational films and their use. The Film Council of America instituted sweeping revisions in service and leadership functions during 1951 which included streamlining the constitution of that organization, refinancing the service activities to which it was committed through a substantial grant-in-aid from the Ford foundation, and securing new and additional staff leadership. The Film Council of America supplied information about the selection and use of 16-mm. sound motion-picture films to supplement and augment the educational programs of the organizations seeking such assistance.

Significant in helping to sponsor the general improvement of classroom teaching through the use of carefully selected educational sound motion pictures is the department of audio-visual instruction of the National Education association. The 1951 membership of the professional education group numbered more than 1,400 and included the majority of the nation's teachers, directors of visual instruction and college and university professors whose responsibilities had to do with the organization and administration of programs which sought to improve instruction through the use of educational films. (W. A. Wi.)

Technical Developments. — *Theatre Television.* — Theatre television became a commercial reality in 1951, with the first exclusive theatre telecast of a major sports event being shown in nine theatres in six different cities to capacity audiences. About 50 installations were made of direct projection theatre television systems, and there were several theatre systems in use that photographed a small-sized television receiver tube with either 16- or 35-mm. reversal film. This film was processed in 30 to 40 seconds and then projected with normal film equipment.

New Technicolor System.—Technicolor introduced a new colour system balanced for 3,350 K tungsten illumination with an ASA exposure speed of approximately 50, whereas the original three-colour system was balanced to 5,700 K daylight illumination with an exposure speed of approximately 18. The new system was readily accepted and several feature pictures were made and released using the system. The increased speed, plus the fact that it allowed the use of incandescent rather than arc lamps, resulted in substantial economies in set lighting.

Negative-Positive Colour System.—Ansco and the Eastman Kodak company both introduced new negative-positive colour films which were daylight balanced, with an ASA exposure speed of approximately 18. A negative-positive system is one in which two multilayer-type colour films are provided, one for camera use and the other for preparation of release prints. Both films are intended for processing by the user. The camera film, or negative, is exposed in conventional motion-picture cameras. The positive material may be printed on modified conventional printers. Processing is carried out in continuous-type developing machines similar to those used for conventional black-and-white film processing, but with more tanks to allow for the increased number of steps required.

Strippable Negative Colour System.—Eastman Kodak company also made available on an experimental basis a multilayer

THEATRE AUDIENCE viewing three-dimensional motion pictures in colour through special glasses at the 1951 Festival of Britain in London

stripping negative for colour, said to have an ASA speed rating of 64 (tungsten). This negative consists of a single film base bearing three black-and-white emulsions. The layer next to the base is red sensitive, the next is green sensitive and the top emulsion is blue sensitive. Between the red- and green-sensitive layers is a special interlayer which has the property of adhering to the emulsions when dry but readily separating when wet. A similar interlayer is between the green- and blue-sensitive emulsions. As the green- and red-sensitive emulsions are also sensitive to blue light, a yellow filter layer is interposed between the blue and green emulsions. After exposure, but before development, the two upper layers are wet stripped separately and each transferred to its own film base. This strippable negative can be exposed in regular studio cameras, and it also provides separation or three-strip negatives which can be developed in standard black-and-white processing equipment.

Film Base.—An entirely new synthetic base for photographic film was developed by E. I. du Pont de Nemours & Co. Preliminary tests showed that it was several times tougher and had much greater dimensional stability than other film. The new material, a polyester, is chemically related to dacron polyester fibre. Both are condensation polymers made from ethylene glycol and terephthalic acid. The base was produced in laboratory scale equipment and was presented to the motion-picture industry for commercial evaluation.

Diffused Lighting Units for Motion-Picture Sets.—A new, extremely lightweight, diffusing-type light source for set lighting was designed and introduced by the Motion Picture Research council. The unit consists of a corrugated aluminum panel 8 ft. by 6 ft., painted flat white. In front of this reflector is a framework mounting two rows of photoflood lamps which throw light toward the panel which diffusely reflects the light to the set. These units provide a large area of illumination at a relatively low intensity. They establish an evenly distributed shadowless fill light over every part of the set. The key light is then established with normal units.

Remote-Control Lighting Units.—This system, developed by Paramount studios, consists of a number of lightweight set lighting units, a control unit for each lamp that when activated by remote control automatically tilts, pans or adjusts the lamp beam from spot to flood, and a remote master control by which the lamps in the system may be selectively controlled individually or in groups. The lamps are considerably lighter than regular studio units and employ a principle of radiation-type cooling as contrasted to the former convection (air) cooled lamp house. While the system had been used in actual production, it was still under development. (W. F. KY.)

Canada.—In addition to its continued production of short documentary films during 1951, the National Film board pioneered in several directions. The most humour-provoking effort was the three-dimensional coloured animated cartoon invented by Norman McLaren. The board also created a cinemicrography unit, which, combining camera and microscope, produced motion pictures of minute organisms magnified up to 1,000 diameters. As part of Canada's policy of racial tolerance, the board initiated a film on Negro life, taking the first sequences at the Emancipation day celebrations at Windsor, Ont., in July.

During 1951 the National Film board won a number of awards, including: Sestrieres (Italy) Ski club award for *Ski Skill; Scholastic Teacher* magazine award (as one of the ten best 1950 films for school use) for *Family Circles;* Canadian film award, sponsored by the Canadian Association for Adult Education (best short theatrical of 1950), for *Après le Bagne;* Canadian film award (best nontheatrical) for *Feeling of Depression.* Crawley Films *Child Development Series* was also one of the ten best 1950 films for school use, the only other Canadian film winning an international award in 1951.

Ten Canadian film companies were active doing short commercial and package-type film work for U.S. television stations. Despite higher living costs, a Gallup poll revealed that 54% of the population continued to go to the movies at least once a month, while 20% went four times or more a month.

Carillon Pictures of Montreal made Canada's first all-colour feature-length motion picture, called *Etienne Brule, Gibier de Potence,* based on H. J. Cranston's *Etienne Brule, Immortal Scoundrel.*

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European Film Festivals.—During 1951 the chief European film festivals were held at Cannes, Fr. (at which the main awards went to Vittorio de Sica's *Il Miracolo a Milano,* Luis Bunuel's *Los Olvidados* and Alf Sjöberg's *Miss Julie*), in Berlin (where the Swiss film *Four in a Jeep* gained the *grand prix*), at Venice, It. (where a Japanese film, *In the Woods,* Jean Renoir's *The River* and Robert Bresson's *Le Journal d'un curé de Campagne* won the chief awards) and at Edinburgh, Scot. (an annual noncompetitive festival). The film festival for eastern Europe took place at Karlovy Vary, Czech.

Great Britain.—During 1951 two new schemes to develop film production were implemented by the government. These were the group scheme of the National Film Finance corporation (which up to March 31, 1951, had had £6,000,000 placed at its disposal by the board of trade for loans to film producers) and the British Film Production fund, commonly called the Eady plan after its originator, Sir Wilfrid Eady of the treasury. The group scheme, announced in Jan. 1951, initiated three production groups, the first based on Pinewood studios, Buckinghamshire, and formed in association with General Film Distributors, which agreed to guarantee 70% of production finance; the second based on Elstree, Hertfordshire, and formed in connection with the Associated British Picture corporation; and the third group providing opportunities for young and unknown film makers to produce special low-budget feature films, based on Southall studios, Middlesex.

The British Film Production fund was initiated during 1950, and resulted from a levy paid by exhibitors; this levy, from Aug. 1951, was ¼*d*. on all seats sold at a price between 4*d*. and 1*s*., and ¾*d*. on seats sold at more than 1*s*. It was estimated that the money raised by these means would amount to about £3,000,000 a year, and producers of British quota films exhibited would receive payments from it in direct proportion to the box-office earnings of their productions, the rate being about 40% of the gross takings. Meanwhile, attendance at British motion-picture theatres continued to decline. Attendance in 1951 averaged 26,000,000 a week, and entertainment duty amounted to 35% of the theatres' gross total takings.

Many outstanding feature and documentary films were produced during the year. These included *The Browning Version, Cry the Beloved Country, High Treason, Encore* (the third in the series of Somerset Maugham short-story films), *The Magic Box* (produced by the industry as a whole as its feature contribution to the Festival of Britain), *The Lavender Hill Mob, The Man in the White Suit, Murder in the Cathedral, No Resting Place, Secret People* and *Outcast of the Islands.*

France.—French feature film production, like that of Great Britain, suffered setbacks after World War II, but its output in 1950 was 112 feature films. In 1948 the Paris Film Accord limited the entry of United States films to France, and made it obligatory for French motion-picture theatres to show French films for 5 weeks out of each period of 13 weeks. A national film fund was also created from the receipts of a heavy tax imposed on every film, French or foreign, that was distributed and also from a small entertainment tax on theatre seats. French producers who undertook the further production of films, however, received a grant-in-aid from this fund which amounted to a complete refund of the tax on any previous film to their credit in proportion to its box-office receipts. Even with this substantial assistance, it remained difficult for the many independent producers who made up the French film industry to raise the full capital necessary to undertake fresh production. The French domestic market, working on a single-feature program basis, could absorb only 70 to 100 films a year after the annual foreign importations of about 185 films had been allowed for.

Documentary films were normally produced as private commercial ventures, and then as far as possible placed with distributors for exhibition so that they might earn the 3% of the program receipts which were due to them by law. The abuse of this system was that producers of feature films themselves manufactured cheaply made short films so that they might retain the 3% of the proceeds due to the documentary in the program in which their feature was shown.

Among the chief French feature films of 1951 were *Les Amants de Brasmort* (directed by Marcello Pagliero), *L'Auberge rouge* (Claude Autant-Lara), *Barbe-Bleue* and *Souvenirs perdus* (Christian Jaque), *Edouard et Caroline* (Jacques Becker), *Le Garçon sauvage* (Jean Delannoy), *Juliette ou la clef des songes* (Marcel Carné), *Maîtres après Dieu* (Louis Daquin), *La Nuit est mon royaume* (Georges Lacombe), *Olivia* (Jacqueline Audry), *Le Plaisir* (Max Ophüls), *Sous le ciel de Paris* (Julien Duvivier) and *Le Journal d'un curé de Compagne* (Robert Bresson).

Italy.—Italian motion-picture production increased from 48 films in 1945 to 68 in 1949 and 100 in 1950. Documentary productions, as in France, received 3% of the receipts of the film programs to which they were assigned, and there was therefore regular production of documentary films, many of them of a high artistic standard. Italy also had an arrangement of awarding feature films of merit a degree of tax remission.

The chief Italian productions of the year were *Il Miracolo a Milano* and *Umberto D* (directed by Vittorio de Sica), *Il Cristo proibito* (the first film to be directed by the novelist Curzio Malaparte), *Anna* and *Luci del Varietà* (Alberto Lattuada), *Napoli milionaria* (Eduardo de Filippo), *Paris est toujours Paris* (made by Luciano Emmer in France), *The Medium* (Gian-Carlo Menotti's film version of his famous opera), *Cronaca di un amore* (Michelangelo Antonioni) and *Due Soldi di speranza* (Renato Castellani).

Western Germany.—The standard of postwar film production in western Germany was not high. The great majority of film producers tried to obtain quick success. A production which attracted attention during the year, however, was a political melodrama, *Der Verlorene,* which Peter Lorre, a well-known actor in U.S. films, returned to Germany to write and direct.

Yugoslavia.—Although it was intended that the six constituent republics of Yugoslavia should develop independent film production, only Slovenia, Serbia and Croatia had in fact begun work to any extent by 1951. In Belgrade a so-called "film city" was in process of construction just outside the town; it was begun in 1947 and its plans were based on studies undertaken by Yugoslav architects in Czechoslovakia and Germany. The studios were in use in 1951, and the whole undertaking was expected to be completed by 1953. The country as a whole had about 1,000 motion-picture houses, seating from 300 to 1,000 people. It was planned to increase the number so that there would be one for every 10,000 people, and to serve the villages with mobile units.

Among the more successful Yugoslav films were: *Fra Brne* (directed by Fedor Hanjekovich), a story showing the corruption of monks and the monastic system in 19th century Dalmatia; and *The Last Day* (directed by Vladimir Pogatchitch), a melodrama about sabotage.

Czechoslovakia.—Production in Czechoslovakia during 1951 was increasingly influenced by soviet films. The chief films produced were: *New Warriors Will Arise* (directed by Jiri Weiss), a study of the origins of the national proletarian movement in the 19th century; *The Basket Bells* (directed by J. Jorcicka), another historical study of the workers' movement; *Herald of the Dawn* (directed by V. Krska), a biographical film about Bozek, the Czech inventor of the steam car; *It Happened in May* (directed by Martin Fric), a comedy of a factory worker whose prejudices against becoming a shock worker are overcome; *Girl at the Wheel* (directed by Jiri Sequens), the development of a village to Communist forms of production; and *The Fight Will End Tomorrow* (directed by M. Cikán), a Slovak story of the workers' struggle in the 1930's.

U.S.S.R.—Among the films released during 1951 were: *Admiral Ushakov* (directed by M. Romm); *Admiral Suvorov* (directed by V. Petrov); *The Conscience of the World* (directed by A. Room), a film on the dilemma of a scientist; *Farewell America* (directed by A. Dovzhenko); *The Glory of the People* (directed by G. Alexandrov), a biography of the composer M. I. Glinka; *Green Ocean* (directed by Mark Donskoi); *Harvest* (directed by V. I. Pudovkin), a film on a backward collective farm; *Sadko* (directed by V. Ptushko), a film of Nicolas Rimsky-Korsakov's opera; and two biographical films, *Rimsky-Korsakov* (directed by G. Roshal) and *Pushkin* (directed by S. Gerasimov).

FILMS OF 1951.—*Egypt's Hollywood* (Hamilton Wright Organization, Inc.); *History Brought to Life, Screen Actors, This Theatre and You, Understanding Movies* (Teaching Films Custodians). (R. MAN.)

Motor-Boat Racing. Ten unlimited hydroplanes completed for the Gold cup in Lake Washington at Seattle, Wash., Aug. 4, 1951, among them being Stanley S. Sayres' "Slo-Mo-Shun IV," which had set the existing world speed record of 160.3235 m.p.h. for a straightaway mile in

1950, and "Slo-Mo-Shun V," which was also designed for Sayres by Ted Jones and built by Anchor Jensen of Seattle. In two 30-mile heats "Slo-Mo-Shun V," driven by Lou Fageol, was never headed, and was awarded the Gold cup after the third heat was called off when another boat capsized and killed the crew of two. "Slo-Mo V's" best speed for a 30-mile heat was 91.766 m.p.h. Horace Dodge's new "Hornet," driven by Bill Cantrell, finished second and "Slo-Mo IV," driven by Ted Jones, third. Each of these three boats was powered with a single Allison engine.

Walter and Roy Dossin's big, twin-Allison-powered "Miss Pepsi," driven by Chuck Thompson, had set a new Gold cup qualifying record of 100.558 m.p.h. in the qualifying heat, but engine trouble put it out of the race. Later in the season it won the Silver cup at Detroit, Mich., with a best-lap speed of 98.085 m.p.h., and followed this up by winning the President's cup at Washington, D.C., in September—the first boat and driver to run two consecutive wins in this annual event.

Two Canadian speedboats won racing honours in England on Lake Windermere during the summer. "Costa Livin," owned by Arthur Hatch of Hamilton, Ont., Can., won the Duke of York trophy and "Z-z-zip," owned by Jack Langmuir of Brockville, Ont., Can., the *Daily Telegraph* trophy.

Numerous speed records went by the board during the year. One of the new marks was 111.742 m.p.h. made in competition by "Slo-Mo-Shun IV," driven by Lou Fageol, at Seattle, Wash., in a race subsequent to the Gold cup event. Bob Rowland of South Norfolk, Va., drove his 225 class hydroplane, "You All," to a competition record of 83.488 m.p.h. at New Martinsville, W.Va. C. Mulford Scull of Ventnor, N.J., drove his 48 hydro "Shooting Star" to a new competition mark of 58.121 m.p.h. at Red Bank, N.J., and a mile straightaway of 72.727 m.p.h. at New Martinsville. Other new inboard straightaway mile marks included Joe Taggart's "Tommyann's," 98.361 m.p.h. in the 7-litre class and Tony Margio's "Miss Fort Pitt's," 71.891 m.p.h. in the 91 hydros.

Outboards enjoyed an active season of competition and set several new records. The increase in popularity of stock outboard utility boats was especially noticeable. (W. H. Tr.)

Motor Transportation.

The postwar upward trend in motor vehicle ownership and operation in the United States continued to new highs in 1951. The total number of motor vehicles registered reached an all-time record of more than 52,000,000, which was 6% above the previous high established in 1950. There were 17,000,000 more vehicles on the road in 1951 than there were ten years before. Passenger cars accounted for nearly 43,000,000 units, and there were more than 9,000,000 trucks.

Production of 6,800,000 new motor vehicles in United States plants during the year was the second highest output in the history of the industry, yet 1,200,000 fewer vehicles were produced than in the peak year 1950. This reduction was the result of cuts in production during the second half of the year necessitated by government orders limiting the amount of steel and other scarce materials for civilian goods. Under the controlled materials plan, production of passenger cars in the third quarter was set at 1,200,000 units, and another cut in the fourth quarter reduced output to 1,100,000. As a result, new passenger cars for the year numbered only 5,400.000, or 1,300,000 units fewer than the record of 1950. Truck production, on the other hand, was the highest ever attained, with 1,400,000 vehicles rolling off the assembly lines during 1951. This accomplishment was made possible by heavy output during the first half of the year, since government-approved production rates in the second half limited truck manufacture to an annual rate of approximately 1,100,000 units. Bus production in 1951 was 70% above the 1950 rate.

A significant milestone in the history of the automobile industry was passed in the latter part of December, when somewhere in the United States the 100,000,000th passenger car was produced. It had taken 51 years to achieve this mark, but the last 5 of these years had accounted for 25,000,000 of the 100,000,000 total.

The wholesale value of 1951 motor vehicle production was $9,600,000,000, a slight decline from the record $10,400,000,000 of the previous year; but heavy output of replacement parts increased the wholesale value of these items to $2,500,000,000, substantially above the 1950 figure. Exports of motor vehicles totalled 478,000, which was 57% above 1950.

The increased number of motor vehicles on the highway caused a proportionate increase in traffic volume, which was nearly 500,000,000,000 mi. for the year. More gasoline was consumed than in any previous year. These factors in turn led to an increase in traffic deaths, more than 37,000 motorists and pedestrians being fatally injured in highway accidents.

A survey of automobile ownership and use during 1951 revealed that 2 out of 3 households in the United States owned a car, and 1 out of 12 owned two cars or more. On an average day 59,000,000 adults—more than half of all adults in the United States—rode at least once in an automobile. Two-thirds of all mileage driven was for home-to-work travel and shopping.

The postwar decline in intercity travel by bus was reversed during 1951, and approximately 21,000,000,000 passenger-mi. of bus travel was nearly 10% higher than the level of patronage in 1950. This increase was attributed to the requirements of the expanding defense program, including the movement of defense workers, soldiers and sailors on leave, and visits of relatives and friends to training camps. Public transit vehicles in cities, however, experienced a continuing downward trend in business, and the 16,000,000,000 passengers carried during 1951, most of them by bus, represented a decline of more than 1,000,000,000 passengers from 1950.

Intercity trucks accounted for 137,000,000,000 ton-mi. of freight transportation during the year, or about 10% more than during 1950. But the over-the-road carriers, after sharp increases during the first half, suffered the first third-quarter drop since 1945. This reversal, principally the result of the conversion of industry to defense production and liquidation of oversized inventories, was halted during the fourth quarter.

The demand for better highways continued with the growth of motor vehicle traffic, and highway expenditures during 1951 reached an unprecedented level of $4,500,000,000. By the end of the year, however, shortages of materials were beginning to reduce the pace of road construction, and numerous projects were being held up for lack of steel. The year was nevertheless marked by significant roadbuilding innovations in the form of expanding toll road developments. All but the northern 9 mi. of the 130-mi. New Jersey turnpike were opened to traffic, providing a modern expressway from the Delaware river north to connect with the Hudson crossings to New York city. This brought the first major relief from the traffic congestion of parallel U.S. 1, the heaviest-travelled route in the world. Pennsylvania likewise opened the eastern and western extensions of the Pennsylvania turnpike, bringing total length of the toll road to 327 mi. and providing an express route from Philadelphia to the Ohio border. New York voters approved a $500,000,000 bond issue for a 500-mi. Thruway to further the trend back to the toll gate.

A government-sponsored study of the problem of maintaining automobile transportation during the defense period concluded that, under conditions governing in 1951, at least 26,000,000 passenger cars would have to be kept in operation to provide the transportation services necessary to keep the economy going at top speed. It was noted that average car life by the end of 1951 was 7.3 years, compared with 5.3 years in 1941, and that there were 18,000,000 prewar cars on the road. To replace these worn-out vehicles and provide new equipment for an expanding population would require average annual production of about 4,000,000 passenger cars over a period of several years. (*See* also Accident Prevention; Automobile Industry; Roads and Highways; Railroads.) (W. On.)

Motor Vehicles: *see* Accident Prevention; Automobile Industry; Electric Transportation; Federal Bureau of Investigation; Motor Transportation.
Mozambique: *see* Portuguese Colonial Empire.
Mules: *see* Livestock.

Municipal Government. Throughout 1951 cities in key U.S. defense areas experienced severe housing shortages and strains on community facilities such as sewers, schools, water, streets and recreation much as in World War II. To meet the situation, the Defense Housing and Community Facilities Services act (public law 139, approved Sept. 1, 1951) was passed. It relaxed the curbs on housing credit and authorized various sums for public housing, community facilities, federal mortgage insurance and other private housing aids. Responsibility for determining which municipalities qualified as critical defense housing areas eligible for federal assistance under the act was vested in the Office of Defense Mobilization. By Nov. 8, 78 areas had been so designated.

Organized Crime.—The U.S. senate special committee to investigate organized crime—the so-called "Kefauver committee"—filed its third interim report May 1, 1951, and its final report on Aug. 31. The committee's exposure of nation-wide gambling and vice, involving the corruption of innumerable police and other law enforcement officers throughout the country, was followed by greatly intensified activity in local law enforcement. It resulted in the creation of state legislative committees to investigate crime, grand jury investigations in many areas and the organization of various state and local crime commissions, as in Tampa and Miami, Fla., New York city, Dallas, Tex., and many other places. The report emphasized that, while there were a number of matters falling within the jurisdiction of the federal government, the problem was basically a state and local one. The committee's seven recommendations included, in addition to the appointment of state and local crime committees and grand jury investigations, the establishment of special-purpose squads in each state, particularly on both state and local levels, for the suppression of the narcotics traffic. The committee's exposure of the narcotics evil had immediate results in the modification of court procedures, passage of remedial laws and undertaking of special programs of education. Investigations throughout the country resulted in wholesale dismissals of police officials, from chiefs down, and the implication of innumerable criminal, political and law enforcement interests.

Municipal Finance.—The upward trend in 1951 municipal budgets was reflected in a survey of the annual budgets of 24 U.S. cities by the Municipal Finance Officers association, which showed an increase in total budgeted expenditures of 16% over 1950. Special studies of postwar municipal expenditures in Baltimore, Md., and Syracuse, N.Y., revealed a per capita budget increase of almost 60% after 1946 in the former city and an increase in Syracuse's operating budget of more than 70%. In St. Louis, Mo., the 1951–52 budget for operating costs exceeded that of the preceding year by 12% and the last prewar year of 1939–40 by 126%. Expanded municipal services and the decreased purchasing value of the dollar accounted largely for the rapid postwar rise.

The annual report of the census bureau on the finances in 1950 of the 474 cities with populations of 25,000 or more, published in Oct. 1951, showed an increase of about 7% over 1949 in both revenue and spending; capital outlay increased 12.1% and outstanding gross debt 7.2%.

There were no spectacular new grants of local taxing powers by the states in 1951; the most significant was the extension to all cities in West Virginia of the power—previously limited to cities with home rule charters—to levy a variety of taxes, including capitation, motor vehicle, domestic animals, licence and privilege taxes, and to impose specified service charges. Tennessee authorized its cities to levy a 10% tax on the retail price of beer, and New Mexico authorized a city cigarette tax. Baltimore was empowered by the state legislature to impose a group of special taxes; New York state authorized the city of New York to increase its local sales tax from 2% to 3%, and its hotel and lodging house tax was made permanent. The Florida state legislature approved charter changes granting broader nonproperty taxing powers to a number of cities. Saginaw, Mich., adopted a local income tax, which was subsequently invalidated, however, by a state circuit court ruling.

More significant were the grants to local governments of new or increased shares in state-collected revenues. Important highway-aid legislation was enacted in North Carolina, Michigan, Illinois, Kansas, Wyoming, Pennsylvania and Minnesota. Among the states with new legislation for sharing state taxes and revenues were Oregon (liquor monopoly revenues), North Dakota and Wyoming (cigarette tax levies) and Nebraska (insurance company tax).

The postwar upward trend in property tax rates and assessed valuations, which appeared to be somewhat retarded in 1950, was resumed in 1951. According to the annual tabulation prepared by the Detroit Bureau of Governmental Research—which in 1951 became the Citizens Research Council of Michigan—published in the *National Municipal Review*, the average unadjusted tax rate for 1951 for 212 cities of more than 30,000 population increased 2.5% over that for 1950, compared with an increase of only 0.7% the preceding year; average adjusted tax rates—based on the ratio of assessed values to market values—decreased 5.1% in 1951, compared with a decrease of 11.2% in 1950. Total assessed values rose 8.2% in 1951—the largest postwar increase recorded in this series since 1947; the increase in 1950 was 2.3%. The trend in tax collections remained virtually unchanged; 297 reporting cities showed 96.01% of taxes collected in 1951, compared with 96.57% collected in 1950, a minor fluctuation characteristic of recent years.

The outstanding gross debt of all cities reached $11,700,000,000 in 1951, a record high; it exceeded that for 1950 by 7.5%; almost 40% was incurred to finance public utility systems.

About mid-year, state and local governments were requested by Charles E. Wilson, director of the Office of Defense Mobilization, to defer capital borrowing if at all possible, as a means of combating inflation. A voluntary credit restraint committee appointed by the board of governors of the federal reserve system suggested specific types of capital projects which might well be postponed and issued cautionary recommendations concerning short-term indebtedness. Regional committees of investment bankers were established for the advanced clearing of proposed financing involving sums of $1,000,000 or more. Notwithstanding these developments, and the increasing shortages of materials, state and local borrowing continued at a high level up to the close of the year. Bond sales, according to *The Bond Buyer,* reached an aggregate of $3,300,000,000 for the year, compared with $3,700,000,000 in 1950, and approximately $3,000,000,000 in both 1949 and 1948. Bond approvals reached an all-time high of $2,250,000,000, compared with $1,500,000,000 in

1950, $2,210,000,000 in 1949 and $1,400,000,000 in 1948.

The cost of state-local borrowing continued favourable to governmental units. *The Bond Buyer's* index based on 20 municipal bonds stood at 2.10% on Dec. 27, 1951, compared with 1.70% and 2.08% in the last weeks of 1950 and 1949, respectively.

City Employees, Social Security.—The census bureau's report on *City Employment in 1950,* issued in 1951, indicated that municipal pay rolls for nonschool employees more than doubled over the decade 1940–50, while the number of employees increased 25%. The increase in average pay for this period was 76%, practically paralleling the rise in the cost of living. The bureau's report, *Public Employment in October, 1951,* showed a levelling off in the postwar rise in number of employees, accompanied by a new spurt in pay roll increases. The number of nonschool city employees in October totalled 1,102,000; corresponding totals for 1950, 1949 and 1948 were 1,106,000, 1,082,000 and 1,039,000, respectively. Pay rolls, on the other hand, increased 10% over Oct. 1950 to reach an all-time high of $253,900,000; the increase the preceding year was 4.7% over 1949. The pay roll increase in 1951, when municipal employment was virtually at a standstill, strikingly illustrated the impact of inflation on municipal costs.

At least 34 states had passed enabling action in 1951 and by Sept. 15, 24 agreements had been made between states and the federal government for the coverage of eligible state and local government employees under the new 1950 Social Security amendments. No action was taken on proposed amendments to extend the act to include employees having their own retirement systems.

Civil Defense.—Final action by congress on the 1952 civil defense appropriation came as a shock to the state and local governments. The federal Civil Defense administration's request for $535,000,000 was cut to slightly less than $75,000,000. Of this amount, $11,100,000 was for operating purposes. Funds for bomb shelters, for which $250,000,000 had been requested, were omitted entirely. Funds for matching expenditures for attack warning systems, communications, fire-fighting services, warden service, rescue service, medical supplies and equipment and training and education, were reduced from $45,200,000 to $7,700,000. Appropriations for emergency supplies and equipment—solely a federal responsibility—were cut from $200,000,000 to $56,000,000. The appropriations were divided into broad categories only, leaving to the FCDA the task of allocation to the specific program items, some of which were restricted or eliminated entirely by congress. The revised limited program thus imposed upon the FCDA was only just beginning to emerge at the close of the year.

Notwithstanding the failure of congress to support the program it had originally proposed and urged upon the states and municipalities, states and cities, particularly in the northeast and northwest sections, proceeded with the adoption of interstate and intermunicipal civil defense pacts, as authorized under the Federal Civil Defense act, and with the financing of civil defense programs. Seventy-eight cities which spent $275,000 for civil defense in fiscal 1950 reported they had spent or appropriated more than $4,300,000 in fiscal 1951, and reports from about half of 87 reporting cities indicated their civil defense appropriations for fiscal 1952 amounted to more than $12,000,000.

Housing; Urban Redevelopment.—Congress authorized construction of 50,000 units under the 1951–52 public housing program, compared with the 75,000 units recommended by Pres. Harry S. Truman.

Rent controls were extended by federal action through June 30, 1952. The president was given authority—through the Defense Production administration—to impose controls in any state, county or community declaring the need for it, and was required to establish controls in any area—whether previously controlled or not—certified by federal defense officials as a "critical defense housing area." Otherwise, states and municipalities were still permitted to request the removal of federal controls.

As of July 1, 1951, 34 states, the District of Columbia and Alaska had some form of urban redevelopment legislation; at least seven states and Alaska enacted such legislation in 1951. Philadelphia on June 22, 1951, became the first of 123 cities developing slum clearance projects to receive approval of final loan and grant funds. (*See* also HOUSING.)

Home Rule.—Home rule was advanced through state legislation or constitutional provision in 1951 in Connecticut, Georgia, Maryland and Rhode Island. A committee was appointed in New Orleans, La., to prepare a new charter as authorized by constitutional amendment in 1950. Boston elected officials in November to carry into effect in Jan. 1952 the new strong-mayor charter with its improved administrative procedure which had been approved in 1949. Los Angeles voters in May approved a charter amendment providing for a city administrative officer, appointed by the mayor, comparable to similar officials in Los Angeles county, San Francisco, Calif., Seattle, Wash., and Philadelphia, Pa., under its new charter. Most notable was the adoption by Philadelphia of a new home-rule charter at a special election on April 17, 1951, to become effective in Jan. 1952 under a mayor and council chosen at the Nov. 1951 elections. Its authorization by state legislation in 1949, its formulation and its adoption were all made possible by an unusual degree of collaboration between organized civic groups, following an era of excessive malfeasance by city officials.

Traffic and Parking.—Increased adoption of one-way traffic streets proved effective in permitting a greater traffic volume with reduced delays and fewer accidents, and became a significant factor in slowing the decentralization of downtown business districts. A major study of the parking problem, financed through the Automotive Safety foundation and under the direction of the Highway Research board, was launched in 1951, to diagnose the problem in terms of the economic health of communities, retail business and motor vehicle use. At least 17 states in 1951 enacted laws enlarging the powers of their cities to provide additional off-street parking facilities. Milwaukee, Wis., pioneered with considerable success in the renting of curb space for overnight parking. New York city's parking authority went out of business without having really started, following failure of the 1951 legislature to broaden its powers and make it workable. With the installation by New York city of its first parking meters in Sept. 1951, Baltimore remained the only city of more than 500,000 population without parking meters. San Francisco, Chicago, Ill., and Philadelphia had completed plans for greatly increased new installations.

Council-Manager Cities; Proportional Representation.—The number of council-manager cities, exclusive of counties, in the United States, including Alaska, totalled 1,040 as of Dec. 31, 1951, according to figures released by the International City Managers' association. Adoptions during 1951 numbered 56, compared with 52 in 1950; there were 5 abandonments, compared with 4 in 1950. San Antonio, Tex. (pop. 408,442) became the fourth largest city to adopt the manager plan.

Elections under proportional representation were held in 1951 in Cincinnati and Hamilton, O.; in the six Massachusetts cities with plan E council-manager charters; and in Oak Ridge, Tenn. Saugus, Mass., abandoned proportional representation at a special referendum. The Ohio supreme court unanimously upheld its validity in Cincinnati. Its repeal in 1949 as part of the Massachusetts plan E optional charter law was upheld by the Massachusetts supreme judicial court, thereby affecting the continuance of council-manager government without proportional representation in the cities of Gloucester and Somerville, and a referendum to be held in Chelsea. (*See* also ELECTIONS, U.S.; TOWN AND REGIONAL PLANNING; also under individual large cities.) (A. M. Ds.; L. Gu.)

Canada.—By Dec. 31, 1950, the total outstanding municipal debt was estimated at $1,198,100,000, up 13.6% from its level a year before.

It was awareness of this deteriorating financial position of the municipalities that had caused the federal government in 1949 to announce grants in lieu of taxes to municipalities where federal property existed. In the 1949–50 fiscal year, however, the grants amounted to only about $1,587,000. (C. Cy.)

Munitions of War.

U.S. Army.—A listing of the U.S. army's munitions items of interest for the year 1951 follows. Additional data of the same character will be found in the air force's listing of new developments.

Ammunition Centre.—In mid-June army ordnance established a small arms ammunition centre in St. Louis, Mo. This centre was to supervise and control nation-wide procurement of small arms ammunition for all of the armed forces.

Amphibious Vehicle.—The department of the army in April awarded a contract to the Pontiac Motor division of General Motors corporation to build a new amphibious vehicle christened the "Otter." It would carry an operating crew of two, transport a number of fully equipped fighting men and develop a speed of 36 m.p.h. The Otter could plow through mud, go through water and travel speedily over land. Although it was a track-laying vehicle it was easily steered and manoeuvred.

Arctic Uniforms.—The quartermaster corps announced in July the development of a new arctic uniform, lighter in weight than former designs but affording better protection against extreme cold while giving more freedom of movement.

Battery.—Developed at University of Michigan (Ann Arbor) Engineering Research institute under sponsorship of army ordnance, this new, lightweight storage battery would start a car at −65° F. or at 165° F. It was made possible by lead-plating materials ordinarily corroded by sulphuric acid.

Bleach.—The construction of a plant for the production of subtropical bleach, valuable for decontamination purposes, was decided upon by the army chemical corps. It was planned to build this factory at Natrium, W.Va.

Bus.—A new, dual-purpose, 37-passenger bus, capable of being converted into an emergency ambulance, was designed by the ordnance corps and put into production by the Twin Coach company of Kent, O. This bus could be readied to transport a total of 14 litters in less than 30 min. and, by removing all seats except that of the driver, could handle 21 litters.

Camera.—Using a newly discovered electrostatic, electrophotographic process in which light was recorded in selenium-coated metal plates, sensitized by an electrical charge, the signal corps engineering laboratories were developing a new camera which produced a finished four-inch by five-inch picture two minutes after the shutter was snapped. No darkroom was needed since the entire process happened within the camera. The plates, which needed no chemicals for processing, could be used again and again merely by electrically erasing the image.

Cargo Tractor.—In October the army announced the newest member of its family of vehicles, the M 8 E cargo tractor which was put into production at the Allis-Chalmers plant, La Porte, Ind. It would be used primarily to tow the 75-mm. Skysweeper anti-aircraft gun and other heavy weapons. This 22-ton tractor was powered by a Continental, an air-cooled engine capable of giving it a top speed of 40 m.p.h. The tractor could cross swamps and small trenches; climb or descend 35-degree slopes; and travel speedily on improved highways and cross-country roads.

Compasses.—Two new types of compasses designed to assist ground forces in reconnaissance and navigation and to help forward observers in directing fire control were delivered to U.S. forces in Korea. One of these was a wrist compass with a fully illuminated dial; the other was a lensatic compass suited particularly for fire-control work.

Containers.—A disk-shaped container developed by the quartermaster corps in co-operation with the General Tire and Rubber company was tested to provide aerial free-fall delivery of gasoline, water and other liquids to army troops. Drop tests were made from altitudes of 400 to 2,000 ft. without bursting or spilling any of the contents.

Fire Control.—The army placed initial orders with the AC Spark Plug division of the General Motors corporation for fire-control systems for the army's Skysweeper anti-aircraft gun. This electrically operated system directed the gun by radar and could be used to spot moving aerial targets. The Skysweeper gun and carriage were designed and developed by army ordnance; the fire-control system by the Sperry Gyroscope corporation.

Grease.—Army ordnance developed a new grease which performed equally well in tropical heat or arctic cold. It was planned to replace at least six different types of greases formerly used. The new lubricant was suitable for use over a temperature range from −65° F. to 125° F.

Handie-Talkie.—This new set, the first FM radio of its type produced, was put into production by the signal corps for possible issue to units in Korea.

Microwave Communications.—The signal corps placed orders for transportable microwave equipment for communications installations. This equipment incorporated the best features of both radio and telephonic communications. Included in the gigantic order was material for terminal and repeater stations with complete stand-by equipment for each. Such stations would make possible communications systems whereby eight telephone conversations in either or both directions could be carried on via a single radio channel for each direction.

Personnel Carrier.—The T 18 E 1, a fully tracked infantry personnel carrier, was announced for production during the year. It was being produced by the International Harvester company of Chicago, Ill., and the Food Machinery and Chemical corporation of San José, Calif. This new carrier was powered by the ordnance corps latest six-cylinder, air-cooled engine with cross-drive transmission; it would travel on improved roads at sustained speeds of more than 35 m.p.h.; turn in its own length; and climb or descend 60% slopes. Designed to carry a squad of 12 men, this 20-ton carrier could also be used as a cargo or litter carrier, as a prime mover for towing artillery or as a command-post car. It was armed with a .50-calibre machine gun.

Primaquine.—This new drug, designed for the more effective treatment of malaria, was tested extensively for army use.

Rifle.—Army ordnance developed a combination rifle and shotgun weighing three and one-half pounds. It was intended for issue to the air matériel command.

Rifle Pack.—A new greaseless rifle pack was standardized by army ordnance to replace the coatings of heavy grease preservative used in the past. The new pack consisted of an outer layer of cotton scrim, a layer of plastic-coated aluminum foil and an inner sheet of kraft paper coated with a special chemical-coated compound known as volatile corrosion inhibitor—VCI.

Shrouds.—Plastic shrouds developed by army ordnance, in co-operation with private industry, were expected to replace scarce and costly canvas tarpaulins, wooden boxes and crates used in shipping ordnance matériel. A vinyl chloride shroud large enough to cover a machine weighing 20,000 lb. would weigh only 30 lb., whereas a waterproof tarpaulin would be several times heavier and more costly.

Sleds.—The quartermaster corps developed and standardized light and strong plastic, glass-fibre sleds to transport small supply loads over ice and snow. Two sizes, one of 100-lb. capacity and another of 200-lb. capacity, weighed 24 and 36 lb. respectively. They were capable of being pulled by one or two men over rough terrain and would be used to replace the former army 400-lb. capacity wooden sled.

Tank.—The ordnance corps developed a new light-gun tank, the T 41, to supply the armed forces with a highly manoeuvrable reconnaissance vehicle which would pack a husky wallop with its high velocity 76-mm. gun. This tank was put into quantity production at the army's Cleveland (O.) plant under management of the Cadillac division of the General Motors corporation. The T 41 could be operated as easily as a civilian automobile. Its superhigh-velocity gun was fitted with special fire-control apparatus which enabled it to get into action rapidly. The new tank had more than twice the horsepower of its World War II predecessor and developed a top speed of more than 40 m.p.h.

Television.—In September the signal corps announced that it would soon be ready to start experiments with a mobile television system capable of transmitting pictures from relatively remote field activities for study in the rear, and also capable of providing simultaneous instruction to a considerable number of individuals at one and the same time. This equipment was described by electronics engineers as one of the most complete television systems ever mounted on wheels. (R. S. T.)

U.S. Navy.—In the year 1951 major emphasis was placed on broadening the naval production and procurement program to provide for the increased demands resulting from the Korean conflict and to bring to the greatly augmented fleet the new and improved weapons developed since the end of World War II.

Approximately 75% of the money allotted to the navy for armament during the year was for procurement of ordnance and ammunition, as compared with 23% the previous year. The contracts which these funds covered involved at least 1,000 plants located in 37 states. In placing the orders, geographical concentration near strategic targets was avoided, and two or more sources of supply for all items of importance were obtained. In this way, the groundwork was laid for dispersal of plant capacity and for expanding production rapidly in the event of full mobilization.

Recognizing that aviation is a major factor in navy fire power, more than one-half of the procurement effort, dollarwise, was for aircraft weapons. New aircraft machine guns, with higher rates of fire, were capable of greater accuracy and longer effective ranges. Also in production were new streamlined bombs with improved systems of fuzing and arming. New aircraft rockets, including the first air-to-air rocket, were in quantity production for use by air force as well as navy planes.

Procurement of new and improved antisubmarine warfare weapons was stepped up appreciably in 1951. The shipbuilding and conversion program, approved by the congress, provided for the conversion of certain types of World War II vessels to carry these new weapons. The recently commissioned SSK's (antisubmarine submarines) would be equipped with the most advanced antisubmarine weapons, as well as the latest listening and long-range detection equipment.

To improve the fleet's defense against faster and more elusive targets, new three-inch rapid-fire anti-aircraft guns were replacing World War II 40-mm. guns on board combatant ships. The fire control for the new guns was markedly superior to World War II types. It was expected that heavier anti-aircraft guns with fully automatic loading features would be ready for installation in the fleet in the near future.

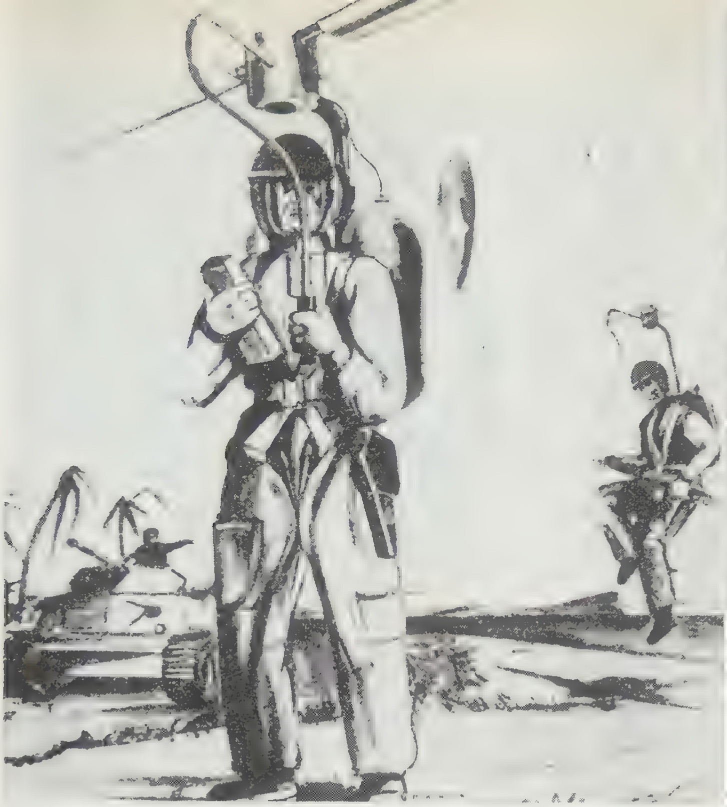
Construction was started during the year on the nation's first facility for large-scale production of guided missiles. The navy-owned plant at Pomona, Calif., was to be operated by Consolidated Vultee Aircraft corporation, one of a group of seven industrial organizations and eight universities engaged in a project initiated in the fall of 1944 for the development of supersonic guided missiles for the bureau of ordnance. (M. F. S.)

U.S. Air Force.—Experts stated that the United States was almost over the hump in 1951 with short-range missiles for tactical use, and limited production orders for several types were placed. One of these was the Martin B-61 Matador pilotless bomber, designed for use on the battlefield against enemy ground forces, bridges, passes, ammunition dumps, concentrations of enemy troops, etc. Initial training of the air force "first pilotless bomber squadron (light)" was begun at the air force missile test centre near Banana river, Fla., under the supervision of a guided missile training wing. After the unit became "combat ready," training was to be completed under the tactical air command, to develop techniques and train air force units to work with the army field forces as a co-ordinated air-ground team. The Matador was powered by an Allison J-35 jet engine, with the initial push supplied by a Rato (rocket assisted take-off) unit.

Considerable progress was made on the development of the air force missile test centre in connection with its basic program for testing long-range missiles. This centre had been established near Patrick air force base, where personnel increased to 5,000 during 1951. Though operated by the air force, the centre was available also to test missiles under development for the navy. Because space at the New Mexico flight test centres (air force at Holloman air force base, army and navy at White Sands proving ground) was too limited for the far-ranging missiles being developed, their facilities were restricted to short-range missiles. All long-range types were tested on the Florida flight test range, with a limit of about 1,000 mi., just beyond the southwestern tip of Puerto Rico. With the existing flight line, maximum range limit was 3,000 mi., but if the course could be elevated a few degrees to the east, flight range could be extended to 5,000 mi. into the South Atlantic. This is the range required for any future intercontinental strategic missile. Eight operating subdivisions of the 1,000-mi. range were under construction during 1951, and some of them began operation. These included the launching site at Cape Canaveral (Fla.), Point Jupiter (20 mi. N. of West Palm Beach), Grand Bahama and Eleuthera Islands. The others included San Salvador, Mayaguana, Grand Turk and Puerto Rico. These operating subdivisions were essentially instrumentation stations, and included accommodations for the in-flight safety officer, instrumentation officer, test control officer and a communications building. Operations during 1951 included two "Bumper" flights (V-2 rocket with a WAC Corporal rocket mounted on its nose for the second stage), and several firings of the Martin Matador and Fairchild Lark.

The U.S. navy department announced during the year that limited production contracts had been awarded for its two top priority defense missiles, Convair's two-stage rocket Terrier for shipboard launchings against high-flying aircraft, and the Douglas Sparrow air-to-air missile. Both were supersonic.

Limited production for operational evaluation of the U.S. army's Nike for the anti-aircraft artillery was begun in 1951. The prime contractor was Western Electric for the highly complex electronic guidance mechanism developed by Bell Tele-



Above, left: ONE-MAN ROCKET-POWERED HELICOPTER shown in a drawing released in Oct. 1951 by the office of naval research, Pasadena, Calif. The helicopter had a two-bladed rotor with a small rudder and a fuel tank which was on the flyer's back. His left hand is shown on the control apparatus

Above, right: PHOSPHORUS SHELLS silhouetting a target during a U.N. night raid at Wonju, South Korea, in March 1951

Right: THE B-61 MATADOR, a pilotless bomber, shown dropping its fuel tank and heading upward. A pilotless bomber squadron was activated by the U.S.A.F. on Oct. 1, 1951, the first operational unit for guided missiles

Below, left: SELF-LOADING 0.280-calibre rifle (left) adopted for use in the British army in 1951 and featuring rapid firing rate, light weight and sights which required no mechanical adjustment for varying range. It is pictured here beside a standard British 0.303 rifle

Below, right: UNDERWATER TESTS in 1951 for the M-34, a U.S. army truck designed to ford streams or move from landing ship through surf to shore. It could remain submerged up to four hours with only "schnorkel" (air intake) and "snorter" (exhaust) extensions above surface

phone laboratory, with Douglas Aircraft the major subcontractor for the rocket itself.

During 1951 big expansion of other test facilities for rockets and guided missiles was authorized and begun. Among these were an $8,000,000 expansion of Holloman air force base, a $9,000,000 expansion of navy's Point Mugu test centre (Calif.), the army's $7,000,000 expansion for anti-aircraft missiles at White Sands proving ground and $1,500,000 development of facilities at the California Institute of Technology, Pasadena, jet propulsion laboratory. New manufacturing facilities included Consolidated Vultee Aircraft's huge plant at Pomona, Calif., for production of Convair's Terrier and other supersonic interceptor-type missiles for the navy's bureau of ordnance, and a $25,000,000 plant for navy guided missiles being built by the Sperry corporation at Bristol, Tenn. Firestone Tire and Rubber company was awarded a contract for a number of Douglas Corporal E tactical missiles for the air force.

The subminiturization of electronic components (such as a five-tube radar amplifier for the Ryan Firebird air-to-air missile) was continued. The National Advisory Committee of Aeronautics, at its Lewis Flight Propulsion laboratory, Cleveland, and Pilotless Aircraft division at Wallops Island, Va., gave high priority to problems relating to ramjet engines for supersonic guided missiles at speeds of Mach 2.5 (1,450 m.p.h. at high altitude) and higher.

During the autumn of 1951 the biggest and fastest guided missile yet built by British scientists flew over England. It was a 50-ft. rocket with a speed of 2,000 m.p.h. Technicians guided it along a radar beam to its target. An accelerated program of testing at the Woomera rocket range in Australia was also begun in 1951. Intelligence sources indicate that the U.S.S.R. was also very active in this entire field, but no details were available. (*See* also ARMIES OF THE WORLD; ATOMIC ENERGY; AVIATION, MILITARY; JET PROPULSION; NAVIES OF THE WORLD.)

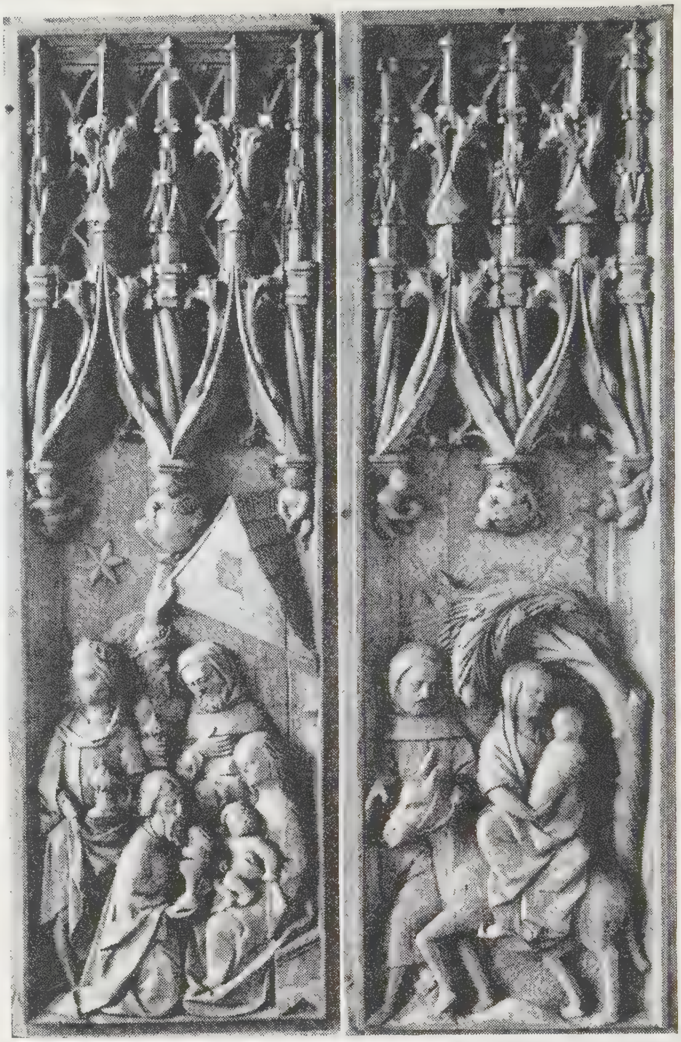
(N. F. S.)

Museums.

Events which illustrate the activity and growth of museums in the United States during 1951 included the opening of the Felix M. Warburg Memorial hall in the American Museum of Natural History, New York city. The new exhibits used a rich variety of visual devices to explain the geological and biological processes at work in 30 ac. of familiar landscape near New York city and showed the interrelation of man's daily life with this environment. Other examples of progressive trends in exhibition were the new Hall of Earth History in the Chicago Natural History museum, the nearly completed Dinosaur hall in the Carnegie museum, Pittsburgh, Pa., and the museum at Ocmulgee national monument, Macon, Ga., showing 10,000 years of Indian life in central Georgia. Outstanding installations made in art museums during the year were the Karolik collection of American painting occupying ten new galleries in the Boston Museum of Fine Arts, the classical and prehistoric galleries at the University museum, Philadelphia, Pa., and the American painting galleries in the Art Institute of Chicago.

Special exhibitions temporarily bringing together objects of unusual interest continued to be a major activity, particularly of art museums. The National Gallery of Art in Washington, D.C., attracted more than 24,000 visitors in one evening to see paintings, sculpture and bronzes collected by the Kress foundation. Another special exhibition, "Italy at Work," made a promising contribution to international understanding by showing well-designed everyday things which Italians buy for their homes. It opened at the Brooklyn museum, and then started on a three-year circuit.

The Henry Francis du Pont Winterthur museum, which opened during the year near Wilmington, Del., contained more than 100 period rooms of carefully chosen domestic furnishings illustrating American home life, 1640–1840. Another landmark was the action of the National Trust for Historic Preservation in the United States in undertaking the development and display of its first historic house. The trust accepted a long-term lease on Woodlawn, the mansion given by George Washington to his adopted daughter. In Philadelphia the national park service took over administration of Independence hall, Congress hall and Old City hall as part of the projected Independence National Historical park. Colonial Williamsburg had seven more 18th-century buildings in process of restoration or reconstruction during the year, while at Mystic, Conn., the Marine Historical association was adding five buildings and a ship to its old seaport development.



TWO OF 37 oak panels carved about A.D. 1500 for the royal abbey of Jumièges in Normandy. The panels became a permanent exhibit of The Cloisters, New York city, in June 1951

Museums continued to build during 1951. The Boston Museum of Science and the Detroit Historical museum opened the first units of large new buildings. A $1,000,000 addition for the California Academy of Sciences, San Francisco, was completed, and the Denver Museum of Natural History began construction of a $500,000 wing. Seven smaller museums finished new buildings and numerous additions were in progress.

Among at least 15 museums newly opened to the public, those of widest interest were the Corning Museum of Glass at Corning, N.Y., and the Woolaroc Museum of History near Bartlesville, Okla. (*See* also SMITHSONIAN INSTITUTION.) (R. H. Ls.)

Accessions to Art Galleries and Art Museums.—The year 1951 marked not only the acquisition of notable individual objects by museums but also witnessed the passing of important collections into the hands of public institutions. Mr. and Mrs. Walter Arensberg presented their outstanding collection of 20th-century art to the Philadelphia museum. Outstanding in the collection was a group of sculpture by Constantin Brancusi (1876–) and paintings by Marcel Duchamp (1887–), including the famous "Nude Descending a Staircase."

Philadelphia purchased a significant painting by Peter Paul Rubens, "Prometheus Bound," painted in 1612. It came from Kimbolton castle, owned by the duke of Manchester, and was recorded by Rubens himself, "Original by my hand and the eagle done by Snyders."

Many fine items came to the Metropolitan museum (New York) whose endowment fund reached $48,000,000 with the addition of several gifts of money. They received from R. Thornton Wilson a great collection of European pottery and porcelain valued at $500,000. About 400 pieces span a period from the 15th to the 19th century. Among the rarest items were three Sèvres vases in Pompadour rose, made *c.* 1760 and presented by Louis XVI to Prince Henry of Prussia.

Mrs. Otto H. Kahn and her children made a gift of 25 ancient Chinese bronzes to the Metropolitan museum. Another rare item to enter their collection was a drawing by Leonardo da Vinci. It was acquired at auction at Sothebys in London for $22,400, and was a study of the Virgin's head for the painting, "Virgin and Child and Saint Ann" in the Louvre.

The Cleveland museum celebrated its 35th anniversary with a group of notable acquisitions, largely paintings of the Venetian school. These included Jacopo Tintoretto's "Baptism of Christ," Paolo Veronese's "Annunciation," Titian's "Portrait of a Prelate" and Lorenzo Lotto's "Portrait of a Nobleman."

The Art Institute of Chicago purchased a 98-page sketch book by Paul Cézanne with remarkably fine drawings dating mostly from the 1880s and 1890s.

Sam A. Lewisohn, New York collector, died leaving his $1,000,000 collection to six different institutions. Several paintings went to the Metropolitan museum: "Repast of the Lion" by Henri Rousseau, "An Afternoon on the Island of the Grande Jatte" by Georges Seurat (1859–91), "Ia Orana Maria" by Paul Gauguin (1848–1903), "In the Meadow" by Auguste Renoir (1841–1919) and "L'Arlesienne" by Vincent Van Gogh (1853–90). El Greco's "St. Francis and the Skull" went to Princeton university and other pictures to the National gallery.

Boston's Museum of Fine Arts opened up ten newly constructed galleries with the Karolik collection of 230 American paintings of the period 1815–65. Many unknown or little-known artists of this forgotten period in American art were rediscovered.

A cedarwood Egyptian figure of the Old Kingdom, dating from about 2450 B.C., was acquired by the William Rockhill Nelson gallery in Kansas City, Mo. This was regarded as the finest preserved Egyptian wood figure in existence.

Another outstanding example of ancient art was added to the Boston Museum of Fine Arts collection. This was a Greek head of the 5th century B.C. probably by Myron who made the famous "Discus Thrower."

A top quality 15th-century Flemish painting, "Death of the Virgin" by Petrus Christus, was purchased for the San Diego museum through the Putnam foundation.

Three distinguished early Italian paintings were purchased by the Frick museum in New York, "Two Saints of the Augustine Order" by Piero della Francesca, dating from about 1470, and the "Flagellation" attributed to Cimabue, about 1270. (*See* also ART EXHIBITIONS; ART SALES; PAINTING.) (F. A. Sw.)

Great Britain.—The year was notable in Great Britain for the great encouragement to museum activities given by the Festival of Britain, in which museums all over the country played an essential part. The Walker art gallery, Liverpool, and Cumberland house, Portsmouth, both damaged in World War II, were reopened and the London museum was installed in temporary accommodation in Kensington palace. In London important galleries were reopened at the British Museum—in particular, a new bird gallery with a bird pavilion of original design at the British Museum (Natural History)—the Victoria and Albert, Science and National Maritime museums, and the National and Tate galleries.

Europe.—Museum extensions and reorganized galleries were opened in 31 French towns. These included five rooms at the Louvre, imperial apartments at Malmaison and Compiègne, a series of new rooms at the Musée des Tissus, Lyons, rooms at the Musée des Beaux-Arts, Rouen (where Le Secq des Tournelles was reopened), and rooms at Bourges, Rheims, Dieppe and Tours. The Musée de l'Ile de France, Sceaux, and Bernadotte museum at Pau were reopened. In Paris a new gallery for exhibitions of *arts et traditions populaires* was inaugurated.

In Belgium 18 works recovered from German loot were among the 60 acquisitions at the Musées Royaux des Beaux-Arts. A new museum of Swiss and German paintings, given by Oskar Reinhart, was founded at Winterthur in Switzerland.

Among Italian collections reopened in 1951 were the Galleria del Banco, Naples, the Galleria Spada, Rome, and the Museo Nazionale in Aquila. Major reorganization was completed at the Uffizi gallery, Florence, and at museums at Genoa—the centre of the international celebrations of Columbus' 500th anniversary—Padua, Arezzo, Milan and Pavia.

Reconstruction of the old wing of the National Archaeological museum of Greece continued. Of other museums in Athens, the Pinacotheque was still without a building, the Benachi and the National Museum of Decorative Arts were fully open, and the restoration of the Byzantine museum nearly completed. The antiquities from Knossos were again open to the public at the Heraklion museum, Crete, although the reconstruction of the museum was not complete.

Much reconstruction work took place in Poland. New museums included the Ethnographic museum, Cracow, a museum at Biskupin where excavation of the pre-Christian Slav settlement continued, museums at Pila (commemorating the writer Stanisław Staszyc), at Białystok, and at Oswiecim (Auschwitz) and Majdanek commemorating "the martyrdom of nations under Nazism."

In Germany, the rebuilt Goethe's house, Frankfurt-on-Main, was reopened in May and the Kunsthalle, Karlsruhe, in June. Famous Munich collections, most of which lost their buildings during World War II, were beginning to reappear in alternative accommodation.

In Spain the Museo Lazaro Galdiano, Madrid, was opened to house the armoury and paintings bequeathed to the nation by Lazaro Galdiano.

The Kayseri museum, Turkey, acquired material from the nearby Kültepe excavation, as did the Museum of Archaeology in Ankara, where the Hittite stone collection was rearranged in the central hall. A section of the Museum of Archaeology, Izmir (Smyrna), dealing with Ionic art, was installed in a new pavilion at the Izmir fair. The gallery at the Istanbul Academy of Fine Arts was reopened to exhibit new works by Turkish artists, and the Sultans' palace of Topkapi was refurnished and opened to the public. (G. P. G.)

Music. Three new operas were the main events of the music year 1951: Igor Stravinsky's *The Rake's Progress*, Benjamin Britten's *Billy Budd* and the television opera by Gian-Carlo Menotti, *Amahl and the Night Visitors.*

The *première* of Stravinsky's opera, conducted by the composer, took place on Sept. 11, in Venice, It. The atmosphere of the occasion recalled the great operatic unveilings of the past; musical notables assembled from all over Europe and America; the tickets sold at a premium; perhaps not since the production of Giuseppe Verdi's *Aïda* in Cairo, Egy., had there been created such keen anticipation. The libretto of the opera was fashioned by W. H. Auden and Chester Kallman after the famous paintings by William Hogarth. As in most of Stravinsky's works of the past decade, the musical idiom in *The Rake's Progress* harked back to the old formulas of the classical and romantic models; of course, the rhythm and the harmony had the 20th-century touch.

Benjamin Britten's opera *Billy Budd* (after Herman Melville) was produced in London on Dec. 1, the cast calling for men's voices only. In the opinion of many critics, *Billy Budd* was Britten's best opera since *Peter Grimes*.

Menotti's opera, *Amahl and the Night Visitors,* made history, for it was the first opera specially written for the new medium of television. It was produced on Christmas eve by the National Broadcasting company, and was directed by Menotti himself, who was also the author of the libretto. The affecting story of a poor Arab boy whose home is visited by the three kings on their way to see the Christ Child was accompanied by a skilful and melodic score. The reception of Menotti's opera by the television audiences and the critics was enthusiastic.

Another important operatic event was the *première* of *The Pilgrim's Progress* (after John Bunyan) by Ralph Vaughan Williams, the dean of British composers. It took place in London on April 26. The composer's own designation of the work was "morality" rather than an opera. Another new work by Vaughan Williams was a cantata, *Sons of Light,* performed in London on May 6, with a chorus of 1,000 school children. Both works displayed the composer's familiar qualities of simplicity and directness.

Incognita by Egon Wellesz, the Viennese composer and music scholar, who had made his home in England after 1938, was presented in a world *première* at Oxford, Eng., on Dec. 5. Wellesz, a disciple of Arnold Schönberg, departed in this opera from the atonal idiom of his former works, and adopted a clear tonal language.

An operatic world *première* with political ramifications was *Trial of Lucullus* by Paul Dessau, produced in the soviet sector of Berlin on March 17. The composer and the librettist Bert Brecht, both acknowledged Communists, were sharply criticized by the east German authorities for the improper treatment of the story (which dealt with a Roman conqueror put on trial by his victims) and for the western influences in the music. As a result, the opera was taken off the repertory after a single performance.

In the United States, the Metropolitan Opera company continued its policy of staging public favourites. Particularly successful, in New York city and on the road, was the revival of Johann Strauss's *Die Fledermaus.*

Three modern operas were presented in concert form by the conductor of the New York Philharmonic-Symphony, Dimitri Mitropoulos: Alban Berg's *Wozzeck;* Ferruccio Busoni's *Arlecchino;* and Schönberg's monodrama, *Erwartung.*

The Columbia University Opera workshop presented, on March 28, the world *première* of *Giants in the Earth,* a three-act opera by Douglas Moore, to the story of Norwegian settlements in the Dakota territory. This opera was awarded a Pulitzer prize.

The New York City Opera company produced, on Oct. 4, *The Dybbuk* by David Tamkin, after the well-known play by S. Ansky.

Music festivals were more lavish than in the previous year. The Festival of Britain included 22 concerts of English music presented in London. Music festivals were also held in Aberdeen, Aldeburgh, Belfast, Bournemouth, Brighton, Cambridge, Canterbury, Cheltenham, Dumfries, Edinburgh, Inverness, Liverpool, Norwich, Oxford, Worcester and York. Of these, the most important was the Edinburgh festival in August and September, which featured a series of concerts of the New York Philharmonic-Symphony and presentations by several European groups of performers.

The Bayreuth festival resumed its presentation of Richard Wagner's operas, with Wagner's grandsons in charge of the proceedings. The Salzburg festival regained its rightful place among world music events: in 1951, Alban Berg's opera *Wozzeck* was presented along with Mozart.

For the first time since 1927, the annual festival of the International Society for Contemporary Music took place in Germany. It was held in Frankfurt between June 22 and July 1, and presented a long array of contemporary works: the world *première* of *The Duenna,* opera after Richard Sheridan by the Spanish composer Roberto Gerhard; *First Symphony* by Ernst Toch; *Six Chants* for chorus and orchestra by the French composer Jean-Louis Martinet; *Coro di Morti* by the Italian composer Goffredo Petrassi; *Third Symphony* by the Swedish composer Karl-Birger Blomdahl; *Piccola Sinfonia* by the Swiss Willy Burkhard; *Four Symphonic Movements* by the Dutch composer Guillaume Landré; and a piano concerto by the German-American composer Richard Mohaupt.

A special concert of contemporary German music opened the Frankfurt festival in the following program: *Third Symphony* by Karl Amadeus Hartmann; *Catulli Carmina* by Carl Orff; *Concerto* for two pianos and orchestra by Hermann Reutter; and *Sonata for Orchestra* by Werner Egk.

The Donaueschingen festival, held in October, presented new works by Ernst Krenek; Hermann Reutter; Marcel Mihalovici; Olivier Messiaen; Hans Werner Henze; the Viennese 12-tone composer, Hanns Jelinek; the Hungarian composer resident in Paris, Tibor Harsányi; the Italian, Guido Turchi; and the 26-year-old French composer Pierre Boulez, whose work, *Polyphonie X* for 17 instruments, written in an extremely complex modern idiom, aroused considerable excitement and some protests from the audience.

At the International festival in Strasbourg, several new works were presented, among them the world *première* of Jean Rivier's *Fifth Symphony* on June 24.

In Zürich, the program of the festival, commemorating the 600 years of the Swiss Confederation, included the world *première* of Arthur Honegger's orchestral work, *Monopartita,* given on June 12.

The 50th anniversary of Verdi's death was marked by memorial concerts in Europe and America. Arturo Toscanini conducted the *Manzoni Requiem* in New York city. A unique tribute was the performance of excerpts from Verdi's operas staged in the ruins of the Roman colosseum on Oct. 7. This was the first time that the ancient arena was used as a scene of public spectacles since the Roman empire.

Symphonic music was in ascendance in the United States. According to a tabulation by the American Symphony Orchestra league, there were 702 symphony orchestras of various sizes in 1951, as compared with only 9 such groups in 1900.

Among significant first performances by United States orchestras during the year were the world *premières* of Honegger's *Fifth Symphony,* given by the Boston Symphony orchestra on March 9, and Walter Piston's *Fourth Symphony,* presented by the Minneapolis Symphony orchestra on March 30. The 29-year-old German-born American composer Lukas Foss was the soloist in his new *Piano Concerto* on a tour with the Boston Symphony orchestra in November.

The Cincinnati Symphony orchestra gave the world *première* of the *Cumberland Concerto* by Roy Harris, on Oct. 19, Thor Johnson conducting.

The Louisville orchestra, under its permanent conductor Robert Whitney, continued its fruitful policy of annual commissions of new works by European and American composers. In 1951, it presented the world *premières* of *Suite Archaïque* by Arthur Honegger (Feb. 28); the *Third Piano Concerto* by Francesco Malipiero (March 8); *The Origin of the Amazon River* by Heitor Villa-Lobos (Nov. 7); and *The Triumph of Saint Joan* by Norman Dello Joio (Dec. 5).

A delayed world *première* that attracted a great deal of attention was the performance, on Feb. 22, of the *Second Symphony* by Charles Ives, given by Leonard Bernstein with the New York Philharmonic-Symphony orchestra. This symphony, written half a century before, anticipated many harmonic procedures of today.

In Latin America musical activities were steadily increasing. Thus, in Mexico City there were given during the year, 62 orchestral concerts, 20 operas, 15 ballets, 20 chamber music concerts, 15 piano recitals, 10 song recitals and 8 violin recitals. Tabulations of concerts in other capitals of Latin American countries showed similar figures in proportion to the population.

BRUNO WALTER, conductor, and Joseph Szigeti, violinist, during the recording of a Beethoven concerto in a studio in New York city

After its tour in the United States, the Israel Philharmonic orchestra returned to its homeland in the spring and resumed its concerts there. A festival of works by Israeli composers was staged on the shores of Lake Tiberias.

Native works were presented by orchestral and other organizations in France, Belgium, Holland, Sweden, Norway and Finland. In Denmark, Nicolai Malko, Russian-American conductor, led the State Radio orchestra in the world *premières* of two Danish works: Knudåge Riisager's *Violin Concerto* (Oct. 11) and Vagn Holmboe's *Seventh Symphony* (Oct. 18).

Despite political pressures, soviet composers continued to produce new works. Sergei Prokofiev's 60th birthday in April was marked by several performances of his works; his *Winter Campfire* was commended as signalizing his return to the Russian traditions. On the other hand, Dmitri Shostakovich was sharply criticized for his cycle of 24 preludes and fugues, which were described in the soviet press as lapsing into imitation of the western models of musical modernism.

The new soviet operas, *Family of Taras* by Dmitri Kabalevsky, *Ivan Bolotnikov* by Leonid Stepanov and *Free China* by Clement Kortchmarev, all produced in Moscow during the year, were approved, but the opera *From My Heart* by the Ukrainian composer Herman Zhukovsky, given at the Moscow Opera in April, received a sharp rebuke from the soviet authorities for the falsity of its libretto and the inadequacy of its music.

In Czechoslovakia, the second plenary session of the Union of Czechoslovak Composers was held in February, and presented nearly 200 works by 80 native composers, among them the opera *Jan Hus* by Gorky; *Cantata of a Communist Country* by Otchenash; *Cantata for Gottwald* by Yurovsky; *Cantata for Peace* by Kardos; and *Hands Off Korea* by Miroslav Barvik.

Native compositions in Poland, Hungary and Rumania reflected in their titles the political slogans of their governments.

Exhibitions of extreme experimental music were not lacking during the year. A provocative program was presented in Paris on Nov. 28 by the Cercle Culturel du Conservatoire, featuring music in quarter tones by the soviet *émigré* composer Ivan Wyschnegradsky and *Three Melodies in an Imaginary Language* by Marina Scriabin, the daughter of the composer Alexander Scriabin.

In Vienna, a series of choral works by 11 contemporary composers was presented in October; the program included two compositions, written in a highly complex idiom, by Josef Matthias Hauer, the apostle of atonality and a pioneer in the development of 12-tone music. (N. Sy.)

Popular Music.—The one reassuring note of the year 1951 in popular music was the score of *The King and I*, by Richard Rodgers and Oscar Hammerstein II, which represented a new level of achievement even for those gifted collaborators and raised the standards of the musical stage above anything that it had known in the past, including such gems as *South Pacific*, *Oklahoma!* and *Show Boat*. At least half a dozen songs in *The King and I* were musically and poetically better than any others of the year (one could mention particularly "My Lord and Master," "Hello, Young Lovers," "Getting to Know You," "We Kiss in a Shadow," "I Have Dreamed" and "Shall We Dance?"), but none of these arrived at a really national popularity.

The popular hit of the year was probably a reminiscent little song called "Too Young," vaguely suggesting the encouragement of juvenile delinquency. "Too Young" topped the Lucky Strike Hit Parade a dozen times on both radio and television.

It was closely followed by an old-timer, "Because of You," written by Arthur Hammerstein (Oscar's uncle) and Dudley Wilkinson. Here the new recording star, Tony Bennett, deserves the major credit, if any. Patti Page, another of the year's most popular singers on records, helped along the folklike "Mockin' Bird Hill," besides keeping alive the similarly "corny" "Tennessee Waltz," by singing it as a duet with herself.

Perry Como's recording of an English song of 1934 called "If" ("I had everything") put it high up in the 1951 list of all-round hits, while the spectacular team of Les Paul and Mary Ford brought back "How High the Moon," written a dozen years before by Nancy Hamilton and Morgan Lewis for a show called *One for the Money*. Far older (and equally popular) was the true folk song, "On Top of Old Smoky," whose tune was also used in the past for "The Little Mohee."

Mitch Miller, a bearded virtuoso of the oboe, put new life into Columbia records by his clever selection and arrangement of potential hits, participating personally in the development of two possessive songs, "My Heart Cries for You" and "My Truly, Truly Fair." Mario Lanza, who played *The Great Caruso* on the screen, waxed the old waltz, "Over the Waves," to a surprising success as "The Loveliest Night of the Year," although he did not sing it in the picture.

The novelty of the year was the Armenian-dialect "Come On-a My House," for which William Saroyan wrote the words on a bet (to music by a relative named Bagdasarian). The rest of the hit parade of 1951 concentrated largely on imitations and revivals.

"I Get Ideas" merely borrowed the classic tango, "El Choclo," while a familiar "Melody," by the former Vice-Pres. Charles G. Dawes, reappeared as "It's Only a Game." "Aba Daba Honeymoon" supplied old-fashioned nonsense, and some much needed charm was added by "The World Is Waiting for the Sunrise," written by Gene Lockhart and Ernest Seitz in 1919. "Sweet Violets" borrowed an old title and formula, once notorious for its bawdy parodies. Such titles as "Shanghai," "Mister and Mississippi," "It's No Sin," "Down Yonder," "Undecided" and "Slow Poke" filled out a definitely bad year in popular music.

(S. Sp.)

Music in Industry.—The drive for increased industrial productivity during 1951 focused management's attention on planned music programs as a tool for reducing job fatigue, dispelling work monotony, relieving nervous tension, masking machine noises and creating a cheerful relationship among employees.

So great were the number of inquiries from industry and labour about the value of music as an aid to production that the federal government reprinted the wartime study, *Music in War Plants*, originally published in 1943 by the War Production Drive headquarters, for the guidance of labour-management committees. The survey findings, subsequently printed in condensed form by Muzak corporation under the title, *Muzak in Industry*, pointed up the paramount importance of music specially recorded for industrial use.

To be functionally effective, the music had to be nondistracting, had to provide a lift without commanding the attention of the worker. The melody line had to predominate. To be avoided were the disconcerting elements of high, piercing registers, sudden dynamic changes, abrupt key transpositions, draggy tempos and novelty sound effects.

It was established that "music while you work" was a highly developed science demanding specialized training and techniques in arranging, recording and programming, if the desired physiological and psychological effect upon the worker were to be achieved.

Aside from its findings on music, the survey showed that the value of a plant-wide public address system was incalculable. This was borne out during 1951 by the greatly increased number of plants using music amplification systems as a channel of employee communications for practice air raid alerts, paging purposes, time signals, shift changes and emergency announcements.

Recordings.—In 1951 almost all serious music; *i.e.* music other than popular songs, dance tunes, jazz, etc., recorded during the year for sale in the U.S., was pressed on LP (long-playing) $33\frac{1}{3}$ r.p.m. disks. In Great Britain and Europe the LP system continued to grow in acceptance. The total volume of record sales during the year in the U.S. amounted to about $200,000,000, spokesmen for the industry estimated. Of this amount, the sale of LP's represented 30% of the total; and the combined sale of 45 r.p.m. records (the seven-inch diameter, large center-hole vinylite disks introduced by RCA Victor at about the same time in 1948 that Columbia introduced the LP disks) and 78 r.p.m. records (the type standard throughout the world prior to 1948) represented the remaining 70% and accounted for the expenditure of $140,000,000.

Among the recordings issued during the year which were distinguished for both musical subject matter and performance, as well as for technical merit in the craft of sound transcription, were the following: Aaron Copland's *Concerto for Clarinet and String Orchestra*, Roger Sessions' *Symphony No. 2* and Ludvig von Beethoven's *Symphony No. 5*—all on the Columbia label; Claude Debussy's *La Mer* played by the NBC Symphony orchestra under Arturo Toscanini, Hector Berlioz' *Symphonie fantastique* and Igor Stravinsky's *Le Sacre du printemps*—the latter three works conducted by Pierre Monteux and all four of them made available by RCA Victor; Béla Bartók's *Music for String Instruments, Percussion and Celesta* on Mercury, and the same composer's *Suite* from the *Miraculous Mandarin* issued by the Bartók society; the string trios of Beethoven (opus 3, 8 and 9) on the Allegro label; the Gioachino Rossini-Ottorino Respighi *La Boutique Fantasque* on London; Sergei Prokofiev's *Scythian Suite* and the Franz Joseph Haydn symphonies no. 100, 95, 55 and 104 on Westminster; the overture and incidental music to *A Midsummer Night's Dream* (Felix Mendelssohn) on Decca; Franz Schubert's three posthumous sonatas played by Webster Aitken on the EMS label; the *Mass in B Minor* of Johann Sebastian Bach conducted by Herman Scherchen on Westminster; Paul Hindemith's *Apparebit Repentina Dies* on Capitol; the J. S. Bach *Passion According to St. John* directed by Robert Shaw on RCA Victor.

More complete operas on records were released during 1951 than in any previous year, and of these the following were among the best: Georges Bizet's *Carmen* and Verdi's *La Traviata* on RCA Victor; Wolfgang Amadeus Mozart's *Magic Flute* and *The Marriage of Figaro* on Columbia; Richard Strauss's *Der Rosenkavalier* on Urania.

Films of 1951.—*Mozart & Barrios on Six Strings* (A. F. Films, Inc.); *Musical Instruments: The Strings* (Carl F. Mahnke Productions); *Music is Everywhere Series* (2 films), *The Cineconcert Series* (5 films) (Artists Films, Inc.); *The Ambassador Master Works Musical Series* (13 films) (Sterling Films); *The Harpsichord* (Almanac Films, Inc.). (J. J. Ry.)

Music Library Association: *see* Societies and Associations, U.S.

Mutton: *see* MEAT.

Mutual Security Agency: *see* EUROPEAN RECOVERY PROGRAM.

Narcotics and Narcotic Traffic.

The sixth session of the United Nations Commission on Narcotic Drugs, held in New York city in 1951, reached an agreement on principles to limit the production of opium to medical and scientific needs. The producing countries—Turkey, Iran, Yugoslavia and India—agreed to limit areas of production and stocks in accordance with estimates to be supplied by each country to an international body. France introduced a draft protocol to adapt the provisions of the 1931 convention to opium. The commission came to the conclusion that by a plan of this kind progress could be made toward the ultimate aim of the limitation of the production of opium to the world's medical and scientific needs.

Proposed Single Convention on Narcotic Drugs.—The commission heard a statement by the representative of the International Association of Penal Law and of the International bureau, two nongovernmental organizations which have consultative status with the council, on the framing of certain provisions for a single convention on narcotics control. The view expressed by this representative was that under the new treaty, parties should be required to treat illicit trafficking in narcotics as a serious criminal offense. In addition the acceptance by all parties of the principle of universality in the punishment of traffickers would provide a powerful deterrent to participation in this activity. As an additional curb on the illicit traffic, it might also be desirable to provide for the isolation and compulsory treatment of drug addicts in closed institutions.

After a discussion of the procedure to be followed in the further elaboration of the draft instrument, the commission concluded that it would be desirable for an international diplomatic conference to be called to adopt the new treaty.

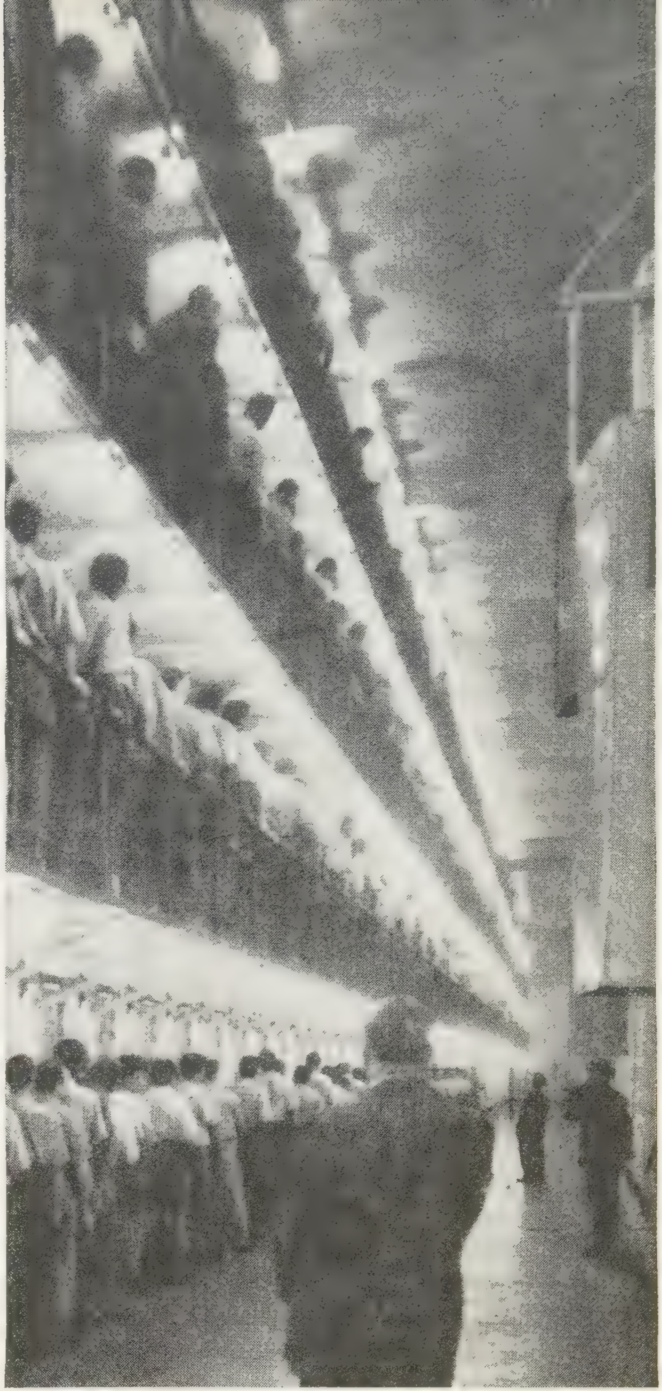
Coca-Leaf Chewing.—The commission of inquiry which had visited Bolivia and Peru reported that coca-leaf chewing has harmful effects; and that since the habit is the consequence of unfavourable social and economic factors, the solution of the problem would involve improvement of living conditions and the adoption of a governmental policy to limit the production of coca leaf and control its distribution. The commission of inquiry made detailed recommendations in regard to these two aspects in its report.

International Illicit Traffic.—The principal sources of supply of illicit narcotics in 1951 were still Italy, Turkey, Iran, Syria, India, Mexico, China and Hong Kong. They were joined by Thailand whose soft metal tubes of monopoly opium were seized in several instances. The energetic action of the governments of Italy, Turkey and Greece had already produced a diminution of the illicit heroin traffic in the United States.

The United States recommended that in future reports the International Criminal Police commission should give the names of all traffickers, so that governmental authorities throughout the world could take appropriate action, such as denying entry visas or seamen's licences to undesirable individuals.

Teen-age drug addiction became a world-wide social danger. In 1951 it was found in the United States, Canada, Turkey, Germany, Japan, China, Egypt, Great Britain and other countries.

Arab League's Permanent Office for Narcotics.—Despite an intensified campaign against narcotics, Egypt, because of its geographical position, reported considerable difficulties in preventing the smuggling of narcotics into the country through the desert near Suez and on board small coastal vessels. Other Arab states had experienced similar difficulties and accordingly, while the commission was holding its sixth session, the Arab league reported that it had set up a permanent office of narcotics.



NARCOTICS TRAFFIC brought one out of every four prisoners shown above to Chicago's Municipal House of Correction in 1951. The crowding resulted when a city ordinance was passed calling for harsher sentences for anyone selling narcotics to persons under 21 years of age

Proposal for U.N. Committee in Far East.—The commission considered a proposal by Burma that a United Nations committee be established to co-ordinate the efforts of Burma and certain neighbouring countries to suppress poppy cultivation and the smuggling of opium. (*See* also DRUG ADMINISTRATION, U.S.)

BIBLIOGRAPHY.—*Report* of the Commission on Narcotic Drugs (Sixth Session) to the United Nations Economic and Social Council, E/1998. E/CN.7/227 (June 1, 1951).

FILMS OF 1951.—*H—The Story of a Teen-Age Drug Addict* (Young America Films, Inc.). (H. J. A.)

National Academy of Sciences: *see* SOCIETIES AND ASSOCIATIONS, U.S.

National Association for the Advancement of Colored People: *see* SOCIETIES AND ASSOCIATIONS, U.S.

National Association of Manufacturers: *see* SOCIETIES AND ASSOCIATIONS. U.S.

National Association of State Libraries: *see* Societies and Associations, U.S.

National Budget: *see* Budget, National.

National Bureau of Standards: *see* Standards, National Bureau of.

National Catholic Community Service: *see* Societies and Associations, U.S.

National Catholic Welfare Conference: *see* Societies and Associations, U.S.

National Congress of Parents and Teachers: *see* Societies and Associations, U.S.

National Debt: *see* Debt, National.

National Education Association: *see* Societies and Associations, U.S.

National Gallery of Art: *see* Smithsonian Institution.

National Geographic Society.

From July 25 to Aug. 21, 1951, the span from the end of one winter to the start of the next at Chubb crater in northwestern Quebec province, Can., a team of six scientists cosponsored by the National Geographic society and Toronto's Royal Ontario museum studied many aspects of the gigantic depression in the subarctic granite that had first come to public attention the year before. Led by geologist Victor Ben Meen, Royal Ontario museum director, they found a maximum depth of 825 ft. in the crater lake. They established the full crater depth at 1,325 ft. and its rim diameter at more than 2 mi. During the final 48 hr. of the four weeks allowed them by the weather for their 1951 research, they came upon a magnetic anomaly as their magnetometer survey reached the extreme east portion of the rim—a conclusive indication of the presence underground of a mass of iron-bearing meteorite material. Thus, despite failure to find actual meteorite fragments, they confirmed the crater's meteor-crash origin. More than double the width and depth of Arizona's meteor crater, it ranks as the largest of the earth's known meteor-gouged scars.

By late 1951, 1,000 new clusters of nebulae—the farthest 350,000,000 light-years distant in space—had been discovered and recorded for the first time on plates exposed with the 48-in. Schmidt wide-angle phototelescope on Palomar mountain. The plates were made in the course of the four-year National Geographic society-Palomar observatory sky survey, begun in 1949 in conjunction with the California Institute of Technology, Pasadena. Only about 20 such massive clusters of gas and stars were on record prior to the sky survey's start. The distant systems were found to follow the law of red shifts, indicating to the Palomar astronomers in what direction they were moving. A comet of the 15th magnitude was recorded on a plate exposed on Aug. 5 mapping a celestial area within the constellation Ophiuchus. When completed in 1953, the 2,000 plates of the sky survey would provide photographic prints for a sky atlas of unprecedented depth, mapping the four-fifths of the entire heavens visible from Palomar mountain.

Matthew W. Stirling early in 1951 led his 11th field trip to a Middle American archaeological site under National Geographic society-Smithsonian institution auspices. With his archaeologist wife, Marion Stirling, and Robert Rands, the scientist penetrated parts of the wild Atlantic drainage basin of western Panamá—a region that had gone virtually unexplored since Christopher Columbus probed its coast in 1502. Moving inland up short rivers by native dugout canoe, the director of the Smithsonian's Bureau of American Ethnology found types of pottery and stone implements which for the first time linked ancient cultures of the isthmus' Atlantic and Pacific slopes.

Balloon trains carrying delicate scientific instruments were sent aloft to heights of 20 mi. in the stratosphere above Fort Churchill on Hudson bay for the second straight year in 1951 in the society's seven-year-old program of cosmic ray studies. The project was conducted jointly with the Bartol Research foundation of the Franklin institute of Philadelphia, Pa., with Bartol physicist Martin A. Pomerantz directing the field work. The National Defense board of Canada co-operated in the Fort Churchill studies.

Carl W. Gartlein, physicist and leader of the continuing study of the aurora instituted in 1938 by the National Geographic society and Cornell university, Ithaca, N.Y., described in 1951 a new method of indexing auroras according to size or southern extent and time of occurrence. The method, depending on multiple observation of auroras by interested amateurs, added convincingly to evidence that auroras are most prevalent near the time of the equinoxes.

Published in the society's *National Geographic Magazine* during 1951 were about 1,100 colour pictures of scenes around the world and natural history subjects. Flags of the United Nations, America's fruits, ancient Mesopotamia and Indochina were among subjects covered in approximately 300 reproductions of paintings.

Four large wall maps in colour were prepared by the society's cartographic staff and distributed as supplements to the magazine. Subjects were: Asia and adjacent areas; United States, based on new 1950 census data; central Europe, including the Balkan states; and the world. The year's distribution of the society's ten-colour wall maps exceeded 8,000,000 copies.

About 300 news releases, describing National Geographic-sponsored expeditions and researches or supplying background information about places and events in the day-to-day news, were sent during 1951 by the society's news bulletin service to its list of 800 newspapers, press associations and radio news staffs, domestic and foreign, requesting this service. Maps prepared especially for newspaper use accompanied a few of the releases.

From the news bulletins Geographic school bulletins were prepared and sent weekly during the school year to 35,000 teachers for classroom use.

The society's members at the year's end numbered approximately 1,965,000. Its headquarters are at 16th and M streets, N.W., Washington 6, D.C. Officers: president and editor, Gilbert Grosvenor (in his 53rd year as editor); vice-president and associate editor, John Oliver La Gorce; secretary, Thomas W. McKnew; treasurer, Robert V. Fleming. The society's research committee: chairman, Lyman J. Briggs; vice-chairman, Alexander Wetmore. (G. Gr.)

National Guard.

During 1951 four of the army national guard divisions in federal service were ordered overseas: the 40th division of California and the 45th of Oklahoma to the far eastern command; the 28th of Pennsylvania and the 43rd of Connecticut, Rhode Island and Vermont to the European theatre.

In Jan. 1951, two additional divisions, the 31st from Alabama and Mississippi and the 47th of Minnesota and North Dakota, were ordered to active military service. The 37th division of Ohio and the 44th of Illinois were alerted for active duty.

In addition, the army national guard had three regimental combat teams and nondivisional units in active service. Since the Korean incident, approximately 1,460 federally recognized army guard units with an aggregate strength of more than 110,000 officers and men had reported for active military service.

To meet critical requirements of the army for certain equipment and material incident to the Korean situation and the expansion of the army, the army national guard had furnished approximately $185,000,000 worth of this material to the army since D-day in Korea. This material was over and above that which the national guard units took into active service and included such heavy items as motor vehicles, tanks, weapon and light aircraft, as well as many smaller items.

More than 84% of the air national guard had been ordered to active military service with the U.S. air force. The units remaining under state jurisdiction were assigned an air defense role in addition to their normal M-day training mission.

In addition to the units, the air national guard turned over to the federal government more than $500,000,000 worth of equipment and facilities.

In order to intensify the training program of the national guard in state status during the emergency, 6 week ends of additional training were authorized. The citizen soldiers responded and attendance at both armoury and field training reached an all-time high. More than 210,000 national guardsmen attended the 15-day field-training period.

Legislation was pending in congress at the close of the year to authorize the retention of army national guard unit designations on active military service for a period of three years beyond the two years of active military service required of the national guardsmen. Interim carrier units would in turn be authorized for national guardsmen returning to their homes. Cadre units were authorized to prepare for the return of air national guard personnel and unit designations.

During 1951, many guardsmen responded to state orders to preserve life and property in floods, hurricanes and other domestic crises. Some were serving at home and overseas as members of the U.S. military establishment while others were fighting in Korea in the forces of the United Nations. (R. H. FL.)

National Income and National Product: *see* INCOME AND PRODUCT, U.S.

National Insurance: *see* SOCIAL SECURITY.

Nationalization of Industries: *see* COAL; GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF; IRAN; RAILROADS; PUBLIC UTILITIES.

National Labor Relations Board.

In its fourth year of enforcing Title I of the Labor Management Relations act, 1947 (commonly known as the Taft-Hartley law), the National Labor Relations board processed the largest number of unfair labour practice and representation cases in its history, 15,794, compared with the previous high of 14,456 in 1947.

The year was marked also by the first amendment to the act since 1947. This amendment, approved by the president Oct. 22, 1951, as public law 189, abolished the requirement of a poll of employees before a union and an employer may make a union-shop contract. However, the law still required that a union making such a contract must first file non-Communist affidavits for each of its officers and comply with the other filing requirements of the act. The law also still provided for the holding of union-shop deauthorization polls when employees wish to revoke their union's authority to make union-shop contracts. The limitations on the type of union shop permitted remained unchanged.

During the four years and two months in which the union-shop poll was required, the board conducted 46,119 such polls. Negotiation of union-shop agreements was authorized by vote of the employees in 44,795 of these polls, or 97.1%. In all polls conducted, 6,542,564 employees were eligible to vote. Ballots in favour of the union shop were cast by 5,071,978 employees. This was 91.4% of those voting, and 77.5% of those eligible to vote.

The 1951 amendment also legalized a number of union-shop authorizations, certifications of bargaining agents and unfair labour practice case decisions which had been, in effect, invalidated by a ruling of the supreme court in the case *N.L.R.B.* v. *Highland Park Manufacturing Co.*, 341 U.S. 322 (May 14, 1951). In this case, the supreme court ruled that the term "national or international labor organization," as used in the section of the act requiring non-Communist affidavits by union officers, encompasses parent labour federations such as the American Federation of Labor and the Congress of Industrial Organizations. Therefore, the court ruled, these federations had to file such affidavits before any of their affiliated unions were entitled to bring cases before the board. The board previously had held that the A.F. of L. and C.I.O. officers did not need to file except when the parent federations sought directly to represent employees. The court's ruling in effect invalidated union-shop authorizations and representation certificates issued by the board to A.F. of L. affiliates before the A.F. of L. filed on Nov. 7, 1947, and to C.I.O. affiliates before the C.I.O. filed on Dec. 22, 1949. Congress by the amendment reinstated these authorizations and certificates, as well as certain—but not all—unfair labour practice cases based on charges filed by A.F. of L. and C.I.O. unions during these periods.

During 1951, the board made a number of decisions which were significant in the field of collective bargaining. Among these was the decision in the *Jacobs Manufacturing Co.* case, clarifying the continuing duty of an employer and a union to bargain after a contract has been signed. In this case, a majority of the board held that the statutory duty to bargain over wages, hours or other conditions of employment requires the parties to bargain over any of these issues, whenever raised, provided that they are in no way treated in the current contract and were never negotiated during discussions leading up to the contract. In the same case, a majority made up of different board members held that the parties are not obligated to bargain on any revived issue if it was advanced and discussed as part of the negotiations leading up to the original contract, even though it was in no way treated in the written agreement. In the same case, the board also unanimously reaffirmed its ruling that an employer does not bargain in good faith when he refuses to take any steps whatever to substantiate by facts a bare and adamant assertion during negotiations that he cannot grant a requested pay increase.

Dealing with another aspect of collective bargaining, the board in the *Western Electric* case changed its rule in representation cases on the effect of reopening contracts. In prior years, the board had followed the policy that the reopening of a contract before the end of its term, except within the definite limits of a reopening clause contained in the original agreement, would open the way for a new representation election. The board followed this policy to give employees frequent opportunities to change bargaining agents, if they wished. But in 1951, after considering the advances in knowledge of collective bargaining techniques on the part of employees and the need for stability in labour-management relations, the board discarded the old rule. Instead, the board held, the reopening of a contract by mutual consent of employer and union does not itself open the contract for a new election. However, the board reaffirmed the continuance of its policy that any extension of the contract beyond its original duration does not bar the holding of an election near the original expiration date of the contract.

In a series of decisions on the discharge of employees under valid union-shop agreements, the board ruled that: (1) discharge of an employee for failure to pay union fines is illegal; (2) charging higher initiation fees for "old" employees, as against newly hired employees, is discriminatory; (3) discharge of an employee for failure to pay his dues on time, under a valid union-shop agreement, is legal; and (4) union assessments are not "periodic dues" which employees may be required to pay in order to hold their jobs under a valid union-shop contract.

During the year, the board also had occasion, for the first time, to apply its jurisdictional standards in a secondary boycott case. Such cases, by their nature, must involve at least two employers—the primary employer with which the union has a dispute and the secondary employer whose employees the union is charged with encouraging to strike or boycott in order to force the secondary employer to cease doing business with the primary employer. In view of this fact, the board decided unanimously that, in determining whether to assert jurisdiction in such cases, it will consider impact upon interstate commerce of (1) the business of the primary employer, or employers, and, (2) if that is not sufficient to meet the board's jurisdictional standards, the business of the secondary employer, or employers, to the extent affected by the alleged boycott activities. In the case where this policy was announced, the board rejected jurisdiction when the business of the primary employer added to the value of the secondary employer's project which was picketed, in the alleged secondary boycott activities, did not make an amount sufficient to meet the board's usual jurisdictional minimum.

During the fiscal year ended June 30, 1951, the five-member board issued 2,474 formal decisions, compared with 2,245 in the preceding fiscal year. Of the 1951 decisions, 498 involved unfair labour practices and 1,945 were in representation proceedings.

A total of 6,342 representation elections were conducted among 666,556 employees to determine their choice of collective bargaining agent, if any. Bargaining representatives were chosen in 4,758 elections, or approximately 75% of those conducted. In these elections, unions were authorized to represent a total of 505,322 employees in bargaining. Unions affiliated with the American Federation of Labor won 2,650 out of 3,988 representation elections in which they participated during the fiscal year. Unions affiliated with the Congress of Industrial Organizations won 1,375 out of 2,234 elections in which they took part. Unaffiliated unions won 733 out of 1,181.

The office of the general counsel, which is responsible for the investigation and prosecution of unfair labour practice cases, issued formal complaints in 792 cases during fiscal 1951, compared with 708 issued in fiscal 1950. Of the complaints issued in 1951, employers were charged with unfair practices in 630 (79.5%) and unions in 162 (20.4%). This corresponded almost exactly with the relative percentages of cases filed against employers and unions. Charges of unfair practices were filed in 5,261 cases. Of these, 4,164 or 79% were levelled against employers, and 1,097, or 21%, against unions.

To remedy unfair labour practices, $2,220,000 was awarded in back pay to 7,550 employees who had suffered illegal discrimination. Of these, 3,864 were also reinstated in their jobs. Of the back pay, employers paid $2,177,320, while unions were found to owe $42,660. In addition, unions were required to refund $780 in dues collected under illegal union shops. Collective bargaining was directed in 280 cases. (*See* also Labour Unions; Law; Strikes.) (P. M. Hg.)

National Museum: *see* Smithsonian Institution.

National Parks and Monuments.

Public use of the national parks of the United States and other areas administered by the national park service of the department of the interior reached record proportions during 1951, with visitors totalling approximately 36,680,000, a 12% increase over the record travel of 1950.

This increased use brought added problems of protection and maintenance. A major problem was experienced in Yellowstone National park, Wyoming-Montana-Idaho, where careless visitors tossed various objects into geyser vents and hot-spring formations. So much debris was deposited in Morning Glory pool that this beautiful park feature was almost ruined. Unlawful feeding of bears by visitors to Yellowstone National park and several other national parks presented another serious problem. In these areas, intensive campaigns were conducted, through the use of warning posters and stickers and by dissemination of information at campfire programs, to "educate" visitors on the serious injury that could result from feeding these seemingly tame, yet wild, animals.

One of the year's most significant developments was the transfer, on Jan. 2, of administration, but not ownership, of Independence hall, Congress hall and associated historic structures in Independence square, Philadelphia, Pa., from city to federal control. At ceremonies held in Philadelphia on that date, Secretary of the Interior Oscar L. Chapman accepted the keys to Independence hall symbolizing the transfer. These structures form the nucleus of the Independence National Historical Park project authorized by congress in 1948.

Other significant historic site developments to occur during the year were the establishment of the birth site, near Diamond, Mo., of the noted scientist-educator George Washington Carver as a national monument; the designation, as a national historic site, of Grand Portage trail in northeastern Minnesota which figured in the history of the fur trade and the exploration and colonization of the northwest; and the designation, as a national historic site, of Dorchester heights, South Boston, Mass., an important point in George Washington's successful effort to force the evacuation of Boston by British troops in 1776. Designation of the Dorchester site coincided with the celebration on March 17 of the 175th anniversary of the evacuation.

As in the past, conservation organizations throughout the United States voiced strong opposition to proposed nonconforming installations on park and monument areas, notably dams and water-control projects, which would do irreparable damage to scenic and other values. In this connection, Secretary of the Interior Chapman issued an order to the agencies of the interior department designed to protect not only areas administered by the national park service but also established wilderness areas in national forests and national wildlife refuges against water-control investigations. This order prohibited investigations by such agencies in these areas without the prior written approval of the secretary of the interior or unless they were specifically authorized by congress. The order also provided that where it appeared in the public interest to permit the investigation of proposed power and reclamation projects the resulting reports should contain comparable data on all alternative project possibilities adequate for the secretary to reach an informed decision as to which project, if any, should be selected.

Other significant developments and activities of the year 1951 included the approval by Secretary of the Interior Chapman of standard provisions to be included in contracts governing concession operations in national park service areas; continued co-operation with state agencies to aid them in developing park and recreation programs supplementary to those on a national level; completion of the Mississippi River Parkway survey; continuation of the Alaska Recreational Resources survey; appointment of Maj. Gen. U. S. Grant, III, of Washington, D.C., and Turpin C. Bannister of Urbana, Ill., to the advisory board on national parks, historic sites, buildings and monuments; and the resignation in April of Newton B. Drury as director of the national park service. Arthur E. Demaray, associate director of the service, was named to succeed him. Upon Demaray's retirement early in December, Associate Director Conrad L. Wirth became director. (C. L. Wi.)

Canada.—Two national historic parks were established at Lower Fort Garry, near Winnipeg (13 ac.), and Fort Battleford, Saskatchewan (formerly the North West Mounted Police memorial and Indian museum, 37 ac.). Canada's 17 national parks and 11 national historic parks had 2,000,000 visitors, a record number, about 10% more than in 1950. Highway improvement continued, a total of 120 mi. of road being hard-surfaced and many miles gravelled; bridges were repaired or replaced. Accommodation for visitors was increased, and recreation facilities (camping grounds, outdoor swimming pools, children's playgrounds, tennis courts and golf courses) were extended. (*See* also TOURIST TRAVEL.)

FILMS OF 1951.—*Bryce Canyon National Park, Lassen Volcanic National Park, Zion National Park* (Arthur Barr Productions).

(H. M. As.)

National Production Authority: *see* DEFENSE MOBILIZATION AGENCIES, U.S.

National Temperance League, Inc.: *see* SOCIETIES AND ASSOCIATIONS, U.S.

National Wealth: *see* WEALTH AND INCOME, DISTRIBUTION OF.

Natural Gas: *see* GAS, NATURAL AND MANUFACTURED.

Naturalization: *see* ALIENS.

Nauru: *see* TRUST TERRITORIES.

Navies of the World.

At the end of 1951 there were two first-class navies, namely those of the United States and of Great Britain, the former being about four times larger than the latter. The fleets of the U.S.S.R., France and Italy could be considered second class, and those of Sweden, the Netherlands, Turkey, Spain, Australia, Canada, Argentina, Brazil and Chile third class. The remaining, not so well balanced, navies fell into lesser categories. Several of the smaller countries continued to add to their naval strength by acquiring warships from the United States and Great Britain. The relative strengths in ships, of and above the escort vessel categories, of the navies of the world were as shown in the table on page 494.

The principal trends in the navies of the larger maritime powers in 1951 were the improvement of anti-submarine and anti-aircraft weapons, the reconstruction and conversion of aircraft carriers to operate larger and faster aircraft, the adaptation of large destroyers as fleet anti-submarine escorts, the conversion of smaller destroyer types into fast anti-submarine frigates, and an increase in the speed and underwater endurance of submarines. Events in the far east and middle east gave a sharp impetus toward rearmament. In the United States many warships which had been in a state of preservation were brought back into commission, while in Great Britain a number of reserve ships which had been laid up were brought forward for active service. In both countries many new warships, especially smaller types such as anti-submarine escorts or frigates and minesweepers, were ordered or projected.

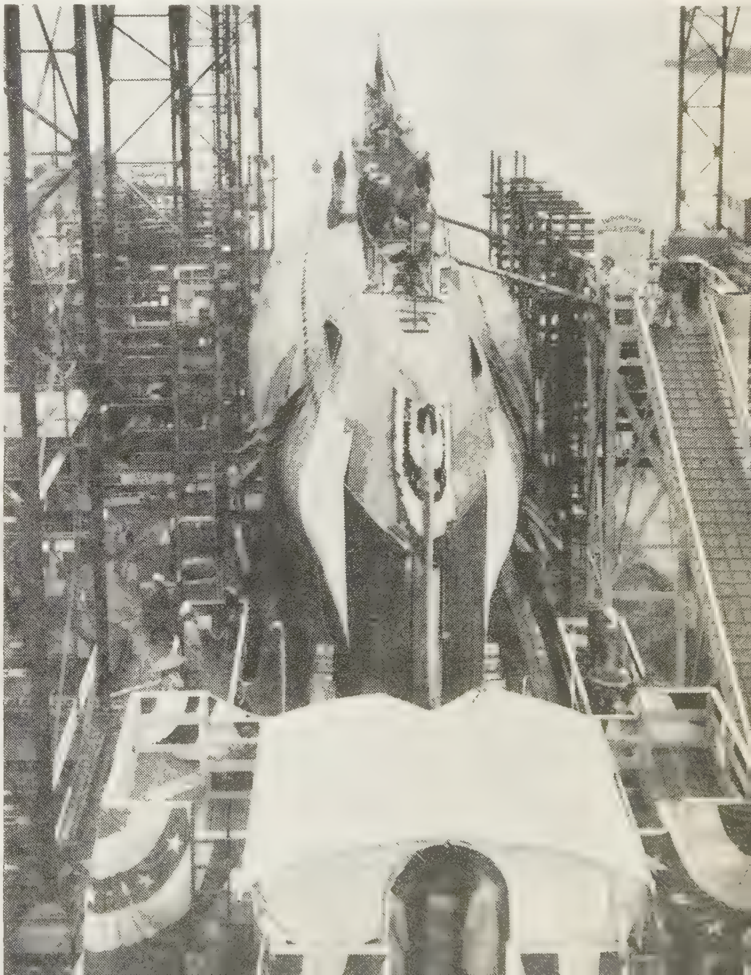
Among the naval events of the year which shocked and stirred the world were the loss of 75 officers and men in the British submarine "Affray," which submerged in the English channel on April 16 and was not located until June 14; the destruction of the naval armament carrier "Bedenham," which blew up in Gibraltar harbour in April; the loss of the U.S. minesweeper "Partridge," which struck a floating mine and sank off the east coast of Korea in February; and the revolt of the Thailand navy culminating in the sinking of a coast defense ship and a torpedo boat in July.

Many U.S., Australian, Canadian and New Zealand warships were active in the Korean theatre. Many British warships were also concerned in the Korean campaign, and others were called upon to deal with the emergencies in the Persian gulf and the approaches to the Suez canal and hurricane relief in Jamaica.

United States Naval Strength.—A giant flush-decked aircraft carrier of 59,900 tons was ordered, named "James V. Forrestal." Twelve aircraft carriers of the "Essex" class, including the "Bon Homme Richard," "Hancock," "Hornet," "Kearsage," "Lake Champlain," "Lexington," "Randolph," and "Wasp," were scheduled to be converted on similar lines to the newly completed "Oriskany" and the recently converted "Essex" to enable them to operate heavier aircraft. By the end of 1951 all four of the battleships of the "Iowa" class were in commission. The U.S. navy comprised 28 fleet aircraft carriers, 8 light fleet carriers, 66 escort carriers, 15 battleships, 2 large (battle) cruisers, 25 heavy cruisers, 42 light cruisers, 348 destroyers, 263 escort destroyers and frigates, 194 submarines, 214 minelayers and minesweepers, 168 patrol vessels, 1,000 amphibious craft, 553 fleet auxiliaries, about 2,000 service craft and 74 drydocks —a total of 5,000 vessels, of which half were in service, the remainder being in reserve.

British Naval Strength.—Late in 1951 there were seven fleet aircraft carriers, six light carriers and one escort carrier. The large fleet aircraft carrier "Eagle" was completed on Oct. 31. Considerable progress had been made with the light fleet carriers "Albion," "Bulwark" and "Centaur," but the remaining ship of the class, the "Hermes," had not been launched. The light carriers "Hercules," "Leviathan" and "Powerful" were still suspended. Of the five surviving battleships none was in operational commission at the end of the year, the "Vanguard"

THE U.S.S. "TRIGGER," a long-range, fleet-type submarine fitted with snorkels and diesel machinery, ready for launching at Groton, Conn., in June 1951



being withdrawn for refit as flagship of the home fleet, and the four of the "King George V" class relegated to reserve, three being laid up in a state of preservation. There were 24 cruisers, excluding a trials ship and a cadets' training ship. No building progress was made with the cruisers "Blake," "Defence" and "Tiger." Destroyers numbered 95. The seventh of the eight large destroyers of the "Daring" class was launched. There were 162 frigates including the "Relentless" and "Rocket" the conversion of which from destroyers was completed in July. As a result of scrappings and transfers submarines were reduced to 53, excluding 4 "midgets." Other vessels included 3 fast minelayers, 2 aircraft maintenance carriers, 2 monitors, 60 ocean minesweepers and many coastal craft, miscellaneous ships and auxiliaries.

Commonwealth.—Australia had a compact fleet of 1 light carrier (a sister ship was under construction in Great Britain), 3 cruisers, 5 destroyers (4 more under construction), 5 fast anti-submarine frigates under conversion from destroyers, 14 frigates, 32 fleet minesweepers and a number of small craft and auxiliaries.

Canada also had a well-balanced fleet of 1 light carrier, 2 cruisers, 11 destroyers (2 of which were to be converted to fast anti-submarine frigates), 6 frigates (14 more were under construction or projected), 9 fleet minesweepers and numerous smaller craft.

U.S.S.R.—The construction of one to four battleships of a new type was persistently reported. The total available naval strength at the end of 1951 was 3 battleships, 14 cruisers, 2 coast defense ships, 82 destroyers, 370 submarines, 58 escort vessels and numerous minesweepers, minelayers, patrol vessels, torpedo boats and ancillary ships.

France.—The fast light fleet aircraft carrier "Langley" was acquired from the United States and renamed "Lafayette." The reconstruction of the cruiser "De Grasse" was resumed and she was to be completed as an anti-aircraft cruiser. The fleet comprised 2 light carriers, 1 escort carrier, 2 battleships, 6 cruisers, 11 first-class escorts (destroyers), 26 second-class escorts (frigates), 10 submarines and numerous patrol vessels, miscellaneous ships and auxiliaries.

Navies of the World, Dec. 1951

	Fleet aircraft Carriers	Light aircraft Carriers	Escort aircraft Carriers	Battleships	Cruisers	Coast defense ships and monitors	Destroyers	Frigates and Escort types	Submarines
United States	28	8	66	15	69	1	348	263	194
Great Britain	7	6	1	5	24	2	95	162	53
U.S.S.R.	—	—	—	3	14	2	82	58	370
France	—	2	1	2	6	—	11	26	10
Italy	—	—	—	2	3	—	6	40	—
Sweden	—	—	—	—	4	3	13	8	24
Netherlands	—	1	—	—	2	—	5	9	7
Turkey	—	—	—	—	1*	—	10	—	11
Spain	—	—	—	—	6	—	18	12	6
Australia	—	1	—	—	3	—	10	14	—
Canada	—	1	—	—	2	—	11	6	—
Argentina	—	—	—	2	5	1	11	11	3
Brazil	—	—	—	1	2	—	9	8	3
Chile	—	—	—	1	2	2	6	6	7
New Zealand	—	—	—	—	2	—	—	6	—
Peru	—	—	—	—	2	—	1	6	4
Greece	—	—	—	—	1	—	3	19	6
India	—	—	—	—	1	—	3	5	—
Norway	—	—	—	—	—	—	5	12	8
Portugal	—	—	—	—	—	—	5	8	3
China	—	—	—	—	—	—	7	24	—
Pakistan	—	—	—	—	—	—	3	4	—
Poland	—	—	—	—	—	—	2	—	4
Thailand	—	—	—	—	—	1	—	2	4
Dominican Rep.	—	—	—	—	—	—	2	9	—
Rumania	—	—	—	—	—	—	2	—	1
Colombia	—	—	—	—	—	—	2	1	—
South Africa, Union of	—	—	—	—	—	—	1	3	—
Indonesia	—	—	—	—	—	—	1	4	—
Egypt	—	—	—	—	—	—	—	10	—
Denmark	—	—	—	—	—	—	—	5	3
Yugoslavia	—	—	—	—	—	—	—	5	4
Mexico	—	—	—	—	—	—	—	7	—
Israel	—	—	—	—	—	—	—	6	—
Venezuela	—	—	—	—	—	—	—	6	—
Japan	—	—	—	—	—	—	—	5	—
Cuba	—	—	—	—	—	—	—	4	—
Belgium	—	—	—	—	—	—	—	2	—
Republic of Ireland	—	—	—	—	—	—	—	3	—
South Korea	—	—	—	—	—	—	—	2	—
Iran	—	—	—	—	—	—	—	2	—
Ecuador	—	—	—	—	—	—	—	1	—
Burma	—	—	—	—		—	—	1	—

*Battle Cruiser.

Other naval forces, not shown in the table because they comprise only minor war vessels, are those of Bulgaria, Ceylon, Finland, Haiti, Honduras, Hungary, Iceland, Iraq, Nicaragua, Panamá, Paraguay, Philippines and Uruguay.

Italy.—The navy consisted of 2 battleships, 3 cruisers, 6 destroyers, 5 frigates, 12 torpedo boats, 23 corvettes and a number of minesweepers and auxiliaries, 1 cruiser having been discarded, 2 destroyers and 3 frigates acquired from the United States and 2 torpedo boats rerated as escorts (frigates).

Other European Countries.—Sweden had 4 cruisers, 3 coast defense ships (small battleships), 13 destroyers, 2 anti-submarine frigates, 6 torpedo boats (small destroyers), 24 submarines, 2 minelayers and numerous other vessels.

The Netherlands had a well-balanced fleet of 1 light aircraft carrier, 2 light cruisers, 5 destroyers, 9 frigates, 7 submarines, 4 patrol vessels, 1 minelayer and a number of other warships.

Turkey possessed 1 old battle cruiser, the only warship of this category remaining in the world, 10 destroyers, 11 submarines, 13 fleet minesweepers and numerous other warships and auxiliaries.

Spain had 6 cruisers, 18 destroyers, 12 frigates, 6 submarines, 6 minelayers and 7 fleet minesweepers, as well as many minor warships and auxiliaries.

South America.—Argentina had 2 old battleships, 5 cruisers (2 of which were transferred from the United States in 1951), 1 coast defense ship, 11 destroyers, 7 frigates, 4 escorts (old destroyers), 3 submarines, 11 minesweepers and other craft.

Brazil possessed 1 old battleship, 2 cruisers purchased from the United States in 1951, 9 destroyers, 8 frigates, 3 submarines, 11 corvettes, 8 submarine chasers and numerous smaller craft.

Chile had 1 old battleship, 2 cruisers acquired from the United States in 1951, 6 destroyers, 6 frigates, 7 submarines and a number of small craft, miscellaneous ships and auxiliaries.

Modern Types of Warships.—The principal types of modern warships in the navies of the world were as follows:

Fleet Aircraft Carriers.—"Midway" (U.S.), 45,000 tons, fourteen 5-in. guns, 137 aircraft, 212,000 s.h.p., 33 knots; "Eagle" (British), 36,800 tons, sixteen 4.5-in. guns, 110 aircraft, 152,000 s.h.p., 31½ knots; "Oriskany" (U.S.), 30,800 tons, ten 5-in. guns, 100 aircraft, 150,000 s.h.p., 33 knots; "Implacable" (British), 26,000 tons, 72 aircraft, sixteen 4.5-in. guns, 148,000 s.h.p., 32½ knots.

Light Fleet Aircraft Carriers.—"Saipan" (U.S.), 14,500 tons, 50 aircraft, 120,000 s.h.p., 33 knots; "Theseus" (British), 13,350 tons, 35 aircraft, 40,000 s.h.p., 25 knots; "Belleau Wood" (U.S.), 11,000 tons, 45 aircraft, 100,000 s.h.p., 32 knots.

Battleships.—"Iowa" (U.S.), 45,000 tons, nine 16-in. and twenty 5-in. guns, 212,000 s.h.p., 33 knots; "Vanguard" (British), 44,500 tons, eight 15-in. and sixteen 5.25-in. guns, 130,000 s.h.p., 30 knots; "South Dakota" (U.S.), 35,000 tons, nine 16-in. and twenty 5-in. guns, 130,000 s.h.p., 28 knots; "Jean Bart" (French) 38,750 tons, eight 15-in. and nine 6-in. guns, 150,000 s.h.p., 30 knots; "King George V" (British), 35,000 tons, ten 14-in. and sixteen 5.25-in. guns, 110,000 s.h.p., 28.5 knots.

Large (Battle) Cruisers.—"Alaska" (U.S.), 27,500 tons, nine 12-in. and twelve 5-in. guns, 150,000 s.h.p., 33 knots.

Heavy Cruisers.—"Des Moines" (U.S.), 17,000 tons, nine 8-in. and twelve 5-in. guns, 120,000 s.h.p., 33 knots; "Oregon City" (U.S.), 13,700 tons, nine 8-in. and twelve 5-in. guns, 120,000 s.h.p., 33 knots.

Light Cruisers.—"Worcester" (U.S.), 14,700 tons, twelve 6-in. and twenty 3-in. guns, 120,000 s.h.p., 32 knots; "Fargo" (U.S.), 10,000 tons, twelve 6-in. and twelve 5-in. guns, 100,000 s.h.p., 32½ knots; "Superb" (British), 8,000 tons, nine 6-in. and ten 4-in. guns, 72,500 s.h.p., 31.5 knots; "Tre Kronor" (Swedish), 7,500 tons, seven 6-in. guns, 100,000 s.h.p., 33 knots; "Juneau" (U.S.), 6,000 tons, twelve 5-in. guns, 75,000 s.h.p., 35 knots; "Diadem" (British), 5,900 tons, eight 5.25-in. guns, 62,000 s.h.p., 32 knots.

Destroyers.—"Daring" (British), 2,610 tons, six 4.5-in. guns, 54,000 s.h.p., 34 knots; "Gearing" (U.S.), 2,425 tons, six 5-in. guns, 60,000 s.h.p., 35 knots; "Jutland" (British), 2,400 tons, five 4.5-in. guns, 50,000 s.h.p., 34 knots; "Battleaxe" (British), 1,980 tons, four 4-in. guns, 40,000 s.h.p., 34 knots; "Öland" (Swedish), 1,880 tons, four 4.7-in. guns, 44,000 s.h.p., 35 knots.

Frigates.—"Relentless" (British), 1,705 tons, two 4-in. guns, two 21-in. torpedo tubes, 40,000 s.h.p., 34 knots; "Mounts Bay" (British), 1,580 tons, four 4-in. guns, 5,500 i.h.p., 19½ knots; "Tacoma" (U.S.), 1,430 tons, three 3-in. guns, 5,500 i.h.p., 20 knots; "Amethyst" (British), 1,490 tons, six 4-in. guns, 4,300 s.h.p., 18½ knots; "Brecon" (British), 1,175 tons, six 4-in. guns, three 21-in. torpedo tubes, 19,000 s.h.p., 25 knots.

Submarines.—"Tench" (U.S.), 1,570 tons, one 5-in. gun, ten 21-in. torpedo tubes, 6,500 s.h.p., 20 knots; "Amphion" (British), 1,120 tons, one

4-in. gun, ten 21-in. torpedo tubes, 4,300 s.h.p., 18 knots; "Créole" (French), 820 tons, one 3.5-in. gun, ten 21.7-in. torpedo tubes, 3,000 s.h.p., 17 knots; "K-1" (soviet), 1,457 tons, two 4-in. guns, ten 21-in. torpedo tubes, 22½ knots. (R. V. B. B.)

Navy, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Nazimuddin, Khwaja (1894–), Pakistani statesman, was born at Dacca, Bengal, July 19. He was educated at Mohammed Anglo-Oriental college, Aligarh, United Provinces, at Dunstable Grammar school, Bedfordshire, Eng., and at Trinity hall, Cambridge. He was chairman of the Dacca municipality from 1922 to 1929. In that year he entered Bengal provincial politics, and as minister of education (1929–34) piloted through the legislative council the Compulsory Primary Education act, 1930; he was home minister, 1937–41. Khwaja[1] Nazimuddin had been prominent in the revival of the All-India Moslem league in 1937 and was a member of its working committee, 1937–47. In 1941 he resigned from the Bengal government over the membership on the Indian defense council of Fazlul Huk, the premier. Nazimuddin led the Moslem league opposition in the legislative assembly until early in 1943 when he ended a brief interregnum in Bengal's autonomy (during a famine) by forming a ministry, 1943–45.

When Pakistan was formed on Aug. 15, 1947, he was appointed premier of East Pakistan (East Bengal). On Mohammed Ali Jinnah's death (Sept. 11, 1948) he became governor general of Pakistan.

Following the assassination of Liquat Ali Khan on Oct. 16, 1951, Nazimuddin resigned the governor generalship to become prime minister.

N.E.A.: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Nebraska. The "Cornhusker state" is located in the west north central portion of the U.S. It was granted a territorial governor as a result of the Kansas-Nebraska act of 1854 and was admitted to the union in 1867. Land area: 76,663 sq.mi.; water area: 564 sq.mi.; pop.: 1,325,510 by the 1950 census, a gain of 0.7% since 1940. The urban population was 46.9% of the total.

Capital: Lincoln, with pop. 98,884; largest city: Omaha, with pop. 251,117.

History.—Elected state officials for the 1951–53 period included: governor, Val Peterson (Rep.); lieutenant governor, Charles J. Warner (Rep.); attorney general, Clarence S. Beck (Rep.); auditor, Ray C. Johnson (Rep.); treasurer, Frank B. Heintze (Rep.); superintendent of public instruction, Freeman Decker (nonpartisan); secretary of state, James Pettinger (Rep.), appointed upon death of incumbent, Frank Marsh; chief justice, Robert G. Simmons (nonpartisan).

The unicameral legislature held its regular session in 1951. Legislative action included a loyalty oath required of all state employees and public school teachers; county and state employees were placed on social security. The following amendments to the state constitution were presented to the voters for approval in 1952: to provide for annual legislative sessions; to grant legislators a yearly salary of $1,250; to replace the superintendent of public instruction with a board of education; to hold a constitutional convention in 1954.

Education.—There were 6,210 elementary and 559 high school districts by the end of 1950 of which 168 had no schools and 1,702 contracted with other districts. The sum of $26,750 was appropriated for district reorganization for the 1949–51 period. Total enrolment for elementary and secondary schools during 1950 was 227,879. Teaching staffs numbered 11,949. Total expenditures for education during the 1949–50 period were $43,244,437.64. The sum of $145,779.41 was distributed as special aid to state schools in 1950. The direction of elementary and secondary education remained primarily in the hands of local school districts with limited supervisory authority by the state superintendent of public instruction. Higher education was directed by the University of Nebraska located at Lincoln, the college of medicine at Omaha and four state colleges. There were 19 private institutions of higher education.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state appropriation for public assistance for the 1949–51 period was $37,982,400, of which $19,622,600 was federal funds. There were 1,513 cases resulting in 2,369 persons' receiving general relief in Oct. 1951. Each case received an average of $43.32. During this same period a total of 7,245 dependent children from 2,970 families received $91.50 per family; 759 blind persons received a monthly average of $64.30; and there were 22,542 recipients of old-age assistance who received a monthly average of $52.62.

The state maintained a total of 17 charitable, mental, reformatory and penal institutions in 1951 of which seven were for children, three penal, five mental and two classified as miscellaneous. Total population as of Oct. 31, 1951, was 8,566. These institutions were under the board of control to which the legislature appropriated $23,230,127 for the 1951–53 period.

Communications.—Total road mileage of Nebraska for 1951 was 105,729. The state maintained a total of 9,612 mi., of which 1,373 mi. were oiled and 5,035 mi. were gravel. State appropriations for highway purposes during 1951 amounted to $21,317,000 with an additional $6,167,000 federal funds.

There were 256 licensed airports in Nebraska. This included 4 state, 2 Civil Aeronautics administration intermediate, 1 federal, 65 municipally owned, 30 commercial and 154 personal airports. There were 6,326 mi. of railroad in 1951. Radio stations numbered 25, of which 2 were television transmitters. Daily newspapers numbered 21, and there were 280 weekly and semi-weekly newspapers.

Banking and Finance.—The state budget for the 1951–53 period was $165,095,321.27, the largest in the history of Nebraska. State banks numbered 288 with assets of $404,909,136.12 and total deposits of $375,394,337.24 as of June 30, 1951. On June 30, 1950, building and loan associations totalled 41 with assets of $102,441,882.88. On June 30, 1951, there were 6 trust companies with total assets of $19,459,091.07; 58 residential co-operative credit associations with total assets of $8,601,719.07; 5 occupational credit unions with total assets of $453,911.03; and 57 credit unions with total assets of $2,760,779.03. On June 30, 1951, Nebraska's national banks had total resources of $999,234,000 and deposits of $903,905,000.

Agriculture.—The total acreage harvested in 1951 was 19,537,000 compared with 19,882,000 in 1950. Excluding government payments for sugar beets, the total value of production for 1951 was $613,040,000 as compared with $715,809,000 in 1950.

Table I.—*Principal Crops of Nebraska*

Crop	1951	1950	Average, 1940–49
Corn, bu.	187,620,000	249,012,000	210,496,000
Winter wheat, bu.	57,232,000	87,714,000	62,598,000
Spring wheat, bu.	841,000	768,000	1,054,000
Oats, bu.	60,816,000	63,576,000	58,716,000
Barley, bu.	4,620,000	4,650,000	19,514,000
Rye, bu.	1,717,000	2,464,000	3,593,000
Potatoes, bu.	6,000,000	11,180,000	10,542,000
Sugar beets, tons	682,000	812,000	717,000
Alfalfa hay, tons	3,040,000	2,696,000	1,759,000
Wild hay, tons	2,733,000	2,464,000	2,027,000
Sorghum grain, bu.	1,664,000	4,850,000	2,043,000
Beans, dry (100-lb. bags)	838,000	976,000	863,000
Soybeans, bu.	1,276,000	1,200,000	436,000

Source: U.S. Department of Agriculture.

Manufacturing.—Nebraska's industry depends largely upon the agricultural materials produced within the state. There were 1,900 manufacturing and processing establishments in 1950. They employed approximately 56,200 persons during 1951. (S. J. HE.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and the corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of Nebraska*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Petroleum (bbl.)	1,547,000	$3,290,000	330,000	$ 730,000
Sand and gravel	5,077,792	3,167,659	5,114,766	2,911,734
Stone	736,660	1,042,035	504,870	840,758
Other minerals		?		5,619,021
Total		?		$10,101,513

Necrology: *see* OBITUARIES.

Negroes, American. Following an order for complete racial integration of the U.S. armed forces in the far eastern command, the 24th U.S. infantry regiment, oldest active Negro unit in the army (1869), was dis-

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[1] *Khwaja*=teacher. Mr. Nazimuddin kept this courtesy title after his tenure of the Bengal portfolio of education.

NATIONAL GUARDSMEN trying to disperse a crowd which gathered on July 12, 1951, near an apartment building in Cicero, Ill., after a Negro family rented an apartment in the building

banded during 1951. This integration policy proceeded rapidly in the various army commands, with the conspicuous exception, however, of the European army of occupation. The U.S. navy and air force reported an almost complete carrying out of the policy, which also prevailed in all recruit and draftee training camps. There was a marked increase in officer commissions and promotions for Negroes, especially in the air force. Heroic defense under surprise attack near Hungnam, Korea, won high official commendation for a Negro platoon under the command of Lt. Harry E. Sutton.

Legal and Political Developments.—In the District of Columbia, final legal action was pending before the District supreme court, on the validity of an old civil rights statute of 1873, declared inoperative by the lower court, but valid by the appeals court. Validation in final court would open all public facilities in Washington, D.C., to Negroes. Action against segregation in public elementary schools, the first cases at that level, were taken in several states; decisions were pending at the close of 1951 in Delaware and Florida. In South Carolina, in a similar action, the federal court by a 2 to 1 decision upheld segregation provided all facilities were equalized; appeal was taken to the U.S. supreme court. In Cicero, Ill., riots of considerable proportion broke out in July to prevent a Negro veteran's family from occupying an apartment in a racially restricted neighbourhood, resulting in court injunctions against the town officials and finally the calling out of state militia troops by the governor. A federal grand jury later indicted the mayor, the chief of police and others for malfeasance in office. In a murder conviction in Trenton, N.J., where there was suspicion of race discrimination by the prosecution, the case, known as the "Trenton Six," was reopened to new trial by the state supreme court, and four of the six were freed. The 4th federal circuit court upheld a decision forbidding segregation of passengers by the Atlantic Seaboard railroad; the 5th circuit court upheld the conviction of a Georgia sheriff and his deputies for not giving Negro prisoners adequate protection; and the District of Columbia court dismissed the U.S. department of justice case against W. E. DuBois and codefendants in an attempted prosecution under the McCarran act for failure to register as agents of a foreign government because of their participation in an international peace crusade.

The outstanding political development was the rapidly increasing resumption of voting by Negroes in the southern states, as an aftermath of the decision outlawing the closed "white" primary. The Louisiana primaries were officially thrown open for the first time since the Reconstruction period; Negro candidates ran in New Orleans. An estimated 20,000 Negro voters qualified in Mississippi, and with the outlawing of the poll tax in South Carolina and Tennessee, increased political activity by Negroes was anticipated.

On Dec. 4, Pres. Harry S. Truman issued an Executive Order implementing the nondiscrimination clauses in government contracts and appointing a federal commission to supervise compliance with the order. Because of heavy government spending, especially in war production, considerable pressure for fair industrial placement and up-grading was expected. With F.E.P.C. legislation enacted in ten states and requested by the governors of five others, this movement was gaining momentum.

Educational and Cultural.—The *Crisis* annual education survey reported 60,963 Negro students enrolled in U.S. colleges, with 7,749 bachelor's degrees granted, 446 master's degrees, 595 professional degrees and 11 doctorates. There were marked gains in the admission of Negro students to southern state universities, some by legal order, some by administrative initiative.

The District of Columbia Medical society decided to admit Negro physicians to membership. The National theater in Washington, D.C., was purchased by new management which was in agreement with a nondiscriminatory policy. Ethel Waters' autobiography, *His Eye Is On The Sparrow,* had great success saleswise, and several films appeared with more progressive treatment of Negro characters and themes, among them, *The Well, Bright Victory* and *The Jackie Robinson Story.*

In national baseball, 14 Negro players were members of the 1951 major league teams.

The 1950 census reported a definite trend of the Negro population away from the southern states and toward other sections, particularly the midwest industrial centres. (*See* also EDUCATION; LAW.)

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(A. LER. L.)

Nehru, Jawaharlal

(1889–), Indian statesman, was born at Allahabad, United Provinces, on Nov. 14. He became prime minister of India on Aug. 15, 1947. For his early career see *Encyclopædia Britannica.*

Addressing the Commonwealth Prime Ministers' conference in London on Jan. 4, 1951, Nehru said that it was "idle and irrelevant" to speak of China as a soviet satellite and that "her voice should now be heard in the Council of Nations." He reiterated this attitude in broadcasts from London (Jan. 12) and Delhi (Jan. 24) and in his foreign policy statement to the Indian parliament on Feb. 12. At a public meeting in Bombay on March 4, however, he described Communist policy as one of "destruction and chaos."

Informal discussions on the Kashmir dispute at Chequers, Buckinghamshire, on Jan. 13–14 between Nehru and the prime ministers of Great Britain, Pakistan and other commonwealth countries produced little result. Speaking in the Indian parliament on March 28, Nehru insisted that Kashmir was "juridically and politically an integral part of the State of India."

It had been known for some time that a minority group in the Congress party—mainly Nehru's supporters—was dissatisfied with the administration of the majority led by the party president, Purshottamdas Tandon. During 1951 this situation developed into a personal struggle for supremacy in the party between the prime minister and the Congress president. Investigation of the minority group's complaints, promised to Nehru by the working committee at its Bangalore session in July, did not materialize, and on Aug. 11 he resigned from the committee. On Aug. 21 he received a vote of confidence from 234 of the 279 members of the parliamentary Congress party and, on Sept. 6, 16 of the 21 members of the Congress working committee resigned. On Sept. 8, finding himself virtually isolated, Tandon resigned and Nehru succeeded him as president.

In visiting Kathmandu, June 16–19, Nehru became the first foreign prime minister to enter Nepal. (*See* also INDIA; PAKISTAN.)

Nepal.

An independent kingdom in the Himalaya, Nepal lies between India and Tibet. Area: *c.* 54,000 sq.mi. Pop. (1950 est.): 7,000,000. Aboriginal stock is Mongolian with Hindu admixture. Religion: Buddhism mixed with Hinduism. Capital, Kathmandu (pop. *c.* 110,000). Ruler, Tribhubana Bir Bikram Shah Deva; prime minister in 1951, Mohan Shumshere Jung Bahadur Rana and (from Nov. 16) Matrika Prasad Koirala.

History.—On Jan. 8, 1951, it was announced that Nepal would have constitutional reforms generally on lines proposed by India. Pending the meeting of a constituent assembly in 1952 to frame a constitution with adult suffrage, a cabinet would be at once set up under the prime minister, Mohan Shumshere Jung Bahadur Rana, and composed of an equal number of representatives of the Rana family and the Nepali Congress party on the basis of joint responsibility. King Tribhubana was to continue on the throne but could appoint a regent in his absence. The king started to exercise his functions as a constitutional monarch on Jan. 18, consultations between him and the prime minister being conducted through the Nepali ambassador at New Delhi. He flew back to Kathmandu on Feb. 15 after three months' stay

PHOTOGRAPH published in 1951 showing French mountain climbers in Nepal during an expedition to the Himalaya. Two of the party set a world record for the highest peak scaled when they reached the top of Mt. Annapurna in June 1950 in India. Three days later he issued a proclamation under which the interim cabinet was duly sworn in.

In April serious trouble broke out again as a result of an attempt by the Gurkha Dal and some junior members of the Rana family to demonstrate in favour of the former regime. The king took over the post of commander in chief from the prime minister; 31 members of the Rana family were arrested and the Gurkha Dal was banned.

On Nov. 11, five Nepali Congress ministers headed by the home minister, B. P. Koirala, resigned, handing in their resignations direct to the king. Koirala broadcast his and his colleagues' view that the cabinet was unworkable on a mixed basis and that any attempt to compromise with the Rana regime had been abortive. On Nov. 16 a new cabinet, headed by M. P. Koirala, was sworn in. None of the five former Rana ministers was in the new government, which consisted of eight members of the Nepali Congress party and four Independents. The retiring prime minister left for Bombay on Dec. 14, and this was the end of the oligarchical rule of the Rana family.

A warm welcome was given to Jawaharlal Nehru on June 16 when he arrived on a short visit, the first foreign prime minister ever seen in Kathmandu. In September a treaty of friendship was signed with the United States, the missions of both countries being raised to embassy rank. (E. HD.)

Finance and Banking.—Estimated gross revenue 12,500,000 rupees. Monetary unit: Nepal rupee, with an exchange rate (Nov. 1951) of 4.77½ rupees to the U.S. dollar.

Foreign Trade.—(1944–45) Imports 32,520,000 rupees; exports 37,376,000 rupees. Principal imports: textiles, cigarettes, salt, paraffin, sugar, spices, machinery, medicines and boots and shoes. Principal exports: food grains, jute, timber, oilseeds, potatoes, hides and skins.

Transport and Communications.—Roads (1950): 237 mi. suitable for motor vehicles. Licensed motor vehicles (Dec. 1950): cars 220; commercial 80.

Nervous System: *see* PSYCHOSOMATIC MEDICINE.

Netherlands.

A kingdom of northwest Europe, the Netherlands is bounded north and west by the North sea, east by Germany and south by Belgium. Area: 12,868 sq.mi. (not including the waterways and sheets of water larger than 185 ac. and minor acquisitions along the German frontier). Pop. (Oct. 1951 est.) 10,286,250. Language: Dutch. Religions (1947): Roman Catholic 38.50%, Dutch Reformed 31.03%, Reformed Churches 7.93%, nonchurch members 17.04%. Chief towns (pop., 1949 est.): Amsterdam (cap., 832,583); Rotterdam (671,901); The Hague (555,339); Utrecht (191,811); Haarlem (161,380); Eindhoven (139,320). Ruler, Queen Juliana; prime minister in 1951, William Drees.

History.—In Dec. 1950 negotiations took place between the Netherlands and Indonesia about the definitive status of western New Guinea. The Indonesians clung to their demand for an unconditional transfer of sovereignty. Toward the close of the conference the Dutch delegation tabled a compromise proposal by which the sovereignty was to be conferred on the Netherlands-Indonesian union, but this was declined as was also the suggestion to invoke the good offices of a third party. Before the Dutch government made its compromise proposal the Labour group of the second chamber, anxious to prevent a deadlock, had privately suggested to the Indonesian delegation that the sovereignty might be transferred to Indonesia on condition that the actual Netherlands administration was to be maintained for a certain period. The other parties did not, however, want to tamper with the actual sovereign rights over New Guinea. In the Indonesian parliament, meanwhile, a movement arose against the union arrangement recently established by the Round Table conference of The Hague. All parties were desirous of having the union statute revised; in Jan. 1951 a proposal to have it terminated within three months was defeated by only 66 votes against 63. The Indonesian government asked for negotiations on the future of the union statute, which were to take place in Jan. 1952 at The Hague.

On Jan. 23, 1951, P. J. Oud, acting on behalf of the Liberal group, proposed in the second chamber a motion of censure on the ground of the government's having, without the chamber's sanction, abandoned its expressed determination to hold fast to the Netherlands sovereignty over New Guinea. Although the motion was rejected by 66 votes to 26, the Liberal minister of foreign affairs, D. U. Stikker, handed in his resignation. Whereupon the Drees-van Schaik cabinet resigned as a whole, since one of the foundations on which it had been formed (the liberal party) had fallen away.

Not until the middle of March did a new cabinet take office, of broadly the same composition as the old and with Drees once more as prime minister. The foundations were again "broad," the Catholic People's party, the Labour party, the Liberal party and the Christian Historical union participating.

The new government had to cope with great economic difficulties. As a result of the Korean war world prices of goods needed for import had risen to a far greater extent than the articles exported by the country. Aid from the European Recovery program was decreasing, while military expenditure had to be raised from 1,000,000,000 florins to 1,500,000,000 florins. The balance of payments moved disastrously against the Netherlands. Inflation threatened when, because of the rise of prices, wages had to be raised by 5%. These dangerous tendencies were met by efforts to stimulate production and by drastic cuts in investments and in consumption. The Netherlands bank in April raised its bank rate from 3% to 4%. Partly as a result of these measures the rise of prices was stopped.

The policy of the minister of finance was nevertheless criticized with growing bitterness by the Anti-Revolutionary (Calvinist) party (in opposition), the Christian Historical (Protestant) union and the Liberal party; the right wing of the Catholic party, too, joined in the attacks. A bill introducing government supervision of credit was passed in November against Anti-Revolutionary, Christian-Historical and Liberal votes (55 to 31).

Toward the end of April the second chamber ratified the Benelux treaty for the equalization of excises, and a few weeks later a treaty was signed at The Hague prescribing uniform legislation in the matter of international private law in Belgium, the Netherlands and Luxembourg. The economic union between the three countries could not so far be achieved, mainly in consequence of the unfavourable position of the Netherlands balance of payments.

In early October the second chamber became the first of the European parliaments to pass the Schuman plan. The Communists were alone in voting against it. With regard to the Pleven plan the Netherlands government was against carrying through a radical military unification before a real political integration of western Europe had been achieved. It did not want to sacrifice its national army to French fears of an independent German participation. At the Rome conference of the North Atlantic council in November the Benelux states urged inclusion of Great Britain and the Scandinavian states in the European army scheme. (*See* also EUROPEAN RECOVERY PROGRAM; KOREAN WAR; NETHERLANDS ANTILLES; NETHERLANDS NEW GUINEA; NORTH ATLANTIC TREATY ORGANIZATION; SURINAM.)

Education.—Schools (1949–50): Infant: government 294, pupils 48,206, teachers 1,240; private 2,720, pupils 267,478, teachers 6,245. Elementary: government 2,401, pupils 319,680, teachers 9,685; private 4,697, pupils 860,478, teachers 24,939. Secondary: day 1,281, pupils 209,818, teachers 11,614; evening 126, pupils 15,905, teachers 1,095; agricultural 236, pupils 50,380; technical and housewifery 892, pupils 236,278, teachers 11,405. Schools for mentally and physically defective children 217, pupils 26,565, teachers 1,675. Teachers' training colleges 89, students 10,545, lecturers 1,152. Universities: state 4, students 17,928, professors and lecturers 684; free 2, students 2,271, professors and lecturers 99; technical 4, students 8,367, professors and lecturers 274.

Finance and Banking.—Budget: (1951 est.) revenue 4,898,000,000 florins, expenditure 4,617,000,000 florins; (1952 est.) revenue 4,711,000,000 florins, expenditure 4,297,000,000 florins. National debt (June 1950) 26,704,000,000 florins. Currency circulation (Aug. 1951) 2,886,000,000 florins. Bank deposits (Aug. 1951) 3,993,000,000 florins. Gold reserve and foreign exchange of Central bank (Sept. 1951) U.S. $535,000,000. Monetary unit: florin or guilder, with an exchange rate of 3.80½ florins to the U.S. dollar.

Foreign Trade.—(1950): Imports 7,752,000,000 florins, exports 5,288,000,000 florins. Main sources of imports (1950): Belgium-Luxembourg 18%; Germany 13%; U.S. 12%; U.K. 10%. Main destinations of exports: Germany 22%; U.K. 15%; Belgium-Luxembourg 14%; Indonesia 6%. Main imports: textile fibres, yarns and fabrics 13.6%; petroleum and products 6.5%; iron and steel manufactures 5.3%; cereals and flour 5.2%. Main domestic exports: milk, dairy products and eggs 14.8%; yarn, rope and fabrics 7.9%; fertilizers and chemicals 6.0%; electrical machinery and equipment 5.0%.

Transport and Communications.—Roads (Jan. 1950): main 1,724 mi.; secondary 2,694 mi.; third class and unclassified, more than 10,713 mi. Licensed motor vehicles (Dec. 1950): cars 138,625, commercial 88,126. Railways (1950): 1,925 mi., of which electrified 555 mi.; passenger-miles 3,802,000,000; freight tons carried 21,200,000; freight net ton-miles 1,870,000,000. Inland waterways: 4,335 mi., of which about 1,000 mi. for ships of more than 1,000 gross tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,536; total tonnage 3,110,739. Air transport (1950): passenger-miles 469,000,000; freight net ton-miles 19,500,000. Telephones (Jan. 1950): subscribers 692,000. Radio receiving sets (April 1951): 1,527,597.

Agriculture.—Main crops (metric tons, 1951): wheat 258,000; rye 400,000; barley 231,000; oats 426,000; (1950) potatoes 4,052,000; sugar, raw value 398,000; rapeseed 45,000; linseed 12,000; dry peas 67,000; broad beans 12,000; flax fibre 15,700. Livestock (May 1951): cattle 2,882,000; pigs 1,947,000; horses used in agriculture (May 1950) 252,000; sheep 371,000; poultry 25,460,000. Meat production (metric tons 1949): total 258,000, of which beef and veal 88,000 and pork 164,000. Dairy production (metric tons, 1950): milk delivered 4,766,000; butter 93,200; cheese 126,800. Fisheries: total catch (1949) 235,800 metric tons; herring exports (1950) 33,860 metric tons, valued at 17,500,000 florins.

Industry.—Industrial establishments (1948): 115,580; persons employed 1,227,297. Total working population (1950): 3,953,000. Fuel and power (1950): coal (metric tons) 12,252,000; lignite 192,000; crude oil 704,900 metric tons; manufactured gas 1,596,000,000 cu.m.; electricity 5,472,000,000 kw.hr. Raw materials (metric tons, 1950): pig iron 453,600; crude steel 489,600; zinc, smelter 19,800; aluminum, primary metal 10,800; tin, metal 16.200; salt 419,000. Manufactured goods (metric tons, 1950): cement 593,000; cotton yarn 60,400; wool yarn 26,800; rayon filament yarn 21,700; rayon staple fibre 11,000; paper 325,000; leather footwear (1949) 18,500,000 pairs. New dwellings completed (1950): 47,304.

FILMS OF 1951.—*The Dutch Way* (Almanac Films, Inc.). (P. GL.)

Netherlands Antilles.

Six islands in the West Indies constitute the Netherlands Antilles. Three small ones lie on the northeastern rim of the Caribbean, Saba (5 sq.mi.), St. Eustatius (7 sq.mi.) and the southern half of St. Martin (17 sq.mi.), while 500 mi. to the southwest, off the Venezuelan coast, are the three principal islands, Curaçao (210 sq.mi.), Aruba (69 sq.mi.) and Bonaire (95 sq.mi.). The population of the entire group of islands is 163,000 (est. 1950), and that of Willemstad, the capital, on Curaçao, about 48,000. The official language is Netherlandish but a local patois of diverse origin is equally widespread. All citizens of the Netherlands Antilles are Dutch subjects with the same rights and duties as the inhabitants of the Netherlands.

History.—During 1951 L. A. H. Peters was governor until March, and after he returned to The Hague as minister of overseas territories in April, A. A. M. Struycken, former minister of justice in the Netherlands, was designated his successor.

The legislative council, elected at the end of 1950, convened in February, but not until April could a cabinet be formed, with M. F. da Costa Gomez as prime minister.

A labour dispute occurred at midyear in the two principal oil refineries, and was terminated only after protracted commotion and some disorder. As unemployment was relatively high on the islands of Curaçao and Aruba (to which a good deal of skilled and unskilled labour had been drawn in years of construction), costly legislation and heavy taxation were under discussion through the second half of 1951. The future constitutional and economic relationship of the Netherlands Antilles with the Netherlands was to be settled at a conference early in 1952.

As a first step toward systematic provision of advanced education, the Council of an Institute of Advanced Studies was set up in the autumn, with Governor Struycken as president.

(C. ME.)

Education.—In 1951 there were 48 elementary schools with 15,912 pupils, 31 higher elementary schools with 11,765 pupils and 3 secondary schools with 417 students.

Finance.—The monetary unit is the Netherlands Antilles guilder or florin, valued at $0.530264 U.S. currency during 1951. The budget for the fiscal year 1951 estimated expenditure at 55,273,236 *f.* and revenue at 55,362,515 *f.* Actual revenue in 1950 amounted to 60,588,122 *f.* The public debt on Jan. 1, 1952, was 8,450,000 *f.*; notes in circulation 35,217,000 *f.*; gold reserves 35,217,000 *f.*

Trade and Communications.—Exports in 1950 totalled 1,042,330,178 *f.*; imports were 1,134,246,985 *f.* More than 98% of the exports consisted of petroleum products and about 80% of the imports consisted of crude petroleum, principally from Venezuela. The U.S. supplied about two-thirds of the nonpetroleum imports.

The highway mileages of the islands of the Netherlands Antilles in 1950 were as follows: Curaçao, 210; Aruba, 150; Bonaire, 32.5; St. Martin, 17; Saba, 4.5 and St. Eustatius, 2.5. On Jan. 1, 1951, 5,008 automobiles and 1,712 trucks were in use on Curaçao and 3,379 automobiles and 1,063 trucks on Aruba. On Jan. 1, 1952, there were 6,456 telephones, of which 4,117 were on Curaçao and 2,145 on Aruba.

Manufactures.—The three refineries—Curaçaosche Petroleum Industrie Maatschappij, N.V. (Shell) on Curaçao and Lago Oil and Transport Co. (Standard Oil Company of New Jersey) and the Eagle Oil Co. (Shell) on Aruba—produced 39,300,000 metric tons of refined petroleum products in 1950, including 29,300,000 tons of heavy oils, 5,500,000 tons of gasoline and 2,100,000 tons of diesel oil. (J. W. Mw.)

Netherlands New Guinea.

The western part of this second largest island of the world, with smaller adjacent islands, forms part of the territory of the kingdom of the Netherlands. Area: 151,789 sq.mi. Pop.: *c.* 1,018,000 of whom (1951 est.) 321,000 lived in districts under regular Dutch administration. Principal towns: Hollandia (cap.; pop., 1951 est., 32,059), Manokwari, Sorong and Merauke. Governor in 1951, S. L. J. van Waardenburg.

History.—Under the royal charter the administration of the territory enjoyed a large measure of autonomy in matters of legislation and executive power. In matters of finance the bare and thinly populated country was still dependent on the Netherlands.

The budget for 1951 (normal expenditure) amounted to 58,500,000 guldens, subsidized by the Netherlands in the amount of 16,200,000 guldens, while the costs of military and naval protection were for Dutch account. The capital budget of 24,300,000 guldens was also financed by the Netherlands.

The administration was organized in four services: home affairs and justice, financial, economic, and social and cultural affairs. Particular attention was being paid to establishing a suitable educational system for the primitive Papuan population; by Jan. 1951 there were 524 village schools with 26,285 pupils; care was taken to avoid doing any harm through a too sudden impact of western civilization on primitive society.

Opening up the interior of the country and its modest agricultural resources through roadbuilding met with great difficulties because of excessive rainfall (annual average 100 in. or more). Pending agricultural development, the area still largely depended on imports of food. On the western tip of the island, the New Guinea Petroleum company (jointly owned by Royal Dutch, Standard-Vacuum and Caltex groups in a 4:4:2 proportion) produced from its Klamono field near Sorong an average of 4,680 bbl. per day of crude oil, which was shipped to refineries in Indonesia, Australia and Japan. A contract for the exploitation and development of nickel and chrome was granted by the governor to a syndicate of Dutch and foreign operators.

Regular air and shipping connections were established with Australia, and via Singapore through to the Netherlands. The government of Indonesia, vexed by its unfulfilled ambitions of annexation (*see* INDONESIA), severed all connections between Indonesia and New Guinea after June 1951. In Nov. 1951 R. G. Casey, Australian minister of external affairs, paid a visit to the Netherlands government in The Hague to discuss matters of mutual interest concerning New Guinea. (W. G. P.)

Netherlands Overseas Territories: *see* Netherlands Antilles; Netherlands New Guinea; Surinam.

Neutrons: *see* Physics.

Nevada. A state of the mountain group of western states, Nevada was the 36th state to be admitted to the union, on Oct. 31, 1864; it is popularly called the "Sagebrush state" or the "Silver state." Land area 109,789 sq.mi.; water area 51 sq.mi. Pop. (1950 census) 160,083, a gain of 45.2% since 1940. Rural population 68,458; urban 91,625; white 149,907; nonwhite 10,176. The principal cities are: Carson City, the capital, 3,082; Reno, 32,497; Las Vegas, 24,624; Sparks, 8,203; Elko, 5,393; Ely, 3,558.

History.—The Nevada legislature considered many important issues in 1951. It passed a bill outlawing the union shop in Nevada. It enacted a basic science law, reorganized the state's only mental institution, created new departments of insurance and purchasing, abolished the valuation division of the state tax commission and increased the salaries of public officers and employees. It increased slightly monthly payments to old-age pensioners, but failed to pass an over-all public assistance measure. It reduced the state's share of the property tax from 72 cents to 69 cents per $100 of valuation.

On Jan. 1, 1952, elected state officers were: governor, Charles H. Russell; lieutenant governor, Clifford A. Jones; secretary of state, John Koontz; state controller, Peter Merialdo; state treasurer, Dan W. Franks; surveyor general, Louis D. Ferrari; inspector of mines, Mervin J. Gallagher; superintendent of state printing, J. A. McCarthy; clerk of the supreme court, Ned A. Turner; superintendent of public instruction, Glenn A. Duncan; attorney general, W. T. Mathews.

Education.—In June 1951 Nevada had 179 elementary schools with a total enrolment of 22,654; teachers numbered 870. High schools totalled 39, with an enrolment of 6,557, and were staffed by 329 teachers. Kindergarten enrolment was 1,937 in 15 kindergartens with 36 teachers. Total school population was 31,148. Average annual salaries paid to high school teachers was $3,456, to elementary teachers $3,037 and to kindergarten teachers $3,036. State-wide expenditures for elementary and secondary education, all schools, was $8,001,495 for the year, of which $2,415,247 was provided as state aid.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the fiscal year ending June 30, 1951, $623,971 was expended by the state health and welfare departments. In addition, $1,846,504 was expended for old-age assistance benefits to 2,775 persons, who received an average monthly amount of $50.32. On June 30, 1951, the state prison had 219 men and 3 women inmates; total expenditures for the fiscal year were $314,986. The Nevada school of industry had 28 boys and 3 girls under school control; total expenditures for the fiscal year were $46,157. The state hospital for mentally ill persons had 374 patients in average daily residence during the fiscal year; expenditures were $318,625. The state children's home had 46 boy and 48 girl residents during the fiscal year, and the cost to the state was $103,178.

Communications.—During the fiscal year ending June 30, 1951, the total disbursement for highways was $8,432,290. There were approximately 3,560 mi. of road in the designated state highway system. Railroad mileage totalled 1,645 in 1951. Motor vehicle registrations in 1951 totalled 81,907, of which 80,233 were privately owned and 1,674 publicly owned. There were 385 registered aircraft and 67 established airports in 1951.

Banking and Finance.—On July 1, 1951, there were 30 individual banking institutions in the state, of which 22 were branches, 5 were national banks and 3 were state banks. The resources of Nevada banks totalled $191,587,000, and deposits were listed at $178,738,000.

The credits of the state for the fiscal year ending June 30, 1951, amounted to $31,194,103; the debits to $29,075,115. There was a treasury balance of $8,062,183. The state had bonds outstanding in the amount of $955,000 for construction of office and institutional buildings. The par value of bonds and securities held by the state totalled $7,243,518, and they produced an income of $192,734. Nevada has no sales taxes, income taxes or inheritance taxes. A 2% tax on gambling netted the state $1,766,712, and a state property tax of 72 cents on each $100 of valuation netted $2,241,354. The total assessed valuation of the state for 1951 was $344,849,162.

Agriculture.—The total farm value of the principal crops in 1949 was $18,644,000; the total acreage harvested was 510,000. In 1949 the cash income from crops sold was $8,242,000; from livestock sold, $38,024,000; from government payments, $129,000.

Table I.—*Principal Crops of Nevada*

Crop	1951	1950	Average 1940–49
Barley, bu.	816,000	792,000	778,000
Potatoes, bu.	364,000	416,000	524,000
Wheat, bu.	502,000	471,000	529,000
Hay, tons	585,000	582,000	622,000
Oats, bu.	320,000	360,000	332,000
Corn, bu.	120,000	70,000	85,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Nevada*

(In short tons, except as noted)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Barite	47,608	$ 268,874	70,576	$ 416,416
Copper	52,569	21,868,700	38,058	14,994,852
Gold (oz.)	178,477	6,246,695	130,399	4,563,965
Gypsum	604,604	1,614,107	495,229	1,347,666
Lead	9,408	2,540,160	10,626	3,357,816
Mercury (flasks, 76 lb.)	680	55,257	4,170	331,348
Sand and gravel	2,617,052	2,253,258	1,346,608	1,212,166
Silver (oz.)	1,537,217	1,391,259	1,800,209	1,629,280
Stone	274,460	269,478	518,510	668,960
Talc	8,581	170,736	8,837	147,148
Tungsten concentrate (60% WO_3)	?	?	740	*
Zinc	21,606	6,136,104	20,443	5,069,864
Other minerals		?		3,636,557
Total		?		$37,376,038

*Value included with other minerals.

Manufacturing.—Manufacturing in Nevada is limited in scope and production. In 1947 there were 126 industrial establishments in the state, employing approximately 2,667 persons and paying approximately $8,409,000 in wages for the year. The value added by manufacturing was approximately $27,777,000. Expenditures for new plants and equipment totalled $2,959,000 in 1947. By 1951, chemicals and allied products were being manufactured in ever-increasing quantities by lessees at the state-owned Basic Magnesium project at Henderson, Nev. (J. E. Spr.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

New Brunswick. Second largest of the four Atlantic provinces of Canada, New Brunswick entered the confederation in 1867. Area: 27,985 sq.mi. Pop.: (1941) 457,401; (1951 census) 515,697.

History.—The third session of the 14th legislature, which continued under the power of Liberal Premier John B. McNair, passed an all-time record total of 239 bills. Rent controls, dropped by the federal government, were assumed by New Brunswick municipalities. In an effort to expand the New Brunswick market for manufactures, the maritime board of trade made representations to the provincial government to co-operate with other Atlantic province governments to work out a scheme for settlement of European immigrants on New Brunswick farms. About 60,000 U.S. tourists visited the Fundy National park, and a program of road and accommodation improvement was pushed forward, in order to increase the inflow of tourist dollars.

Education.—The provincial government co-operated with the federal department of agriculture in offering five-month courses in the science and practice of farming. Latest statistics available in 1951 for provincially controlled schools were for 1948: total enrolment, 98,331; average daily attendance, 81,057; teachers, 3,019; total revenue, $7,562,848.

Transportation.—Total paved highway mileage passed the 1,000-mi. mark. Because a 3% increase in the number of cars in 1950 over the number in 1949 was accompanied by a 14.7% increase in accidents, a new highway safety board was created in 1951.

Finance.—The government's decision to change the end of the fiscal year from Oct. 31 to March 31, to make it coincide with the federal fiscal year, complicated comparisons. For the Oct. 1949–Oct. 1950 year, revenues were $30,871,720 and expenditures were $29,113,491, providing the 11th consecutive annual surplus. For the period Oct. 31, 1950, to March 31, 1951, revenues were $16,799,483 and expenditures were $16,286,345. The provincial net debt on March 31, 1951, stood at $116,121,695 (compare Oct. 31, 1950, $107,969,637).

Agriculture.—An estimated 11,100,000 bu. of potatoes were produced in 1951 on about 50,000 ac.; a better than normal apple crop yielded about 335,000 bu., with McIntoshes accounting for about 45% and Cortlands 15% of the total. Oats running to 8,000,000 bu. led the grain crops. Agriculture trends included a swing from dairy to beef cattle, and an active drive by the government to increase the province's egg production.

Fisheries.—The total 1951 harvest of fish was abnormally low: 175,753,000 lb. for the Jan.–Sept. period, compared with 219,128,000 lb. for the same 1950 period.

Forestry.—In 1950 the province's seven paper mills had a gross output of about $80,000,000, and estimates for 1951 production topped that record by $10,000,000. An important development was the use of hardwoods in pulp production, to lessen the drain on softwoods and improve the management of forest areas. Crown stumpage rates for peeled spruce and fir pulpwood were raised from $3 to $4.50 and for poplar and hardwood pulpwood from $1.50 to $2.25.

Industry.—Industrial expansion took place not only in the pulp and paper field, but also in the fields of cement production, fish processing, woodworking and peat extraction. The possibility of obtaining an additional 500,000 h.p. of hydroelectric energy from the St. John river was under study by a joint Canadian-U.S. group. The latest production statistics available in 1951 were for 1948 (1945 in parentheses): gross value $412,711,909 ($258,227,300); net $204,384,387 ($139,435,400), which was 2.2% (2.5%) of the national net, or $406 ($298) per capita.

Minerals.—During 1951 operations began on stripping overburden from Grand lake coal mines, where additional reserves of 8,000,000 tons were discovered.

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New Caledonia: *see* PACIFIC ISLANDS, FRENCH.

Newfoundland and Labrador.

A province of Canada, Newfoundland joined the confederation in 1949. Area: Newfoundland Island, 42,734 sq.mi.; Labrador, *c.* 112,000 sq.mi. Pop.: Newfoundland (1951 prelim. census) 357,762; Labrador (1951 prelim. census) 7,847.

History.—On April 1, 1951, when the province opened its third year of confederation, Liberal Premier Joseph Smallwood, chief architect of union with Canada, stated the two parts of his program: first, the development of natural resources, and second, the creation of a great provincial co-operative movement. Considerable headway had been made with the first part of the program, according to Smallwood, when early in November he called a provincial election. By that date cement, plywood and gypsum factories had been built by the province and the Newfoundland-Labrador development corporation had been formed. Winning 22 of the 28 legislative seats at the Nov. 26 election (he held 20 seats upon dissolution), Smallwood launched the second phase of the economic program. It consisted of guaranteeing bonds for various European companies (lacking dollars but having machinery and know-how) to start steel, machinery, shoe and other industries. No work was done in 1951 on the definition of the Quebec-Labrador boundary.

Education.—During 1951 a serious teacher shortage kept more than 2,000 children from school. School attendance had increased from 75,006 in 1949 to 78,613 in 1950. The 1950–51 estimates allocated $5,453,500 for education.

Transportation.—About half of the 358-mi. Quebec North Shore and Labrador railway (from Sept Iles to Knob lake) was scheduled to run through Newfoundland territory. The federal government paid the island $1,000,000 on account for construction of the Newfoundland section of the Trans-Canada highway, and completion of the 610 mi. from St. John's to Port aux Basques was scheduled for 1953. Auto registrations increased from 12,009 in 1950 to 17,460 in 1951. The federal government charted the Newfoundland and Labrador coasts.

Finance.—Provincial revenues for the 1951–52 financial year were set at $30,694,300 (1950–51 $26,446,000), expenditures $28,829,100 (1950–51 $26,588,500).

Fisheries.—In the Jan.–Sept. 1951 period Newfoundland processed 33,305,000 lb. of frozen fish, compared with 33,841,000 lb. for the similar 1950 period.

Industry.—The provincial government invested a total of $6,425,000 in cement, plywood and gypsum plants and arranged for loans to European industrialists totalling about $25,000,000 to build leather, heavy machinery, cotton, construction, oil-processing, furniture, glass, chemical and other plants.

Minerals.—Much interest centered on the Quebec-Labrador iron ore development, where $200,000,000 was being invested with production expected to start in 1954. During the first half of 1951, compared with the same 1950 period, production of the following minerals was up: asbestos 25%; salt 34%; gypsum 8%; lime 20%. (C. CY.)

New Guinea: *see* NETHERLANDS NEW GUINEA; TRUST TERRITORIES.

New Hampshire.

One of the New England states of the United States and one of the original group of 13, New Hampshire is popularly known as the "Granite state." Area: 9,304 sq.mi., including 287 sq.mi. of inland water. Population (1950 census) was 533,242, representing a gain of 41,718 over the population for 1940, or 8.5%; 57.5% of the population was urban and 42.5% rural. In 1940 there were 490,989 whites, including 422,693 native-born and 68,296 foreign-born. Capital: Concord, with pop. (1950) of 27,988. Other cities: Manchester, 82,732; Nashua, 34,669; Portsmouth, 18,830; Berlin, 16,615; Dover, 15,874; and Keene, 15,638.

History.—The legislature met in regular session from Jan. 3 to Aug. 31, 1951, the longest session in the history of the state. The principal task was that of providing additional revenue to meet the state budget. Proposals for a state income tax, a sales tax, a lottery and an increased tax on betting at the Rockingham race track were rejected and the legislature finally resorted to an emergency head tax of $5, applying to all persons from 21 to 70. It was estimated that this levy would raise $1,275,000 a year, but in order to meet a remaining deficit it was necessary to utilize $1,700,000 of a $2,000,000 surplus left over from the war years. Taxes were also increased on gasoline, liquor and tobacco for an additional revenue of $1,000,000. State aid to education was increased from $400,000 to $600,000 a year. The legislature also passed an act making membership in the Communist party after Oct. 1 punishable by five years in prison, or a $5,000 fine, or both; an act authorizing the state highway department to issue bonds to the amount of $14,000,000 to initiate the financing of a 15-year road-improvement program; and an act authorizing the governor and executive council on behalf of the state to enter into a four-state Connecticut river flood control compact.

ICE SCULPTURE forming the traditional centrepiece for the annual Dartmouth Winter carnival in Hanover, N.H. The 1951 figure was a 24-ft. Swiss alpinist puffing his cheeks on a 40-ft. horn

State officers in 1951 were: governor, Sherman Adams; secretary of state, Enoch D. Fuller; state treasurer, Winfield J. Phillips (elected on June 20 to fill an existing vacancy); adjutant general, Charles F. Bowen; attorney general, Gordon M. Tiffany; commissioner of education, Hilton C. Buley; commissioner of agriculture, Perley I. Fitts.

Education.—In 1949–50 there were 469 public elementary schools in the state and 83 public secondary schools. In 1950–51 there were in the elementary schools 50,625 pupils and 1,821 teachers and in the secondary schools 23,568 pupils and 1,233 teachers. Total payments covering expenditures of school districts for year ending June 30, 1950, were $18,043,423.25. In 1949–50 Catholic parochial elementary schools had a total registration of 19,306, while other private elementary schools had a registration of 683. The total number of students enrolled in approved public academies, accredited secondary schools and other private secondary schools in 1949–50 was 6,440.

Other state educational institutions were the University of New Hampshire, at Durham; Keene Teachers college, at Keene; and Plymouth Teachers college, at Plymouth.

Social Insurance and Assistance, Public Welfare and Related Programs.—As of Nov. 1951 the numbers of those receiving public assistance under the Social Security act were as follows: old-age assistance, 7,027 cases for the month, with expenditures of $339,413; aid to dependent children, 1,482 families, representing 3,695 children, with expenditures of $158,158; aid to needy blind, 306 cases, with expenditures of $15,500. In each of the three categories the number of cases and expenditures represented a drop during the preceding twelve months. With a decrease in the direct relief case load from 3,216 in Dec. 1950 to 2,733 in Nov. 1951 there was a decrease in expenditures during the same period from $142,566 to $126,772. In the year 1949–50 New Hampshire received $3,085,000 in federal grants for public assistance, while in the same year assistance to recipients in the state amounted to $6,645,000. The sum of $5,139,000 was collected in contributions for unemployment insurance in 1950 and $7,765,000 paid in benefits under state laws. Funds available for benefits at the close of 1950 amounted to $19,863,000.

The net appropriation for the operation of the state prison at Concord for the fiscal year ending June 30, 1951, was $236,736.50; and for the Industrial School for Committed Minors at Manchester, $181,228.20.

Communications.—At the end of 1949 there were 12,511 mi. of rural roads in New Hampshire, including highways under state, local and federal control. Disbursements from state highway funds for 1949 amounted to $17,659,000. In 1949 there were 937 mi. of steam railways owned within the state as compared with 1,002 mi. in 1940. At the close of 1949 there were approximately 36,000 business and 105,000 residential telephones in operation.

Banking and Finance.—As of June 30, 1951 there were in New Hampshire 51 national banks with deposits of $185,182,000 and resources of $208,577,000, as compared with 51 banks with deposits and resources, respectively, on June 30, 1950, of $175,176,000 and $196,322,000. Fifty-seven state-chartered banks had deposits of $346,486,889 and resources of $413,532,250, as compared with 58 institutions reporting deposits and resources, respectively, of $360,628,387 and $409,565,741 on June 30, 1950. There were 24 state-chartered building and loan associations with assets of $28,248,416, as compared with 24 institutions with assets of $25,366,494 for the previous year 1950. As of June 30, 1950, state-chartered savings banks and savings departments of trust companies reported deposits of $344,932,569.40, an amount $4,106,750.01 more than the total for June 30, 1949, and an all-time high as of that date.

Cash receipts of the state treasury department for the fiscal year ending June 30, 1951, were $115,086,028.63; cash disbursements, $114,672,018.69. Cash balance, June 30, 1951, was $4,435,281.12; cash balance, July 1, 1950, was $4,021,271.18. The total net bond and note indebtedness on June 30, 1951, was $20,020,432.26.

Agriculture.—The estimated acreage from which crops were harvested or hay cut, or which was planted in orchards, amounted to 383,000 in 1949. Cash receipts from farm marketings in 1949 amounted to $63,413,000, with an additional $399,000 in government payments.

Table I.—*Principal Crops of New Hampshire*

Crop	1951	1950	Average 1940–49
Corn, bu.	602,000	672,000	527,000
Oats, bu.	180,000	205,000	239,000
Hay, tons	403,000	364,000	430,000
Potatoes, bu.	975,000	1,210,000	1,102,000
Apples, bu. (commercial)	988,000	1,100,000	740,000
Maple syrup, gal.	57,000	64,000	49,000
Maple sugar, lb.	14,000	22,000	18,000

Source: U.S. Department of Agriculture.

Manufacturing.—There were estimated to be about 1,075 manufacturing establishments in New Hampshire as of Sept. 1950, and approximately 83,000 persons employed as of Feb. 1951. A 1951 estimate reported that manufacturing pay rolls would probably exceed $400,000,000 in that year. The principal categories of manufactures were textiles, lumber products, paper, leather and leather products and machinery. (W. E. Ss.)

Table II.—*Mineral Production of New Hampshire*

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Sand and gravel (short tons)	1,713,284	$226,424	2,000,842	$ 236,895
Stone (short tons)	15,760	383,667	6,910	381,141
Other minerals		?		766,100
Total		?		$1,384,136

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

New Hebrides.

Anglo-French condominium; group of about 30 islands and many islets in the western Pacific. Area: *c.* 5,700 sq.mi. Pop. (1940 census, partly estimated): 45,000 excluding British (Dec. 1949, 436); French (1,230); Asiatics (1,828). Native population: Melanesian, some Polynesian admixture. Capital: Vila (pop. 1,200). Religion: mainly pagan. Resident commissioners: British, R. D. Blandy; French, P. Anthonioz.

There was still a severe shortage of labour in 1951, but high copra prices encouraged native as well as plantation production. Native production was about half the total.

Education.—Government primary schools, 2 French, 2 British; various mission schools.

Finance and Trade.—Currency: sterling and French. Budget (1950–51 est.): revenue £188,000; expenditure £176,000. Foreign trade (1950): imports £528,000; exports £1,419,000. Principal exports: copra (21,500 tons), kauri pine. (K. G. B.)

New Jersey.

New Jersey, the "Garden state," is one of the northeastern states of the United States, bordering the Atlantic ocean. It was the third state to enter the union, approving the constitution on Dec. 18, 1787. It has an area of 7,836 sq.mi. of which 314 sq.mi. are water. The population in 1950 numbered 4,835,329, of which 86.6% was urban and 94.3% was white. The population of the capital, Trenton, was 128,009 in 1950; other large cities were Newark, 438,776; Jersey City, 299,017; Paterson, 139,336; Camden, 124,555; and Elizabeth, 112,817.

History.—Some of the more important measures approved by the legislature in 1951 were: authorization for municipalities to establish consolidated local public health districts; assistance to permanently and totally disabled persons; ratification of the civil defense and military aid compact made with New York in Dec. 1950, and authorization of mutual aid between the New Jersey national guard and similar agencies in other states; more severe penalties for violation of state narcotic control laws; and ratification of the Water Project compact of the Interstate Commission on the Delaware River Basin. A general revision of the laws on civil and criminal procedure was approved by a special session of the legislature, and in November the voters approved a public referendum authorizing the issuance of $15,000,000 in bonds for state teachers' college construction and renovation.

The chief officers during 1951 were Alfred E. Driscoll, governor; Lloyd B. Marsh, secretary of state; Theodore Parsons, attorney general; Walter T. Margetts, Jr., state treasurer; and Arthur T. Vanderbilt, chief justice.

Education.—Public school day enrolment totalled 529,898 for grades 1 through 8 in 1951, enrolment for grades 9 to 12 was 158,159 and for special classes 6,639. Day school teachers numbered 28,457. The 4 universities, 9 liberal arts colleges, 8 professional and technical colleges and 11 junior colleges had a combined enrolment of 41,775 full-time and 17,215 part-time students in 1951. The 6 state teachers' colleges had a total enrolment of 6,778, while the 51 professional and technical schools had 1,786 full-time and 3,674 part-time students. The state commissioner of education was John H. Bosshart.

Social Insurance and Assistance, Public Welfare and Related Programs.—In June 1951 the state's welfare system cared for 13,136 patients in institutions for the mentally ill, 6,293 patients in institutions for the mentally deficient and epileptic, 2,648 patients in tuberculosis sanatoria, 666 pupils in training schools for juvenile delinquents and 217 veterans in soldiers' homes. Old-age assistance recipients numbered 23,227 in June 1951, with expenditures for the fiscal year 1950–51 totalling $12,939,948. The number of dependent children under the care of the state board of child welfare numbered 21,012 in June 1951, 781 received blind assistance and the number of general assistance recipients was 16,484. Expenditures for dependent children amounted to $5,502,152 for the fiscal year ended June 30, 1951, and aid to the blind totalled $341,988. During the calendar year 1951, first payments were made to 199,043 applicants for unemployment insurance and benefit payments totalled $44,157,341; disability benefits amounted to $5,274,341.

The six institutions for adult offenders contained 4,049 inmates in June 1951, and cost $3,583,634 to maintain during the fiscal year 1950–51.

Communications.—The total highway mileage of New Jersey in 1950 was 28,550. This consisted of 6,560 mi. of county roads, 13,700 mi. of improved municipal roads, 6,100 mi. of unimproved municipal roads and 2,190 mi. of state roads. Traffic congestion was greatly eased with the opening in Nov. 1951 of the 118-mi., $255,000,000 New Jersey turnpike connecting Delaware with New York.

In 1950 railroad track mileage totalled 3,128, while line mileage amounted to 1,998. The number of commercial and municipal airports within the state in 1950 was 88. Telephones in service numbered 1,643,000.

Banking and Insurance.—Deposits of the 141 institutions under the supervision of the state department of banking and insurance amounted to $3,104,786,000 on Dec. 31, 1951, an increase of $169,493,000 over the previous year. The deposits of the 118 commercial institutions were $2,441,707,000, an increase of 10.7%. The number of national banks in New Jersey numbered 202 in Oct. 1951, with total assets of $2,777,571,000. The 470 state-chartered savings and loan associations had assets of $621,748,230 on Dec. 31, 1950.

State expenditures for the fiscal year 1950–51 totalled $164,313,033.

Agriculture.—In 1950 the total value of agricultural production was $291,141,000. Cash income from crops amounted to $102,595,000, from livestock $187,534,000 and from government payments $911,000. The value of the 19 truck crops for fresh market (excluding potatoes and strawberries) totalled $30,316,000.

Manufacturing.—The value added by manufacture of all industries in New Jersey in 1950 amounted to $4,867,312,000 as compared with $4,206,331,000 in 1949. The number of employees engaged in manufacture totalled

Table I.—*Principal Crops of New Jersey*

	1951	1950	Average, 1940–49
Corn, bu.	9,712,000	9,342,000	7,816,000
Wheat, bu.	2,106,000	1,677,000	1,440,000
Hay, short tons	467,000	447,000	426,000
White potatoes, bu.	7,476,000	12,502,000	11,213,000
Sweet potatoes, bu.	2,310,000	2,805,000	2,185,000
Asparagus, fresh, 30-lb. crates	1,045,000	990,000	—
Asparagus for processing, tons	22,000	21,000	—
Green peppers, bu.	1,936,000	2,092,000	—
Tomatoes for fresh market, bu.	2,090,000	1,995,000	—
Tomatoes for processing, tons	316,000	263,000	—
Apples, bu.	3,200,000	2,520,000	2,455,000
Peaches, bu.	2,116,000	1,810,000	1,498,000

717,562 in 1950, an increase of 32,659 over the preceding year. They received a total of $2,486,594,000 in salaries and wages in 1950.

(R. H. M.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and corresponding data for 1950.

Table II.—*Mineral Production of New Jersey*

(In short tons)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clay	602,369	$1,277,860	537,480	$1,314,186
Coke*	1,481,030	?	1,345,094	?
Iron ore	658,783	5,651,563	502,308	4,468,575
Manganiferous residuum	183,842	?	158,902	†
Marl (greensand)	3,935	304,321	6,128	276,564
Peat	26,466	186,338	25,500	180,750
Sand and gravel	7,620,422	8,636,141	5,555,121	6,981,862
Sandstone, ground	131,744	936,817	107,946	755,215
Stone	4,672,050	9,119,251	4,070,790	7,896,619
Zinc	55,029	17,258,637	50,984	14,443,062
Other minerals		?		2,266,802
Total		?		$38,584,000

*Values for processed materials are not included in the totals.
†Value included with other minerals.

New Mexico.

Fourth largest state in the southwestern United States, popularly known as the "Sunshine state," New Mexico was admitted to the union in 1912. Area: 121,666 sq.mi. (121,511 sq.mi. land, 155 sq.mi. water); pop.: (1950) 681,187, a 28.1% increase over 1940; rural 339,298; urban 341,889; white 630,211; nonwhite 50,976. Capital, Santa Fe (27,998). Other cities: Albuquerque (96,815, 173.1% increase); Roswell (25,738); Carlsbad (17,975); Clovis (17,318); Hobbs (13,875); Las Cruces (12,325).

History.—The first Republican governor in New Mexico in 20 years took office in 1951. Otherwise the administration, legislature and congressional representation were Democratic. The chief officers of the state elected in 1950 were: governor, Edwin L. Mechem; lieutenant governor, Tibo J. Chavez; secretary of state, Beatrice Bassett Roach; auditor, Robert Donald "Bob" Castner; treasurer, R. R. Grissom; attorney general, Joe L. Martinez; superintendent of public instruction, Tom Wiley.

The 1951 legislature rescinded the Indian liquor prohibition law; created a nine-member bipartisan legislative council and a board of educational finance for institutions of higher education, and modified the primary law to provide for a preprimary nominating convention. The gasoline tax was reduced from seven cents to six cents, and the Kit Carson Memorial state park was established at Taos.

Education.—For the school year 1950–51, 3,886 teachers served in municipal schools at an average salary of $3,401.44, and 1,387 teachers in rural schools at $3,006.18. The total pupil enrolment was 155,661 and total expenditures were $35,310,483.50.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1951, $1,031,350 was paid out for civilian unemployment benefits; for unemployed veterans $16,614; and for self-employed veterans $1,200.

On June 30, 1951, an estimated $2,963,304 had been spent for old-age and survivors insurance.

The penitentiary appropriation was $400,000 for 683 inmates (Sept. 1); insane asylum $1,200,000, 1,109 inmates (Sept. 1); Los Lunas Mental hospital $177,000, 118 inmates (November); industrial school $65,000, 147 inmates (December); Girls' Welfare home $190,000, 149 inmates (December).

Communication.—New Mexico had an estimated 57,545 mi. of unpaved and 5,832 mi. of paved roads in 1951. The state highway department expended $20,229,245.69. Steam railway companies operated 2,495 mi. of main track. There were 95 airports; 1,939 mi. of controlled civil airways; and 4 scheduled air carriers. There were about 129,775 telephones.

Banking and Finance.—On June 30, 1951, there were 26 national banks with total deposits of $252,203,000; loans $89,227,000; investments $97,977,000; and on Dec. 30, 1950, there were 25 state banks with deposits of $98,605,964.52; loans $34,551,774.48; investments $40,284,768.77. Total resources of 11 building and loan associations in 1950 were $13,143,402.49 and of 7 federal savings and loan associations $21,596,277.41.

Table I.—*Principal Crops of New Mexico*

Crop	1951	1950	Average 1940–49
All hay, tons	418,000	408,000	477,000
Grain sorghums, bu.	3,410,000	8,417,000	3,509,000
Winter wheat, bu.	786,000	760,000	3,867,000
Corn, bu	1,116,000	1,280,000	2,378,000
Beans, dry, bags	140,000	208,000	661,000
Cotton, bales	284,000	187,000	151,000
Cottonseed, tons	114,000	76,000	60,000
Forage sorghum, tons	160,000	168,000	216,000
Broomcorn, tons	4,400	3,500	6,520
Peanuts, lb.	7,000,000	5,740,000	8,483,000
Apples, bu.	938,000	188,000	746,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of New Mexico*

(Short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Coal	726,958	$ 3,917,461	1,004,034	$ 5,226,678
Copper	66,300	27,580,800	55,388	21,822,872
Fluorspar	20,036	742,408	12,844	446,086
Gold (oz.)	3,414	119,490	3,249	113,715
Lead	4,150	1,120,500	4,652	1,470,032
Manganiferous ore	74,348	?	65,511	*
Natural gas (000 cu. ft.)	197,800,000	6,330,000	204,961,000	5,985,000
Natural gasoline (gal.)	127,849,000	8,921,000	114,780,000	7,728,000
Petroleum (bbl.)	48,001,000	116,640,444	47,645,000	116,250,000
Petroleum gases (gal.)	86,263,000	2,053,000	54,275,000	1,462,000
Potassium salts (K_2O equiv.)	1,072,772	31,944,365	932,407	27,950,111
Pumice	351,642	1,109,883	351,368	1,026,479
Sand and gravel	937,653	923,270	883,223	610,839
Silver (oz.)	338,581	306,433	380,855	344,693
Stone	364,930	243,841	135,290	106,135
Zinc	29,263	8,310,692	29,346	7,277,808
Other Minerals		?		1,004,118
Total				$198,824,566

*Value included with other minerals.

The total of all state receipts for the fiscal year ending June 30, 1951, was $101,274,325.27. The total bonded debt was $20,573,000.

Agriculture.—The total estimated value of agricultural production in 1951 was $109,229,000; acreage harvested 1,398,000. Livestock was estimated at $232,269,000 (Jan. 1, 1951).

Manufacturing.—Manufactured products were valued at $102,997,000 and an average of 13,512 employees received $38,971,000 in wages and salaries in 1950.

(F. D. R.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for those commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the end of 1951.

Newspapers and Magazines.

U.S. Newspapers.—The death of William Randolph Hearst, creator of one of the greatest chains of newspapers, magazines and radio stations and one of the most potent influences on American journalism in the first half of the 20th century, was perhaps the biggest news among U.S. newspapers and magazines during 1951. He died on Aug. 14.

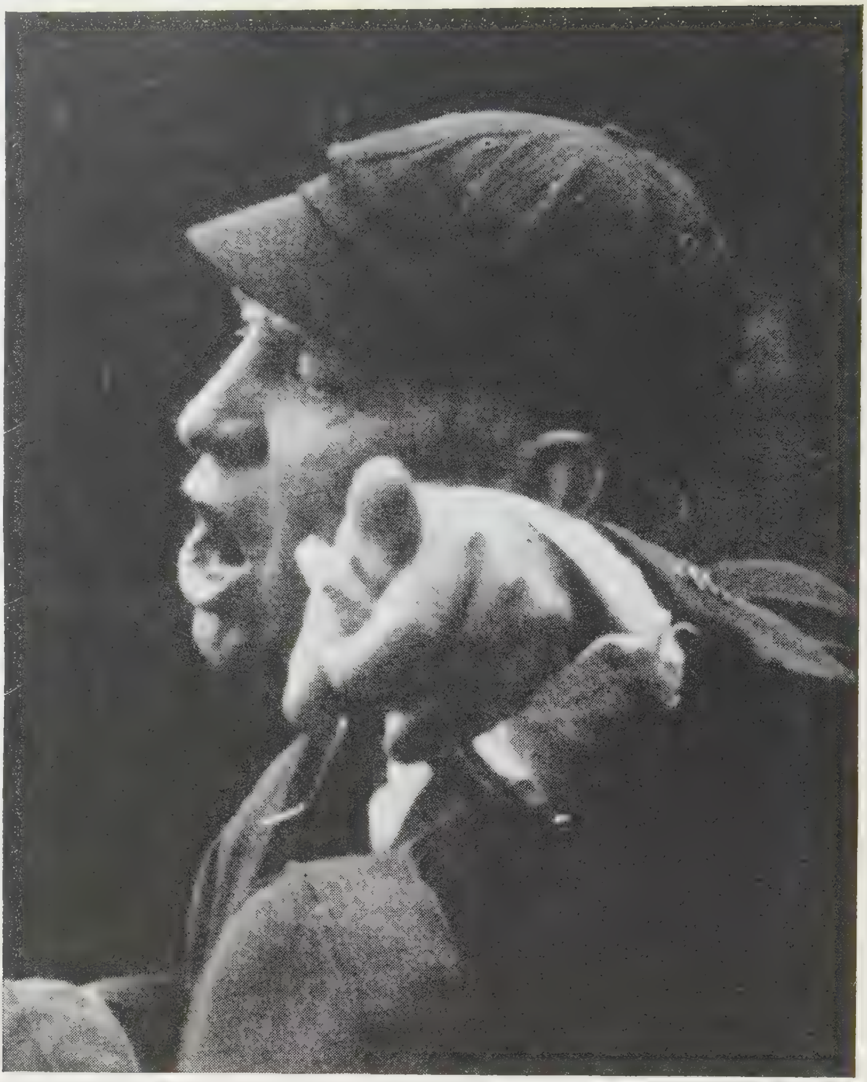
"The ten biggest news stories of 1951," as selected by United Press editors, were: (1) Pres. Harry S. Truman fires Gen. Douglas MacArthur; (2) Korean armistice negotiations; (3) Kefauver crime hearings; (4) government controls to combat inflation; (5) Korean war atrocities; (6) amateur sports scandals; (7) internal revenue dismissals; (8) Winston Churchill's return to power; (9) Missouri-Kansas floods; (10) development of tactical atomic weapons. Other stories "nominated" were: Japanese peace treaty; 85 killed in Woodbridge, N.J., train wreck; Anglo-Iranian oil dispute; National league pennant play-off; persecution of Americans behind the "iron curtain"; congressional investigation of the Reconstruction Finance corporation; Gen. Dwight D. Eisenhower's North Atlantic Treaty Organization mission; and the Suez-Sudan crisis.

The first ten-cent daily newspapers, appearing on California newsstands, climaxed a year of difficult finances. For the fifth year, newspaper income climbed—58% above 1946—but costs soared faster—68%—leaving only a 5% gain in profit margin. Hundreds of newspapers raised subscription rates, but total circulation rose again—perhaps 1.5% above the 53,829,072 daily of 1950. Advertising linage increased about 3% over 1950, but was greatest in classified want ads; advertising rates increased an average of 15%. Labour costs continued to rise; paper went

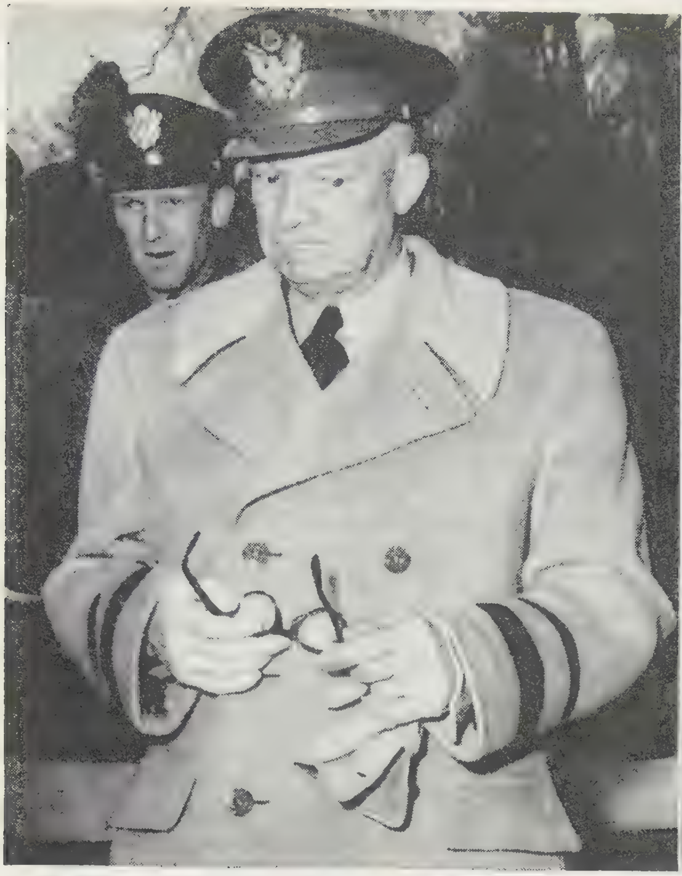
CONTEST WINNERS

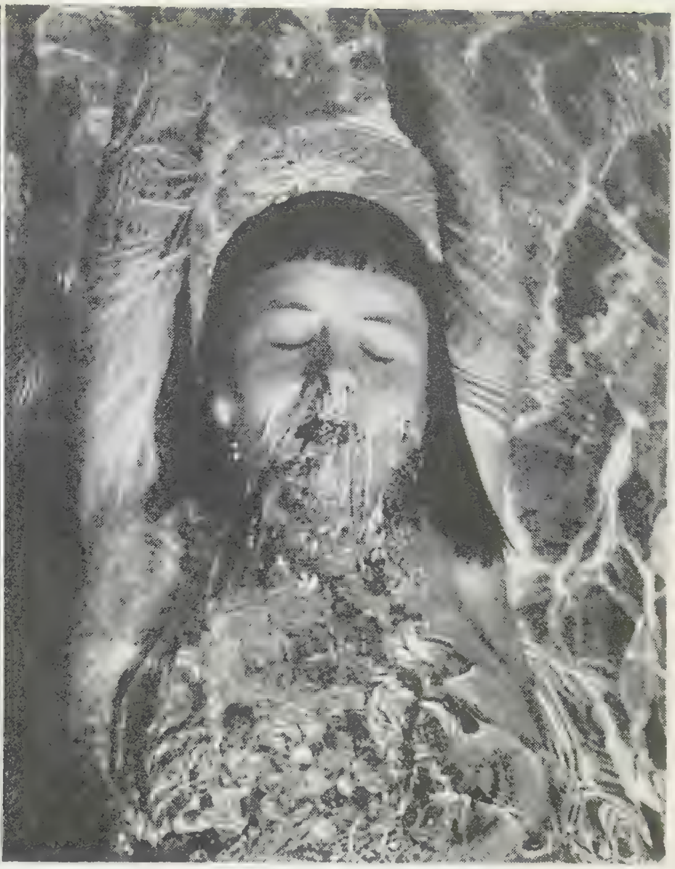
"NEWS PICTURES OF THE YEAR"

Right: "You Heard Me," first-prize winner in the SPORTS category, photographed by Steve Sintay of the *Detroit Times*, as Umpire Charles F. Berry ordered Robert A. (Red) Rolfe, manager of the Detroit Tigers, from the game



Below: "Eileen Recovers from Polio," from a story sequence photographed for the *Woman's Home Companion* by Suzanne Szasz and awarded first prize in the feature class of the PICTURE STORY category

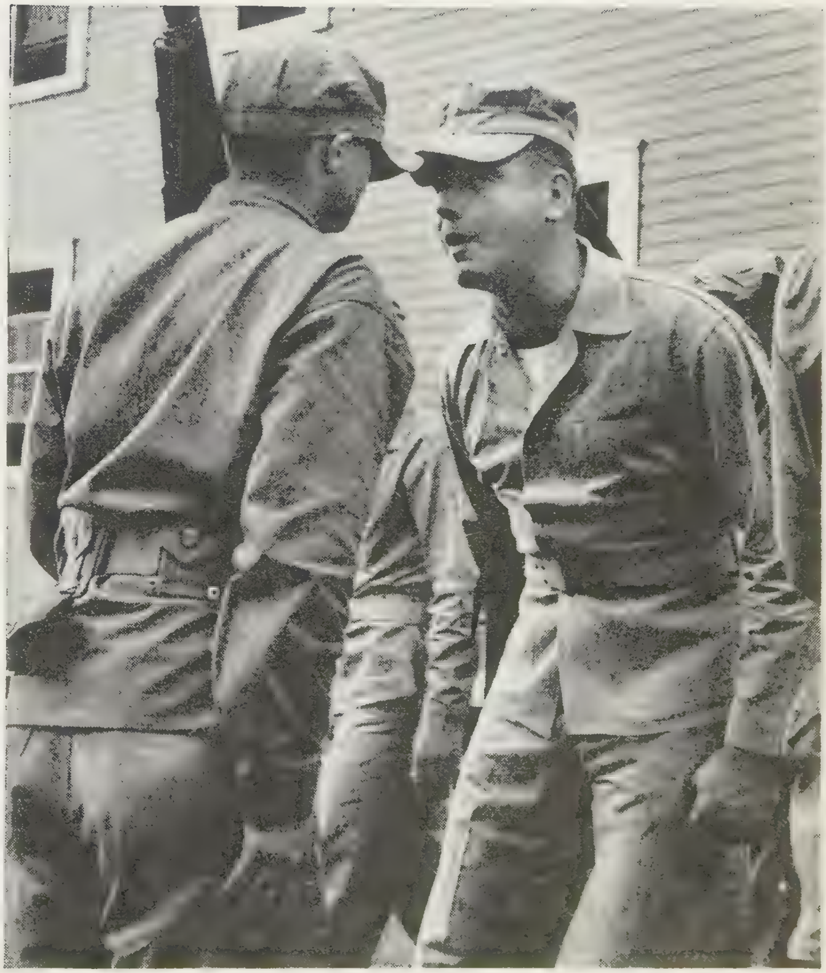




Above, left: "Well I'll be Darned!" prize-winning NEWS photograph from the Associated Press by *Stars and Stripes* photographer Francis J. Grandy. The picture was titled from Gen. Dwight D. Eisenhower's comment at Coblenz, Ger., April 11, 1951, when he heard the news of Gen. Douglas MacArthur's dismissal from Allied command in the far east

Above, right: "Mermaid," by Leonard McCombe of *Life* magazine, was chosen for first prize in the FEATURE category

Right: "Marine Boot Training," by Mark Kauffman of *Life* magazine, part of a photo sequence included in his first-prize PORTFOLIO. Kauffman was chosen "Photographer of the Year," the third consecutive year in which a *Life* photographer won the competition's highest award



Prize-winning photographs chosen in the ninth annual international "News Pictures of the Year" competition and exhibition, jointly sponsored by the *Britannica Book of the Year* and the University of Missouri school of journalism. With more than 80 additional "best-of-show" prints from the competition, these pictures were published in the book *News Pictures of the Year* by Louis Mariano, Chicago, Ill. The pictures were judged in several categories, and the outstanding prints in each category formed a travelling exhibition which was offered for display at colleges and schools of journalism and under the auspices of newspapers and camera clubs throughout North America.

MARK KAUFFMAN of *Life* magazine, "Photographer of the Year" for 1951

up $10 a ton to an average of $116; Western Union raised wire charges 15%; United Press levied a 10% assessment; but there were fewer mergers or suspensions than in other recent years. Congress voted higher postal rates—30% spread over three years—with the first 10% to go into effect on April 1, 1952.

Paper shortage, threatened early in the year, eased during the summer as production reached a new peak and consumption declined slightly; the mills produced about 6,620,000 tons while newspaper use was down 2% below the 5,500,000 tons of 1950. The July price rise came during futile appeals to the Office of Price Stabilization (OPS). The Knight Newspapers (led by the *Chicago Daily News*) spent $2,500,000 to buy a paper mill, a midwest group paid $1,500,000 for a Minnesota mill and a New Jersey publisher paid $4,000,000 for a mill.

Although few strikes occurred during the year, the International Typographical union (I.T.U.) launched a project of publishing newspapers of its own "to break monopoly." Calling its project Unitypo, I.T.U. planned to start nine newspapers and actually began four—in Meriden, Conn., Monroe, La., Texarkana, Tex., and Springfield, Mo. The American Newspaper guild also planned a national labour daily to be called *National Reporter*. Efforts to enforce the Oct. 28, 1949, order of the National Labor Relations board against I.T.U. insistence on the closed shop, in violation of the Taft-Hartley law, was taken into federal court in Chicago in January and hung fire through the year. Court action ended strikes of delivery men in New York city and of union printers in Miami, Fla., but three newspapers in Cleveland, O., were tied up for eight days. I.T.U. attempted, through wire unions, to gain jurisdiction over the new teletypesetter circuits. The guild set a new goal of $138.40 a week, including a 15% increase in New York, and sent 35 organizers to a training school at the University of Wisconsin, Madison.

A boom of teletypesetter wire news circuits was the mechanical innovation of 1951. As more newspapers equipped their linotypes for operation by perforated tape, a few newspapers had tried transmitting perforated tape by wire. Early in 1951 the three wire services promoted circuits whose teletypes supplied perforated linotype tape along with typewritten news copy. By July, Associated Press had five such circuits and projected teletypesetter service to 300 newspapers. Beginning with a 25-paper circuit in Oklahoma, United Press planned teletypesetter service for 150 to 200 clients and International News Service prepared to serve 150 or more. State-wide teletypesetter circuits appeared in Illinois, Wisconsin and other states. The big new competitor of the newspaper—television—caused worry in newspaper offices, but surveys of TV homes showed only slight drop in newspaper reading. United Press began to supply television stations with a new Movietone news service. United Press in December bought Acme Newspictures to launch U.P. Telephoto service, to compete with A.P. Wirephoto.

Four antitrust suits by the federal department of justice, to attack newspaper monopolies, led journalistic court actions during 1951. The action against the *Lorain Journal,* O., started in 1950, resulted in a federal court injunction in Jan. 1951, forbidding the newspaper to refuse ads of merchants who used a competing radio station, and was upheld by the U.S. supreme court in December. A similar action was started against the *New Orleans Times-Picayune,* La., for its "unit" combination rates with another newspaper, the *States*. Suit was filed in Tampa, Fla., in June, against the Western Newspaper Union attacking its monopoly of "ready print" material for weekly newspapers. Antitrust action was also brought against the *Mansfield News-Journal,* O. Five newspapermen in Lake Charles, La., faced trial for "criminally defaming" 3 gamblers and 16 public officials in a vice crusade. In March, columnist Drew Pearson brought a $5,100,000 libel suit against ten defendants. Widespread newspaper protest resulted from the Sept. 25 "security order" of Pres. Harry S. Truman authorizing federal executive agencies to withhold various types of news from the press.

The Korean war, "most reported war in history," resulted in an increasing casualty list of newsmen and photographers—15 killed, 2 captured, several missing and 6 awarded Purple Hearts. Newspaper protest against military censorship and inadequate communications continued. The United Nations Convention on Freedom of Information (world free press), after three years of debate, was revised in a new draft in February and further discussed in Geneva, Switz., but was vigorously opposed by U.S. and British newspapermen. Trial on charges of espionage of William N. Oatis, U.S. Associated Press correspondent in Prague, aroused demands from newspaper groups for action by the U.S. government, but he was still in prison in Czechoslovakia at the year's end. An effort to bar representatives of Tass, soviet news agency, from congressional press galleries resulted in the refusal of the standing committee on Sept. 20 to expel them. Alberto Gainza Paz, editor-publisher of *La Prensa* of Buenos Aires, Arg., who had been ousted by Pres. Juan Perón, was honoured by 33 editors at Northwestern university, Evanston, Ill., Oct. 1 and later in New York city. Press services carried 1,850,000 words and 700 pictures on the signing of the Japanese peace treaty in San Francisco, Calif., in September.

The *New York Times* celebrated its 100th birthday on Sept. 18 with the publication of a book by Meyer Berger. The *New York Post* celebrated its 150th birthday on Nov. 12. The *St. Louis Star-Times* was merged with the *St. Louis Post-Dispatch* in June. Col. R. R. McCormick of the *Chicago Tribune,* owner of the *Washington Times-Herald,* took over as editor-publisher in April. Ridder Brothers sold the *Chicago Journal of Commerce* to the Dow Jones *Wall Street Journal* in January. Dailies merged and reorganized in Davenport, Ia., and Lincoln, Neb. New papers started were the *New York Review,* the *Chicago Oil Daily,* the *New York Protestant World,* and the Catholic *New York Banner*. Costly new buildings were opened by the *Washington Times-Herald,* the *Hartford Courant* (Conn.), the *South Bend Tribune* (Ind.), and the *Lansing State Journal* (Mich.). The Communist *Daily Worker* struggled against financial difficulties all the year. The total of accredited schools of journalism increased to 40 in 27 states, and Frank L. Mott, dean of the University of Missouri (Columbia) school of journalism, retired.

U.S. Magazines.—The year 1951 brought greater income, soaring costs and narrower profits to magazine publishers. Advertising reached an all-time high, and rates were raised 6% to 10%. Printers' wages went up 12%. A threatened paper shortage was relieved by 800,000-ton increased production, in spite of a shortage of sulphur, but prices rose $10 in August to an average of more than $200 a ton. Publishers worried over the new postal rates coming in 1952—not only the three-year 30% increase in second class but also the 50% increase in third class, which affected magazines more. Newsstand sales went up 5% with fewer "returns." Surveys relieved the fear that television would reduce magazine reading and advertising. Comic magazines increased from 250 to 400 titles, with weekly newsstand sales of 50,000,000, and campaigned against the use of narcotics by youths. Church groups attacked "girlie" and picture magazines in many cities. *Ladies' Home Journal, Life, True Confessions* and the *Saturday Evening Post* led newsstand sales, in that order. *Time*'s four plane-delivered foreign editions, started in 1941, attained 1,500,000 circulation. Men's magazines grew in popularity, especially *Argosy, Esquire, True, Field and Stream, Outdoor Life*—and a new $3 men's magazine, *Gentry,* was started. Service magazines (telling how to do something) tended to lead all other types. The new Negro magazines grew, especially in the south. *American Weekly* adopted a new rotogravure printing process. (G. M. Hy.)

Canada.—Soaring publishing costs were reflected in 1951 not only in climbing subscription rates but also in higher advertising rates. For the first six months of 1951 space rates in 62 daily papers went up an average of 12.5%, in 93 trade and business publications an average of 15% and in 10 farm publications 15%.

During the year, the *Edmonton Bulletin* suspended operations; the Roy Thomson chain of dailies expanded to 14 with the purchase of the *Oshawa Times-Gazette;* the *Vancouver Sun* bought the *Vancouver News-Herald,* and the rival *Victoria Times* (evening) and the *Victoria Colonist* (morning) moved to the same building and shared composing room equipment and composing room staff, but otherwise maintained separate identities.

YOUR EDITORS OUGHT TO HAVE MORE SENSE THAN TO PRINT WHAT I SAY !
PRESS
Packer

"CLASSIFIED!" a cartoon by Packer of the *New York Daily Mirror,* published in 1951

The post office increased the postal rate on newspapers (with 50% advertising) from one and one-half to three and one-fourth cents per pound. The voluntary Canadian central registry of subscription representatives, whose purpose it was to control and regulate subscription selling of magazines, went into action. The *Montreal Standard* launched a week-end magazine section on Sept. 8, called *Weekend Picture Magazine,* and by the end of the year had sold it to about ten dailies which abandoned their own magazine sections. The Canadian Press opened a French-language service. (C. Cy.)

Great Britain.—The fear that any further advance in newsprint prices would affect the selling prices of newspapers became a reality in 1951. The *Scotsman* and the *Glasgow Herald* set the pace at the beginning of April by advancing their prices from *2d.* to *3d.,* and they were followed a month later (May 7) by the London dailies and by most of the provincials—the penny papers advancing to 1½*d.* and the prices of the others increasing by varying amounts. Sunday newspapers that had previously cost *2d.* were raised to 2½*d.* As a result, the circulation of almost every newspaper in the country decreased. The *Times* (London), already *3d.,* was one of the few newspapers which made no change in its selling price.

Reuters, Great Britain's chief news agency, celebrated its centenary during the year and the *Sunday Dispatch* celebrated its 150th anniversary.

The periodical press suffered a cut in newsprint in March 1951 amounting to 20% for large users and 10% for small users. The majority of large circulation periodicals were not affected by this cut, as they mostly used mechanical printing paper, which was uncontrolled. The rise in paper and production costs caused increases in advertisement rates, and nearly 300 publications raised their selling prices. To meet increased costs amounting to nearly £1,000,000 a year, the *Radio Times,* with its 8,000,000 circulation, went from *2d.* to *3d.*

Commonwealth.—A nonpolitical magazine, the *African Drum,* catering to African readers, made its appearance in Capetown. *Die Volkstem* of Pretoria, dating from 1873, suspended publication temporarily because of rising costs. The *Rhodesian Herald,* the oldest newspaper in Rhodesia, celebrated its diamond jubilee.

The selling price of Australian newspapers was advanced to *4d.* in Sydney and *3d.* in other cities, and was followed by some reduction in circulations. The Adelaide weekly magazine *Express* ceased publication.

In China, the *Hongkong Telegraph* discontinued publication, and the *North-China Daily News* closed down because of the steady decline of the foreign population and the Chinese decision not to allow news from foreign sources.

The ten-year-old *Daily Express,* Jamaica's only evening newspaper, ceased publication because of newsprint difficulties.

Among proposals to amend India's constitution introduced in May was one which gave the government power to curb the press under certain circumstances. Opposition to the amendment was expressed by all sections of the newspaper industry.

In Singapore, the Malay vernacular newspaper *Malayu Raya* was banned for nine months because of "systematic publication of material concerning the Maria Hertogh case in such a manner as to inflame inter-religious and inter-racial antagonism."

Europe.—During 1951, price increases and cuts in the size of newspapers were made in many countries. France, western Ger-

Number of Daily Newspapers in the World, 1950-51

(Except as indicated, the following data were derived from enumerations of the lists in *Editor & Publisher International Year Book*, 1951 (1951) and represent papers in course of publication in the latter part of 1950. Papers published less than five times a week are not included in this table.)

Afghanistan*	15
Alaska	7
Albania*	12
Algeria*	10
Anglo-Egyptian Sudan (condominium)†	4
Angola*	3
Argentina	182
Australia†	62
Austria	34
Azores*	7
Balearic Islands†	5
Belgian Congo†	4
Belgium	42
Bermuda†	2
Bolivia	7
Borneo†	3
Brazil‡	254
British Guiana†	3
British Honduras†	1
British West Indies†	14
Bulgaria	9
Burma†	31
Canada	95
Canary Islands†	5
Ceylon†	8
Channel Islands†	3
Chile	52
China§	450
Colombia	26
Costa Rica	6
Cuba	51
Cyprus†	12
Czechoslovakia	20
Denmark*	131
Dominican Republic	5
Ecuador	26
Egypt*	50
Eire†	8
England†	108
Fiji Islands†	1
Finland	58
France*	180
French Equatorial Africa*	2
French West Africa*	5
Germany	399
Gibraltar†	1
Gold Coast†	9
Greece*	60
Greenland*	1
Guatemala	5
Haiti	6
Hawaii	4
Honduras	2
Hong Kong†	15
Hungary*	53
Iceland	5
India‖	300
Indochina*	30
Indonesia, United States of*	81
Iran*	35
Iraq	25
Ireland, Northern†	5
Israel	14
Italy*	92
Japan¶	193
Jordan*	6
Kashmir*	7
Kenya†	4
Korea, South*	48
Lebanon*	40
Leeward Islands*	4
Liberia‡	1
Libya‡	2
Luxembourg*	5
Macao*	1
Madagascar*	4
Madeira*	5
Malaya, Federation of†	20
Malta†	4
Man, Isle of†	1
Martinique	1
Mauritius†	9
Mexico	101
Morocco*	11
Mozambique*	3
Netherlands*	133
Netherlands Antilles	5
New Caledonia*	1
New Zealand†	48
Nicaragua	10
Nigeria†	8
Norway*	209
Pakistan†	41
Panamá	6
Paraguay	6
Peru	52
Philippines, Republic of the	13
Poland	34
Portugal*	33
Portuguese India†	2
Puerto Rico	6
Réunion*	2
Rhodesia, Southern†	2
Rumania	40
Salvador, El	8
Saudi Arabia*	2
Scotland†	16
Seychelles†	1
Sierra Leone†	4
Singapore†	16
Somaliland*	2
South Africa, Union of†	18
Spain	105
Sweden	129
Switzerland	117
Syria*	35
Tanganyika†	3
Tangier*	2
Thailand*	22
Togoland*	1
Trieste*	5
Tunisia*	9
Turkey*	72
Union of Soviet Socialist Republics§	500
United States (continental)♀	1,873
Uruguay	30
Vatican City*	1
Venezuela	24
Virgin Islands	3
Wales†	4
Windward Islands*	3
Yugoslavia	18
Zanzibar†	1

*United Nations Educational, Scientific and Cultural Organization, *Mass Communications: Press, Radio, Film* (Paris, 1950).

†Benn Brothers, Ltd., *The Newspaper Press Directory and Advertisers' Guide* (London, 1951).

‡Diplomatic sources—embassies and consulates.

§Estimates. U.S.S.R. information agencies do not differentiate between dailies and papers and bulletins published one to four times a week.

‖Estimate. See *India Press Yearbook for 1950* (Madras, 1950). Benn's *Newspaper Press Directory* lists by name 217.

¶Japan Newspaper Publishers and Editors Association, *The Japanese Press 1951* (Tokyo, 1951).

♀N. W. Ayer & Son's *Directory of Newspapers and Periodicals, 1952* (1952). Data are for 1951. Data on U.S. newspapers in *Editor & Publisher International Year Book* are limited to English language dailies of general circulation; this reduces the Ayer total by more than 100.

(F.L.Mt.)

many, Greece, Spain and Yugoslavia were among those which received emergency allocations from the International Materials conference. An international press institute was established with headquarters in Zürich, Switz., and E. J. B. Rose of the *London Observer* was appointed its first director.

The Belgian Press association declared that the existence and independence of the press were threatened by rising costs and requested the government to abolish or reduce import duties on newsprint.

In France, the steep increase in the price of newsprint brought a request for a government subsidy to keep prices stable. Several newspapers found themselves in financial difficulties and *L'Aube* temporarily suspended publication. The selling price of Paris newspapers was twice increased during the year; those previously costing 10 fr. jumped to 15 fr.

In Germany, many of the small newspapers promoted by former nazi printers and publishers, which began operations in the autumn of 1949 when the licensing system was ended, ceased publication. The newspapers started with the aid of the western Allies had held their own generally with little loss of circulation. There were in western Germany about 950 daily newspapers with a total circulation of 14,000,000, but only three had circulations of more than 250,000 each. All the 16 Communist newspapers appearing daily in western Germany came in for terms of 90 days' suspension during the year.

The Greek government suppressed the left-wing *Democraticos*. Italian newspapers increased their selling prices from 20 to 25 lire. The *Corriere della Sera* of Milan had a 75th anniversary. In Poland, two important dailies ceased publication. In Sweden, where there were about 240 dailies, newspaper sales had increased by 40% after 1942.

Sweden increased the tax on exported newsprint from £3 10*s.* to £18 a ton.

A new fortnightly magazine called *News*, printed in English, made its appearance in Moscow. The British government closed down the *Soviet Monitor*, the radio monitoring service maintained by the soviet Tass agency. (*See* also ADVERTISING.)

(D. HN.)

The University of Missouri school of journalism, in its 22nd annual presentation, gave awards for distinguished service in journalism to the following during the university's journalism week, May 1–5, 1951: Marquis Childs, Washington columnist of United Feature Syndicate; George Horace Gallup, director, American Institute of Public Opinion; the *Minneapolis Star* and *Tribune*, Minn.; George H. Scruton, editor and publisher, the *Sedalia Democrat* (Mo.); and Lee Hills, managing editor, the *Miami Herald*, Fla.

FILMS OF 1951.—*City Desk Item* (Almanac Films, Inc.); *How to Read a Newspaper* (Coronet Films).

New York.

New York, one of the original 13 states, has been known since 1784 as the "Empire state." Northernmost of the middle Atlantic states, it covers an area of 49,576 sq.mi., of which 1,632 sq.mi. are water. It is the most populous of the states of the United States, the 1950 census giving it a total of 14,830,192 persons, or 9.8% more than in 1940. The principal cities and their 1950 populations are: New York 7,891,957; Buffalo 580,132; Rochester 332,488; Syracuse 220,583; Yonkers 152,798; Albany (state capital) 134,995; Utica 101,531; Schenectady 91,785; Niagara Falls 90,872; Binghamton 80,674.

History.—Of the 1,266 bills passed by the 1951 legislature, 838 were signed by Gov. Thomas E. Dewey and became law. Perhaps the most important pieces of legislation enacted were the Hughes-Brees act affecting the state unemployment insurance system, and the laws setting up the state defense council and the state civil defense commission.

Under the Hughes-Brees act, a new system of employer rates based on individual employment stability was installed, the new rate to take effect on Jan. 1, 1952. The new law also raised the maximum weekly benefit rate for unemployment insurance claimants from $26 to $30, and prevented an employee from collecting unemployment insurance for more than 26 weeks in any period of unemployment. After receipt of benefits for 26 weeks, the employee must be employed again for at least 20 weeks before a new claim may be valid.

Other significant new laws enabled the state power authority to plan and build facilities for the production of hydroelectric power in the Niagara river; raised the amounts of insurance required of a motorist with a previous serious accident; allowed savings banks to increase the maximum amount they might accept for deposit from one person from $7,500 to $10,000; provided, for the first time, minimum standards of fire protection and of safety and sanitary conditions for all types of new and old multiple dwellings. The life of the temporary state rent commission was extended until July 1, 1953, and the plan of the commission approved. The plan permitted seven types of rent rises, generally limited to 15%, and required maintenance of usual services and facilities.

On March 29, 1951, Governor Dewey created the New York state crime commission, headed by Joseph M. Proskauer of New York city, with John M. Harlan as chief counsel. The commission was formed to investigate any connection between organized crime and units of government anywhere in the state.

Voters approved eight amendments to the New York state constitution in Nov. 1951 elections. One of these put the state's credit behind Thruway authority bonds and enabled the authority to obtain lower interest rates on bond issues. A second amendment authorized New York city to go beyond its constitutional debt limit after Jan. 1, 1952, to borrow $500,000,000 for constructing a new Second avenue subway. The subway was to be completed in 1956.

Thomas E. Dewey (Rep.) was re-elected for a third term as governor on Nov. 7, 1950. Other state officials elected at that time were: lieutenant governor, Frank C. Moore; comptroller, J. Raymond McGovern; and attorney general, Nathaniel L. Goldstein.

Education.—At the close of the school year ending June 1950 there were 5,927 elementary public schools with 1,369,080 school children; 146,482 pupils in 164 junior high schools; and 829 public high schools with 482,567 students. There were also 1,173 private and parochial schools with 400,000 pupils in elementary grades, and 82,427 students in 296 secondary schools. Enrolment at universities, colleges and institutions of higher learning in 1950 totalled 270,915, excluding 154,817 summer and extension students. Special state schools included 6 Indian schools; 6 agricultural and technical institutes; 5 institutes of applied arts and sciences; 133 schools of nursing; 3 institutes for the blind; and 6 institutes for the deaf.

Social Insurance and Assistance, Public Welfare and Related Programs.—The 1,303,000 persons given assistance, care or service at public expense in 1950 represented an increase of 117,000 persons over 1949. During 1950 expenditures for public welfare totalled $407,157,000. Of this sum, the federal government's share was $73,754,728; the state's share, $151,983,567; and the local government's share, $181,418,705. An additional 2,450,000 persons were given assistance or care in New York state as private charges. During 1950 the state certified 12,403,354 unemployment insurance claims (13,151,206 weekly units) totalling $298,026,365. On Dec. 31, 1950, the New York State Unemployment Insurance Trust fund had a balance on hand of $904,616,065.

In 1950 the average yearly population of the state's 17 correctional institutions was 17,191 inmates, who were cared for at an average cost of $1,398.42 per person (1950–51 fiscal year). The state maintained 20 hospitals for mental patients, 6 schools for mental defectives and a colony for epileptics.

Communications.—New York state had 86,257 mi. of roads on Jan. 1, 1951, of which 14,280 mi. were state highways (exclusive of through ways, parkways, city and village streets) and 71,977 mi. were county and town roads. Hard-surfaced roads totalled 67,016 mi. The 46 railroads in the state operated 7,529 mi. of roadbed. The state maintained a system of more than 500 mi. of canals. Including the rivers and lakes which are part of the New York State Barge Canal system, the total length is more than 800 mi. During 1950 the three major commercial airports of the New York metropolitan area (La Guardia, Newark and New York International) handled a combined volume of 4,809,214 passengers. There were 50 seaplane bases and 260 airports operating in the state during the year. There were 4,472 civil aircraft and 26,040 licensed pilots registered in 1950.

Banking and Finance.—At the end of 1950 there were 763 banks with total resources of $49,736,976,000 and deposits of $44,395,378,000 operating in the state. In addition, there were 236 savings and loan associations with $1,465,285,000 of total assets and $1,238,517,000 due private shareholders.

For the fiscal year ending March 31, 1951, the financial status of the state was as follows: general revenue, $881,746,791.91: expenditures, $891,282,572.18; total operating deficit, $9,535,780.27; state debt, $736,240,183. Capital Construction Fund (formerly Postwar Construction Fund) reserve for postwar construction and reconstruction, appropriations in force April 1, 1951, $373,750,634.66. Of the general fund expenditures, 59% was for state aid to local governmental units. This totalled $530,208,461.41, an increase of $25,126,657.57 over the previous fiscal year. This increase was largely accounted for by a $14,725,175.13 gain in state aid to education.

Agriculture.—Gross sales of agricultural products totalled $810,864,000 in 1950. In addition, government payments to farmers were $5,737,000. The sale of milk and other dairy products in 1950 amounted to $346,002,000. The total harvested acreage, excluding orchards and vineyards, was 6,426,000 ac. The value of livestock and poultry on farms as of Jan. 1, 1951, was $523,852,000. This included 2,248,000 head of cattle, 17,821,000 chickens, 126,000 horses, 2,000 mules, 193,000 hogs and 182,000 sheep.

Table I.—*Principal Crops of New York*

Crop	1951	1950	Average, 1940–49
Corn, bu.	28,116,000	28,638,000	24,787,000
Wheat, bu.	10,319,000	11,344,000	8,367,000
Oats, bu.	36,240,000	30,917,000	23,711,000
Barley, bu.	2,516,000	2,754,000	2,750,000
Buckwheat, bu.	908,000	1,462,000	2,076,000
All hay, tons	5,678,000	5,378,000	5,864,000
Beans, dry (100-lb. bags)	1,529,000	1,436,000	1,344,000
Tobacco, lb.	450,000	700,000	1,076,000
Potatoes, bu.	27,900,000	34,390,000	32,145,000
Apples, bu	18,095,000	18,700,000	14,007,000
Peaches, bu.	1,312,000	1,023,000	1,285,000
Pears, bu.	1,024,000	1,066,000	850,000
Grapes, tons	62,400	104,000	53,720
Cherries, tons	37,200	31,500	18,960
Maple sugar, lb.	43,000	46,000	86,000
Maple syrup, gal.	466,000	505,000	634,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of New York*

(In short tons, except as noted)

	1950		1949	
Mineral	Quantity	Value	Quantity	Value
Cement (bbl.)	13,271,469	$30,895,295	12,679,906	$28,483,681
Clays	1,153,909	938,740	976,751	769,290
Coke*	5,412,318	73,459,620	5,164,790	69,074,052
Gypsum	1,280,100	3,876,176	916,117	2,805,154
Iron ore	3,267,327	27,914,818	2,625,860	22,184,757
Iron, pig*	4,221,534	180,158,268	3,243,800	142,107,633
Lead	1,484	400,680	1,317	416,172
Natural gas (thousand cu.ft.)	3,200,000	768,000	3,693,000	907,000
Petroleum (bbl.)	4,143,000	15,660,000	4,425,000	15,750,000
Salt	2,806,927	14,405,362	2,951,750	12,709,819
Sand and gravel	21,778,089	18,075,237	18,543,071	15,116,820
Slate	151,160	2,054,725	122,180	1,617,097
Stone	13,121,850	19,728,957	13,022,070	18,160,387
Talc	163,974	4,039,973	115,636	2,658,774
Zinc	38,321	10,883,164	37,973	9,417,304
Other minerals		?		7,496,620
Total		?		$138,492,875

*Values for processed materials are not included in the totals.

Manufacturing and Industry.—New York state's manufacturing industries outrank those of every other state in number of establishments, volume of employment, size of manufacturing pay rolls and value added by manufacture.

In 1947 the state's manufacturing firms added $9,666,588,000 in value to the raw and semifinished material they purchased for processing, compared with $3,313,649,000 in 1939, according to the U.S. census of manufactures. In terms of value, New York state produces approximately 67% of the country's total output of women's dresses, coats and blouses; 94% of women's furs; and 41% of men's and boys' tailored clothes. The state leads all others in printing and publishing and the rug and carpet industry, and produces 66% of the value of photographic equipment manufactured in the nation.

In 1950 there were 581,000 business firms in the state. There were 5,572,500 persons employed in the state exclusive of agricultural workers, proprietors, domestics and personnel of the armed forces, a gain of 1,572,500 since 1939. Average weekly factory earnings in 1950 were $59.55. Retail sales in the state were estimated at $15,600,000,000 in 1950. During that year, 48% of all the water-borne foreign trade of the nation, in terms of value, was handled by New York state ports.

(F. P. Kl.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

New York City.

Housing, both public and private, remained the major problem of the city of New York in 1951 because of the continuing increase in population. According to the City Planning Commission, the permanent inhabitation of the metropolis reached an all-time high of 7,960,000 on Dec. 31, 1951.

Meanwhile, the public housing authorities reported an increase of 8,749 apartments in 1951, bringing the total number of units made available under integrated construction schedules to 55,621. The department of buildings reported plans filed in 1951 for 9,977 industrial, commercial and residential structures to be built at an estimated cost of $454,248,978.

The department of hospitals kept abreast of its 1951 construction timetable with the erection of the 570-bed Kings County Hospital for Chronic Diseases and the 1,920-bed Memorial Hospital and Home, both part of the city's $192,000,000 hospital expansion program. Work was also started on the conversion of buildings on North Brother Island to use as a 150-bed hospital for the treatment of narcotic addicts. These facilities were expected to be ready in April, 1952.

A city-wide atomic air raid exercise was held in November to familiarize the general public with civil defense operations; 354,000 volunteer civil defense workers, 30,000 police and firemen, units of the U.S. air force and personnel from the other armed services took part.

Rudolph Halley, former counsel to the senate crime investigating committee, was elected to the presidency of the city council on Nov. 6, 1951, to fill out the unexpired term of Vincent R. Impellitteri, who had been elected mayor the previous year.

City Commissioner of Commerce Walter T. Shirley, in a report to the mayor and the board of estimate, disclosed that 237,000 business establishments, including 42,000 manufacturing plants, were in operation in the five boroughs of New York city in 1951. These firms gave employment to 3,200,000 persons and carried a total pay roll of $12,000,000,000 annually. The gross value of the 1951 industrial output was estimated at $14,000,000,000. The manufacture of wearing apparel continued as the city's leading industry, embracing approximately 17,200 firms, employing 375,000 workers and producing garments having a dollar volume in excess of $4,000,000,000.

Approximately 4,950 New York firms engaged in foreign trade in 1951, handling export-import transactions estimated to reach $9,000,000,000 in dollar value. The total shipping handled in the port of New York during the year, including coastal as well as overseas, exceeded 125,500,000 tons. (*See* also MUNICIPAL GOVERNMENT.) (F. L. Do.)

New Zealand. A self-governing member of the Commonwealth of Nations, New Zealand consists of two large and several small islands in the south Pacific. Area: dominion proper, 103,416 sq.mi.; other islands, 523 sq.mi. Pop.: dominion proper (April 17, 1951, census) 1,939,703, including 113,777 Maoris. Cook and other Pacific islands (pop., 1951 census): 21,320. Western Samoa, a trusteeship, has an area of 1,133 sq.mi. and pop. (1951 census) 82,493. Language: English. Religion: mainly Christian. Chief cities (1951 census, urban area only): Wellington (cap., 133,400); Auckland (329,000); Christchurch (174,100); Dunedin (95,300); Hutt (74.900); Palmerston North (32,800). Governor general, Lieut. Gen. Sir Bernard Cyril Freyberg; prime minister in 1951, Sidney George Holland.

History.—The dominion continued to enjoy great prosperity during 1951. The national finances were in a sound condition, production was high, there was full employment and more goods were available than ever before. The only jarring note was a long waterfront strike which greatly harassed the transport of overseas goods. The high prices received for wool meant that overseas earnings were substantially greater than overseas spending despite the removal of many import restrictions.

In the field of international affairs, the visit of John Foster Dulles, Pres. Harry S. Truman's emissary, early in the year to Australia and New Zealand for discussions on Pacific affairs proved the forerunner of the signing of the Japanese peace treaty and the conclusion of a Pacific security treaty by the United States, Australia and New Zealand. The latter treaty was signed on Sept. 1 in San Francisco, Calif. The British government was fully consulted during the negotiations and concurred in the regional arrangement since the treaty served to strengthen the vital interests in the Pacific of the commonwealth as a whole.

In support of the Colombo plan New Zealand decided upon a contribution of £3,000,000 in three years toward the development of southeast Asia.

Wool prices fell steeply in the middle period but the season's clip returned about £140,000,000. Dairy production had a record year, with an increase of 7% in volume and 13% in value above the previous year.

Rising prices continued to have an inflationary effect. The government allowed wool growers to withdraw up to 20% of the £32,000,000 frozen in 1950 in their private accounts. General wage rates rose about 15%. A dollar surplus of $20,500,000 for 1950 was mainly brought about by an increase in the sale of wool to the United States. The national income figures reached a new high level of £578,000,000 for 1950–51, just three times as much as in 1938–39, while investments, including private savings, rocketed from £16,000,000 to £130,000,000 during the same 13-year period.

A vast forest project was outlined by the government to develop the great softwood forests around Kaiangaroa. Three main enterprises were envisaged: the production of newsprint, of pulp and of timber for building. This new project would require £14,000,000 for capital development. Six big projects for hydroelectric development were under construction.

One of the longest industrial disputes in the history of the country was the waterfront strike which lasted from February to June. Miners and refrigeration workers supported the strikers for various periods, but the government's firm policy in deregistering the striking unions and encouraging the formation of new unions brought about the resumption of work. This stoppage cost an estimated £3,000,000 in wages and £25,000,000 on the wool cheque. The government was challenged by the opposition on its handling of the dispute and appealed to the country in August. The general election resulted in an increased majority for the government. The state of the parties in the new parliament was National 50 seats, Labour 30 seats.

Education.—Schools (Dec. 1949): primary 1,905, pupils 241,699, teachers 7,481; Maori village schools 160, pupils 13,288, teachers 396; Maori mission schools 10, pupils 771; secondary 47, pupils 21,910, teachers 1,049; private secondary 74, pupils 9,160, teachers 491; Maori secondary 10, pupils 729, teachers 41; district high schools 103, pupils 7,075, teachers 402; Maori district high schools 7, pupils 245, teachers 15; technical 28, pupils 12,504, teachers 722; teachers' training colleges 5, students 2,486; agricultural colleges 2, students 1,120. University of New Zealand (four colleges), students 11,000.

Finance and Banking.—Budget (consolidated fund and social security fund, excluding war expenses account): (1950–51 actual) revenue £N.Z.193,600,000, expenditure £N.Z.184,900,000; (1951–52 est.) revenue £N.Z.208,200,000, expenditure £N.Z.207,600,000. Gross national debt (March 1951) £N.Z.693,400,000. Currency circulation (Sept. 1951): £N.Z.53,100,000. Bank deposits (Aug. 1951): £N.Z.188,200,000. Gold and foreign exchange (Aug. 1951) U.S. $340,000,000. Monetary unit: New Zealand pound, with an exchange rate of £N.Z.1.00375 to the pound sterling and £N.Z.0.362 to the U.S. dollar.

Foreign Trade.—(1950): Imports £N.Z.157,900,000; exports £N.Z.182,400,000. Main sources of imports (nine months of 1950): U.K. 59.9%; Australia 11.8%; U.S. 7.5%; Canada 2.4%. Main destinations of exports (1950): U.K. 66.7%; U.S. 10.1%; France 4.4%; Germany 3.3%.

Transport and Communications.—Roads (1949): 12,708 mi., of which arterial roads 5,234 mi. Licensed motor vehicles (Dec. 1950): cars 253,751, commercial 85,470. Railways (March 1950): 3,526 mi.; traffic (March 1951): passenger journeys 24,800,000; goods carried 9,800,000 metric tons; goods ton-miles 1,043,000,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 165, total tonnage 201,010. Air transport (1950): passenger-miles 97,600,000; cargo net ton-miles 2,200,000. Telephones (March 1950): 257,034 subscribers. Radio receiving set licences (March 1950): 449,347.

Agriculture.—Main crops (metric tons, 1950–51): wheat 161,000; barley 44,000; oats 38,000; maize 6,000; potatoes 110,000; linseed 8,000; tobacco 2,500. Livestock (1950): cattle 4,949.000, of which dairy cows 1,846,000; sheep 33,857,000; pigs 552,000; horses 195,000. Livestock products (metric tons): wool, greasy basis (1951–52) 172,000; meat (1950) 566,000, of which beef and veal 188,000, pork 41,000, mutton and lamb 337,000; factory butter (1950) 171,700; factory cheese 107,000. Fisheries: total catch (1948) 33,500 metric tons.

Industry.—Industrial establishments (April 1951): 37,420; persons employed 491,204. Fuel and power (1950): coal 934,000 metric tons; lignite 1,776,000 metric tons; manufactured gas 156,000,000 cu.m.; electricity, *c.* 87% of total generation 2,625,000,000 kw.hr. Industrial products (1950): superphosphates 630,000 metric tons; cement 252,000 metric tons. (A. T. Cl.)

Nicaragua. A Central American republic, Nicaragua is situated between Honduras on the north and Costa Rica on the south. Area: 57,145 sq.mi., of which 3.475 sq.mi. are water. Pop. (preliminary figures, 1950 census of the Americas): 1,053,189, of whom 688,373 were rural residents. Capital: Managua (1948 pop. est.: 146,819). Other urban centres are Chinandega (26,112), Granada (39,643), Jinotega (41.065), León (53,277), Masaya (38,761) and Matagalpa (53,118). Language: Spanish; religion: predominantly Roman Catholic. President in 1951: Gen. Anastasio Somoza, on an interim basis until May 1; thereafter constitutional president.

History.—Some administrative reorganization in consequence of the adoption of the constitution of 1950 occupied the attention of government circles in the early months of 1951. In January Luis Somoza, son of the acting president, was named first presidential designate, a post which made him next in line for the presidency in the event that his father might leave that office. Luis Somoza was also elected presiding officer of the chamber of deputies. On May 1, Acting President Anastasio Somoza completed the unexpired portion of the term of Victor M. Román y Reyes, who had died in 1950; Somoza promptly began a new term as constitutional president.

Promulgation of an educational measure produced a crisis in May when students at the University of Granada rioted in protest against a decree providing for the merger of their institution with the University of León. During the disorders, President Somoza on May 31 placed Granada under modified martial law to prevent the student demonstrations there from expanding into a more serious movement of political protest. Normality was restored at Granada by mid-June.

An agreement for an International bank loan of $4,700,000 to Nicaragua was signed on June 7, and the following day the United States contracted to provide the Managua government with Point Four assistance for the purpose of developing educational projects. President Somoza proposed on Aug. 15 that the U.S. and all other American republics unify their armed forces under joint chiefs of staff, and that military weapons and regulations be standardized within the western hemisphere. Nicaraguan diplomatic relations with Guatemala, which had been severed for four years, were resumed on Sept. 15. (G. I. B.)

Education.—During the school year 1951–52 there were 1,035 national primary schools with 65,305 pupils matriculated and 2,129 teachers, 91 private schools with 10,663 pupils and 431 teachers, 63 municipal schools with 2,738 pupils and 77 teachers, 13 national institutes with 1,575 students, 3 normal schools with 462 students, 32 commercial schools with 3,944 students and 24 private secondary schools with 2,077 students. The National university (León) had 620 students in 7 faculties, including one at Managua. The national budget allocated 7,716,363 cordobas for education. In 1951 there were 50 motion picture theatres with seating capacity of 48,000.

Finance.—The monetary unit is the cordoba, valued on Oct. 31, 1951, at $0.2000 U.S. currency, official rate, $0.1429, basic rate, and $0.1408, curb rate. The national budget for the fiscal year 1951–52 provided for expenditure of 94,700,000 cordobas. In 1949–50 expenditure totalled 105,024,000 cordobas and revenue 108,470,000 cordobas. The public debt in June 1951 was 47,665,000 cordobas, of which 8,505,000 cordobas was external. Currency in circulation (Oct. 31, 1951) was 69,900,000 cordobas; demand deposits 67,200,000 cordobas; gold reserves $2,770,000; foreign exchange reserves $8,950,000. The retail food price index (Managua) stood at 482 in Aug. 1951 (1939=100).

Trade and Communications.—Exports in 1950 amounted to $25,750,000 (excluding gold exports valued at $8,240,000); imports were $25,300,000. Leading exports besides gold were coffee (65%), tropical woods (7%), sesame (6%) and bananas (2%). Leading customers were the U.S. (77%) and the United Kingdom (14%). The U.S. (82%) was the principal supplier. Leading imports included textiles, iron and steel and manufactures, cotton manufactures and machinery.

In 1949 there were 236 mi. of railway and 417 mi. of surfaced highways. As of Jan. 1, 1949, registered motor vehicles included 1,443 automobiles, 672 trucks and 151 buses.

Agriculture.—Exports of coffee, the chief crop, in the 1950–51 season totalled 262,578 bags of 132 lb. each, of which 94.5% went to the U.S. In 1950–51, 6,850 short tons of sesame and 30,000 tons of sugar were produced. Cattle numbered 1,060,000 in 1950. In 1949, 22,197,867 bd.ft. of timber were exported.

Mineral Production.—Mineral exports in 1950 included 230,103 troy ounces of gold and 187,663 oz. of silver. (J. W. Mw.)

Nickel.

World production of nickel is shown in Table I, as reported by the U.S. bureau of mines.

United States.—Domestic consumers are almost entirely dependent on Canadian imports, as is indicated in Table II, as reported by the U.S. bureau of mines.

Canada.—Production increased from 123,209 short tons in 1950 to 90,561 tons in the first eight months of 1951.

Cuba.—The plant of the Nicaro Nickel company, constructed and operated during World War II, was in 1951 being reconditioned for operation. (G. A. Ro.)

Table I.—*World Production of Nickel*

(In short tons)

	1946	1947	1948	1949	1950
Canada	96,062	118,627	131,740	128,689	123,057
Cuba	12,391	2,220	—	—	—
Finland	662	?	—	—	—
Japan	?	—	—	—	—
New Caledonia	3,063	3,687	5,381	3,716	6,945
Norway	61	—	—	—	—
South Africa	548	583	505	625	929
U.S.S.R. (est.)	22,000?	27,500?	27,500?	27,500?	27,500?
United States	352	646	883	790	913
Total	135,600	154,300	166,400	160,900	159,800

Table II.—*Nickel Supply in the United States*

(In short tons)

	1946	1947	1948	1949	1950
Production	352	646	883	790	913
Secondary recovery	8,248	9,541	8,850	5,680	8,800
Imports*	104,734	88,408	106,939	97,144	97,267
Nickel content	92,500	80,718	91,400	91,471	91,553
Exports*	7,977	12,037	8,184	4,470	3,645
Consumption	80,105	80,757	93,558	68,326	99,022

*Includes gross weight (not nickel content) of ore, matte, oxide and alloys.

Niger: *see* French Union; French West Africa.

Nigeria: *see* British West Africa.

NLRB: *see* National Labor Relations Board.

Nobel Prizes.

The Nobel prizes for literature, physics, chemistry, medicine and peace, first awarded in 1901, were established by the Swedish industrialist, Alfred Bernhard Nobel (1833–1896). Each award consists of a gold medal and a sum of money which varies with the income from the fund, but which was reported in 1951 to be about $32,357. Pär Lagerkvist, Swedish novelist, poet, essayist and philosopher, received the 1951 literature prize. The award for physics was divided between Sir John Cockcroft, director of Great Britain's atomic establishment at Harwell, and Professor E. T. S. Walton of Trinity college, Dublin, Ire. They received the prize for the atomic experiments they performed as a team in 1932, paving the way for later atomic developments. The prize in chemistry was divided between Glenn T. Seaborg and Edwin M. McMillan, both of the University of California at Berkeley, for their discovery of plutonium. McMillan's work made possible the creation of cosmic rays in the laboratory. The prize in medicine and physiology was awarded to Max Theiler of the International Health division of the Rockefeller foundation of New York city for his researches into the yellow fever virus and the development of the first effective vaccines against the disease. The peace prize was awarded to Léon Jouhaux, French anti-Communist labour leader. (R. E. Bs.)

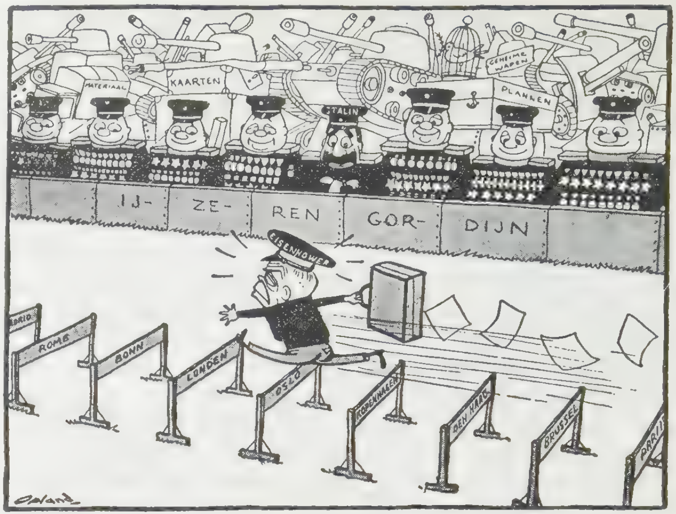
Norfolk Island: *see* Commonwealth of Nations.

North Atlantic Treaty Organization.

The following nations concluded the North Atlantic treaty in Washington, D.C., in April 1949: Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States. The treaty originated in the recognition of the strategic and defense unity of the democratic nations of western Europe and North America and the need for the timely organization of this unity in appropriate forms for the preservation of peace and freedom. In signing the treaty on behalf of the United States, Pres. Harry S. Truman declared: "It is a simple document, but if it had existed in 1914 and in 1939, supported by the nations who are represented here today, I believe it would have prevented the acts of aggression which led to two world wars." The signers stressed not only "the common heritage of democracy, individual liberty, and the rule of law," but expressed also their conviction that the treaty was more than a protective umbrella. "We must pray to God," the Italian foreign minister, Count Carlo Sforza, said, "that this pact will prove like the English Magna Carta: on one side intangibles, on the other side a continuous creation."

The events of 1951 began to fulfil these expectations. In Dec. 1950 arrangements were completed for the establishment of an integrated military force under a centralized control and command, and U.S. General of the Army Dwight D. Eisenhower (*q.v.*) was appointed as supreme commander. During 1951 he established the Supreme Headquarters of the Allied Powers in Europe (SHAPE) at Rocquencourt near Paris, Fr. A North Atlantic force composed of contingents supplied by nations outside continental Europe and of a similar contribution by continental European nations came into being in 1951. The United States contributed six divisions, Great Britain three armoured divisions, and Canada a brigade, while by the end of 1951 a European defense community consisting of France, Italy, the German Federal Republic, Belgium, the Netherlands and Luxembourg was coming into being as an integral part of the North Atlantic Treaty organization. At the same time negotiations were started for the build-up of a middle eastern defense community, in which the leading North Atlantic community powers would participate. The decision adopted at the seventh session of the North Atlantic council at Ottawa, Ont., in Sept. 1951 to admit Greece and Turkey was regarded as helpful in forging a strategic link between the military defense effort of the North Atlantic community, concentrating on the defense of western Europe and the Atlantic, and the middle eastern community guarding the important southern flank of the North Atlantic area.

In 1951, the first year of the functioning of the North Atlantic community as an organization for common defense, it became clear that in the near future its organization would have to be reformed and its scope broadened if it was to fulfil its purpose. A complicated machinery was slowly evolving to deal with the various military, political and economic problems, and the need was felt of simplifying this machinery and of creating an international steering authority which would be able to take the required decisions in the various fields and supervise their execution. The North Atlantic treaty forces had received at the beginning of 1951 a supreme commander who had shown in World War II unusual ability in handling with skill and effectiveness the armed forces of diverse nations and integrating them into a whole. But the question remained unanswered at the close of the year as to whom the supreme commander was responsible. The creation of such a supranational North Atlantic high authority was one of the needs revealed by the end of 1951. The other need came from the growing realization that the North Atlantic community could not confine itself to matters of defense but had to be equally concerned with economic and social problems. The close connection between rearmament and the general economic life of the nations involved was more and more emphasized during 1951. Thus it became clear that the North Atlantic community, in order to fulfil its task of preserving the freedom and peace of the western world and of maintaining a standard of living and of social justice indispensable for the flowering of democracy, had to expand its original goal and structure. The logic of the situation demanded the transformation of the North Atlantic Treaty organization into an Atlantic union.



"HÚ-Ú-ÚP!! EISENHOWER," a cartoon by Opland published in *De Volkskrant* (Amsterdam, Neth.) in 1951

A major reorganization in the machinery of the North Atlantic Treaty organization (NATO) was carried through at the beginning of May. A supreme council was established, consisting of one representative of each government and meeting four times a year. The chairmanship of the council would rotate. In this new council the countries would be represented, according to the case discussed, by their foreign, defense or finance ministers and, in the event of a grave emergency, by the prime ministers and presidents. On a day-to-day basis, high level direction would be given by the tri-power permanent standing group in Washington, D.C., in military matters, and by the committee of the North Atlantic treaty deputies, who were to meet twice weekly in London to discuss political and economic matters. In addition to the 12-power Defense Production board, which was to sit in London, a Financial and Economic board was created with headquarters in Paris so that it could work closely with the Organization for European Economic Cooperation (O.E.E.C.). This new board was asked to study immediately the impact of rearmament on the economic life of the NATO powers and to recommend anti-inflationary steps to counter the effects of military preparations on the economies of the Atlantic nations. The new board was also asked to advise on the fair distribution of the burdens of the common defense effort.

These tendencies found an expression in the session of the North Atlantic council which convened in Ottawa, in mid-September. There the spokesmen of almost all the member states emphasized the need for the NATO to concern itself in the future more with the economic integration not only of Europe but of the whole North Atlantic community including the United States and Canada. While in 1950 the United States was prodding Europe to integrate its economies, the European members began in 1951 to prod the United States to integrate North America with western Europe. The originally neglected article 2 of the North Atlantic treaty of 1949 was now being emphasized and its implementation demanded. The article reads: "The Parties will contribute toward the further development of peaceful and friendly international relations by strengthening their free institutions, by bringing about a better understanding of the principles upon which these institutions are founded, and by promoting conditions of stability and well-being. They will seek to eliminate conflict in their international economic policies and will encourage economic collaboration between any or all of them."

At the same time demands were raised by the European members of the NATO that it should act as a true coalition in all matters that affect all its members. It was regarded as harmful to the unity and strength of the coalition that the United States government showed a tendency to commit itself publicly to certain policies, such as the rearmament of Germany and the entrance of Greece and Turkey into the NATO, before discussing these matters with the other members of NATO. As a result of this feeling, a committee was established in Ottawa, composed of the foreign ministers of Belgium, Canada, Italy, the Netherlands and Norway, to consider and make recommendations on the following three points: co-ordination and frequent consultation among the member nations on foreign policy; closer economic, financial and social co-operation in order to promote and ensure conditions of economic stability and well-being; collaboration in the fields of culture and public information. A committee of experts was instructed to study the creation of an international rearmament fund within the framework of NATO, to remove the threat of mounting defense costs to the living standards of western Europe. The Ottawa session of the council released a statement making clear the importance which the member governments attached to the development of the North Atlantic community, not only to safeguard their freedom and common heritage on an equal footing but also to strengthen their free institutions and to advance the well-being of their peoples.

The general mood of the Ottawa meeting was expressed by Herbert Morrison, the British foreign secretary, who said: "Besides developing to the utmost our cooperation under this treaty in the problems of defense, I am sure we should strive by every possible means to increase the common action and common thinking of the Atlantic powers in matters of peace, until eventually we create a true community or union within the free world. We are now concentrating on strengthening our defenses and insuring our Western way of life against risk of aggression. But we must not forget the long term objectives and the desperate need for unity among free men. I am sure that we should look forward to the day when in the fullness of time there will be a common citizenship for all the peoples in the North Atlantic community, with all the barriers to thought, travel, trade and understanding swept away. We are moving in that direction slowly but surely, and this meeting in Canada's capital of more than thirty responsible ministers from all the nations in the community, marks a stage on the road."

At Ottawa it was decided that the council of the NATO should meet much more often than in the past, and in accordance with this decision, a meeting of the council, its eighth session, took place in Rome, It., from Nov. 24 to Nov. 28, 1951, and the next meeting was scheduled for Lisbon, Port., in Feb. 1952. The meeting in Rome brought together the most representative group of western statesmen so far assembled. The ministers of foreign affairs, defense and finance and the military leaders of the 12 member states and official observers for Greece and Turkey met, and for the first time the supreme military commander of the NATO forces attended with his deputy commander to report on the progress achieved and to recommend measures for the further strengthening of the NATO defense forces. But military matters, though they still occupied a large part of the deliberations, were not stressed alone. In his address of welcome, Alcide de Gasperi, premier of Italy, stressed the ties of a common tradition of civilization which were even more binding and permanent than the terms of the treaty. To meet the deep desire of the democratic peoples and of the war-exhausted nations of Europe for a clear expression of peace as the only aim of the NATO defense activities, Premier De Gasperi declared in a press statement: "If we could make public the military part of our deliberations it would be clear to all that nobody among us has aggressive ideas, that nobody is thinking of preventive war. The only thing in question is our defensive possibilities and we are not yet certain that we could defend ourselves successfully in case we were attacked. In the whole conference there was not a single word of preconceived hostility toward any power or of preventive war." Similarly, General Eisenhower stressed above all the fact that the only aim of the NATO was peace. He would not serve any organization, he declared, which was not devoted to the preservation of peace.

The immediate issue which the finance and other ministers of the NATO nations faced at their meeting in Paris in mid-Dec. 1951 was how far they could go in devoting their financial and economic resources to defense without endangering their national economies and standards of living. This problem was discussed in an interim report of the Temporary Council committee of the NATO nations headed by W. Averell Harriman for the United States, Sir Edwin Plowden for Great Britain and Jean Monnet for France.

On Nov. 19 an Atlantic treaty defense college was established in Paris. French Vice Admiral André Georges Lemonnier, chief naval adviser to General Eisenhower, became the first commandant of the institution. "The opening of this new college is an event in military history," he said at the opening. "For the first time a completely international college belonging to a twelve-nation community is bringing together soldiers and civilian officials in an attempt to work out a peacetime system of cooperation for international forces and to train leaders for these international forces." To lay the foundations for the future development of NATO, British Prime Minister Winston Churchill visited Paris in the second half of Dec. 1951 to confer with French leaders and General Eisenhower, and went to Washington, D.C. at the beginning of 1952 to carry on similar conversations with Pres. Harry S. Truman. The immediate task of these meetings was to accelerate and co-ordinate the defense preparations of the western world; but the ultimate goal was the improvement of the standards of life in the democracies and the forging of closer political ties among them. (*See* also Armies of the World; European Recovery Program; European Union; Middle East.)

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North Borneo: *see* British Borneo.

North Carolina. A south Atlantic coast state, popularly known as the "Old North state" or the "Tar Heel state," North Carolina is one of the original 13 states of the union. Area: 52,712 sq.mi. (49,097 sq.mi. land, 3,615 sq.mi. water). Pop. (1950): 4,061,929 (ranking 10th among the states in this respect), of which 1,368,101 (33.7%) were urban, 2,693,828 (66.3%) rural and 1,096,720 (27%) nonwhite. Capital: Raleigh, with pop. (1950) 65,679; other cities: Charlotte (134,042); Winston-Salem (87,811); Greensboro (74,389); Durham (71,311); Asheville (53,000).

History.—The Negro issue, which had played a major part in the defeat of Frank P. Graham, liberal university president, by Willis Smith, conservative Raleigh attorney, for the Democratic nomination for the senate in 1950 (tantamount to election in Democratic North Carolina), recurred in 1951. On Oct. 9, 1950, a federal district court upheld the "separate but equal" facilities doctrine and refused to order the admission of Negroes to the law school of the University of North Carolina. On appeal, this decision was reversed by the fourth United States circuit court on March 27, 1951, when it ruled that Negroes must be admitted to the University of North Carolina Law school provided they met the school's standard requirements for admission.

Gov. W. Kerr Scott's "Go Forward" program of rural road construction, rural electrification and telephone service, public education and public health and welfare was in its third year in 1951. By Oct. 1, with funds from the $200,000,000 state bond issue approved in 1949, 9,249 mi. of secondary roads had been paved (78% of the 12,000-mi. goal) and 11,657 mi. had been stabilized for all-weather travel (33% of the 35,000-mi. goal). An extensive school building expansion program in the counties and towns, aided by $50,000,000 of state funds, neared completion in 1951.

North Carolina's five year hospital plan, begun in 1947, moved nearer completion in 1951. Of 102 hospital projects, costing a total of $50,000,000, 44 had been completed prior to Nov. 1, 1951, 46 were under construction, and the 12 remaining were in the planning stage.

The principal state officers in 1951 were W. Kerr Scott, governor; H. P. Taylor, lieutenant governor; Thad Eure, secretary of state; Henry L. Bridges, auditor; Brandon P. Hodges, treasurer; Clyde A. Erwin, superintendent of public instruction; Harry McMullan, attorney general; William A. Devin, chief justice.

Education.—In 1949–50 there were 2,852 public elementary schools with 21,399 teachers and principals and 711,804 enrolled pupils, and 958 public high schools with 7,735 teachers and principals and 181,941 enrolled pupils; these schools were operated at a cost of about $112,500,000, including $10,000,000 of federal funds. The average daily attendance in the public schools was 797,691 (635,677 elementary, 162,064 high school); the number of inhabitants of school age was 1,095,734. Not including principals or vocational teachers, the average salary for elementary teachers was about $2,510 and for high school teachers about $2,500.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Oct. 1951 public grants amounting to $1,234,359 were made to 53,008 persons for old-age assistance; $757,914 to 16,383 families for aid to dependent children; $99,205 to 3,685 persons for aid to the permanently and totally disabled; $153,828 to 4,493 blind persons; and $38,866 for general relief in 2,044 cases. During the year ending June 30, 1951, the total amount of public relief funds distributed was $27,374,138, and during the first 11 months of 1951 unemployment benefits amounted to $16,022,245. In 1951 the state maintained 12 charitable institutions with 12,140 inmates on Oct. 1; 5 correctional institutions with 723 inmates; and the state prison system with 8,914 prisoners.

Communications.—In 1951 the state highway and public works commission maintained 11,612 mi. of state highways, of which 11,145 mi. were hard-surfaced; and 54,063 mi. of county roads, of which 11,554 mi. were hard-surfaced. There were 4,521 mi. of railroads, 870 mi. of city bus routes and 11,912 mi. of passenger bus routes in 1950. There were 119 airports. There were 577,445 telephones in use in the state on June 30, 1951.

Banking and Finance.—On June 30, 1951, there were 69 national banks and branches with assets of $503,095,000, and 381 state banks and branches with deposits of $1,257,454,644.62 and assets of $1,398,906,709.92. On Jan. 1, 1951, there were 147 building and loan associations operating under state charters with 186,906 members and total assets of $212,253,512.27, and 29 federal savings and loan associations with total assets of $118,312,319.22. In 1950–51 state receipts were $638,669,616; disbursements $617,917,428. On June 30, 1951, the state gross bonded debt was $286,570,500, less $67,748,263.60 of bonds invested in sinking funds. The assessed value of property was $4,252,311,273 in 1950. In the state general fund there was a cash surplus of about $17,738,031 at the end of the fiscal year.

Agriculture.—The cash income of North Carolina farmers in 1950 was $648,796,000 from crops; $146,707,000 from livestock and livestock products; and $8,800,000 from government payments. The value of the lands and buildings on the 288,508 farms in 1950, 38.3% of which were operated by tenants, was $1,905,714,485.

Manufacturing.—Thirty-one new manufacturing industries selected North Carolina sites for plant investments of $104,000,000 in 1950, the largest being the $30,000,000 plant of E. I. du Pont de Nemours company, near Kinston. In 1950 manufacturing establishments numbering 6,575 employed 403,000 wage earners at wages of $945,078,000, and added value by manufacture of $1,858,230,000. Value added by textile establishments was $857,885,000; by tobacco establishments $317,513,000; by lumber and lumber products establishments $129,462,000; and by furniture and fixtures establishments $106,501,000. Estimated industrial production in 1950 was $5,031,000,000, and electric power production was 12,334,000,000 kw.hr. (Jo. C. S.)

Table I.—*Principal Crops of North Carolina*

Crop	1951	1950	Average 1940–49
Tobacco, lb.	978,620,000	875,990,000	701,601,000
Cotton, 500-lb. bales	550,000	181,000	579,000
Cottonseed, tons	226,000	75,000	237,000
Corn, bu.	67,611,000	74,184,000	57,934,000
All hay, tons	1,225,000	1,249,000	1,251,000
Peanuts, lb.	287,500,000	246,100,000	311,000,000
Wheat, bu.	8,763,000	5,340,000	6,801,000
Sweet potatoes, bu.	3,760,000	6,820,000	7,181,000
Irish potatoes, bu.	6,909,000	10,354,000	9,295,000
Oats, bu.	14,271,000	11,685,000	9,021,000
Soybeans, bu.	4,950,000	4,752,000	2,921,000
Lespedeza seed, lb.	28,600,000	29,900,000	34,780,000
Peaches, bu.	3,024,000	548,000	2,158,000
Apples, bu.	825,000	1,296,000	893,000
Pecans, lb.	3,072,000	2,047,000	2,625,000
Grapes, tons	5,700	5,500	5,130

Source: U.S. Department of Agriculture.

Table II.—*Value of Products Manufactured by Leading Industries in North Carolina*

	1950	1949
Textiles	$2,282,000,000	$1,913,700,000
Tobacco	1,023,000,000	841,400,000
Food	365,000,000	293,300,000
Lumber	254,000,000	167,800,000
Chemicals	248,000,000	162,500,000
Furniture	210,000,000	180,800,000
Paper	182,000,000	158,800,000

Table III.—*Mineral Production of North Carolina*

(Short tons, except as noted)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Clays	1,437,202	$ 1,766,785	1,181,047	$ 1,335,954
Feldspar	204,990	1,107,061	180,226	973,431
Mica, scrap	48,193	1,281,584	24,801	640,374
Sheet (lb.)	483,736	102,179	470,072	121,270
Sand and gravel	8,352,475	5,465,067	5,092,929	3,553,180
Stone	7,711,580	11,894,745	6,225,290	10,077,976
Talc	116,895	1,855,163	86,208	1,344,767
Titanium concentrates	26,542	?	31,714	*
Tungsten concentrates (60% WO_3)	?	?	770	*
Other minerals		?		1,603,436
Total		?		$19,650,388

*Value included with other minerals.

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

North Dakota.

A west north central state of the United States, North Dakota was admitted to the union Nov. 2, 1889; popular name, "Flickertail state." Area: 70,665 sq.mi., including 608 sq.mi. of water. Pop. (1950 census): 619,636, a loss of 3.5% since 1940. Urban population (places of 2,500 or over), 26.6%. Capital, with 1950 pop., Bismarck (18,640); chief cities: Fargo (38,256); Grand Forks (26,836); Minot (22,032).

History.—State officers in 1951 were: governor, Norman Brunsdale; lieutenant governor, Ray Schnell; secretary of state, Thomas Hall; auditor, Berta Baker; treasurer, Albert Jacobson; attorney general, E. T. Christianson; commissioner of insurance, A. J. Jensen; commissioner of agriculture and labour, Math Dahl; superintendent of public instruction, M. F. Peterson; tax commissioner, John Gray; public service commissioners, Elmer Cart, Ernest D. Nelson, and E. H. Brant.

In April the first oil was discovered south of Tioga by the Amerada Petroleum corporation. By the end of the year three additional wells found oil nearby (the Beaver Lodge field), 10 dry holes had been put down, 11 wells were being drilled and about 28,229,000 ac. were under lease at an estimated $1 an acre. Since 1947, more than $100,000,000 had been spent on oil exploration in the state.

By the end of 1951 about $115,000,000 of an estimated cost of $278,000,000 had been spent on Garrison dam. The project would be half completed at the close of 1952. The 32nd legislative assembly raised the gasoline tax one cent to aid highway construction, levied an additional cent on cigarettes for the benefit of municipalities, raised the salaries of officials and legalized parking meters.

Education.—Public school teaching positions for the year ending June 30, 1950, were 6,537; public school enrolment 114,488 (elementary 87,636; high school 26,852); parochial enrolment 11,730; Indian schools 1,940; schools in session 3,272; average annual salary of teachers, including city superintendents, $2,162 (1946, $1,417); average cost per pupil enrolled, $196; total expenditure for public elementary and high schools, $23,942,130. Enrolment in 12 institutions of higher learning: 6,286 full-time college students, 517 part-time, 618 faculty.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1951, public assistance totalled $9,799,482 (federal 43.4%, state 35.4%, county 21.2%). Old-age assistance cost $5,551,267 (average number of cases 9,045); aid to dependent children $2,277,953 (4,994 children); aid to dependent children in foster homes $195,204 (373 cases); aid to blind $71,629 (112 persons); aid to permanently and totally disabled $89,948 (290 cases in six months); general assistance $661,439 (1,188 cases); welfare services $180,980; administrative expense $771,062. Total expenditures for four charitable and four correctional institutions for the year ending June 30, 1951, $4,476,283. Number of inmates June 30, 1951: feeble-minded 1,085; insane 2,102; blind 30; deaf 90; tubercular 312; penitentiary 211; training school 266; state farm 30.

Communications.—Highway mileage: state 6,969; rural 107,457. Spent for construction of state highways: $5,182,600 by the state, $5,177,952 by the federal government for the year ending June 30, 1951. For maintenance

Table I.—*Leading Agricultural Products of North Dakota*

Crop	1951	1950	Average 1940–49
Spring wheat (other than durum), bu..	121,365,000	91,546,000	105,369,000
Durum wheat, bu.	29,610,000	32,440,000	32,575,000
Corn, bu.	23,332,000	24,814,000	25,856,000
Oats, bu.	56,811,000	58,352,000	64,394,000
Barley, bu.	51,336,000	51,504,000	48,604,000
Rye, bu.	2,562,000	2,310,000	5,370,000
Flaxseed, bu.	15,272,000	17,181,000	9,801,000
Potatoes, bu.	15,580,000	21,280,000	19,589,000
Hay, tons	3,163,000	3,270,000	3,074,000

Source: U.S. Department of Agriculture

of state highways $3,621,693; for operation $449,359. Additional amounts appropriated to counties were: motor fuel taxes $1,410,249; motor vehicle licence fees $2,753,830. Motor vehicle registration: 193,704 passenger cars, 86,091 trucks. Six railroads operated 5,259 mi. of track.

Banking and Finance.—On June 30, 1951, the Bank of North Dakota and 109 state banks had resources of $319,484,477 and deposits of $295,461,306. Resources of 40 national banks were $245,809,500 and deposits were $229,980,799. State treasury collections to June 30, 1951, were $70,978,169; payments $63,940,263. Total bonded indebtedness $38,154,250. Tax collections in 1951 totalled $21,628,881.

Agriculture.—In 1951, 21,662,000 ac. were harvested, including wild hay. Cash farm income from marketing was estimated at $603,000,000 or almost $10,500 per farm. North Dakota led the nation in wheat production though the crop was reduced by a dry growing and wet harvest season.

Manufacturing.—Nonagricultural employment in 1951 averaged 113,679; manufacturing employment 6,009; average annual wage in manufacturing (places with 8 or more employees) $3,046.16. Unemployment declined as North Dakotans left for defense positions on the west coast and in other industrial areas. (E. Rn.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of North Dakota*

(Short tons)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Coal	3,260,973	$7,757,935	2,967,260	$7,003,712
Sand and gravel . . .	4,270,838	1,660,371	4,370,521	1,638,293
Other minerals		?		168,181
Total		?		8,810,186

Northern Ireland: *see* Ireland, Northern.
Northern Rhodesia: *see* Rhodesia, Northern.

Northwest Territories.

The Northwest Territories comprise all that part of Canada north of the 60th parallel of north latitude, except the portions thereof within the Yukon territory and the provinces of Quebec and Newfoundland, and the islands in Hudson bay, James bay and Ungava bay, except those islands within the provinces of Manitoba, Ontario and Quebec. Area: 1,304,903 sq.mi. of which 51,465 sq.mi. are water; pop. (1941 census) 12,028 including 2,284 whites, 4,334 Indians and 5,404 Eskimos; (1951 census) 15,016.

For purposes of organization and administration the territories were divided by order in council dated March 16, 1918, into the provisional districts of Mackenzie (527,490 sq.mi.), Keewatin (228,160 sq.mi.) and Franklin (549,253 sq.mi.). The Northwest Territories act, 1905, as amended, provides for the government of the territories by a commissioner (who, during 1951, was deputy minister of the department of resources and development) under instructions given from time to time by the governor in council or the minister of resources and development. Legislative powers are exercised by the commissioner in council. This council consists of eight members, one of whom is deputy commissioner. Five of the members are appointed by the governor in council and three are elected to represent electoral districts in the Mackenzie district. In 1951 the council was headed by Maj. Gen. H. A. Young as commissioner. Appointed council members were F. J. G. Cunningham, deputy commissioner; L. C. Audette, H. B. Godwin, D. M. MacKay and L. H. Nicholson. Council members elected in Sept. 1951 for a three-year term were Frank Carmichael, James Brodie and Mervin Hardie. The seat of government is at Ottawa, Ont.

Education.—The education of white, native and half-breed children in the Northwest Territories was carried on during 1951 at 12 day schools operated by the Northwest Territories administration, seven Indian day schools operated by the Indian affairs branch of the department of citizenship and immigration, two mining company schools, as well as at residential and day schools operated by missions of the Church of England, the Roman Catholic Church and other missionary organizations, with government financial assistance. As of Dec. 31, 1950, there were 1,247 pupils enrolled in grades 1 to 12 at schools in the Mackenzie district. Approximately 584 pupils attended government and mission schools in the eastern arctic.

The only organized school districts in the Northwest Territories were at Yellowknife where an 11-room public school was in operation and a separate school district had just been established. Scholarship awards were available for the assistance of worthy students who wished to proceed to further study, and correspondence courses were available free of charge to any child whose parents requested this service and to adults who desired to enrol.

Public Health and Welfare Services.—During 1951 there were in operation eight mission hospitals, two company hospitals and one community hospital. The government supply ship for the eastern arctic had medical and dental services available and medical teams visited each settlement to conduct physical examinations and X-ray surveys, and give preventative inoculations and ophthalmological and dental treatment. In 1951 there were also eight nursing stations and health centres in operation.

Communications.—The Mackenzie river and its tributaries, the Athabaska and Slave rivers, provide a direct inland water transportation route for a distance of about 1,700 mi. In addition, subsidiary routes on Lake Athabaska, Great Slave lake and Great Bear river and lake total more than 800 mi. The all-weather Mackenzie highway from Grimshaw, Alberta to Hay river settlement on Great Slave lake was used extensively in 1951. Scheduled air mail, passenger and express services were maintained throughout the year to most settlements in the Mackenzie district.

Radio communication between important settlements and trading posts in the territories and outside points was maintained through government and private radio stations.

Eastern Arctic Patrol.—The 1951 annual eastern arctic patrol was carried out by the government vessel "C. D. Howe," assisted by small privately-owned vessels. Replacement personnel as well as mail and supplies are transported by this patrol for the Royal Canadian mounted police detachments, medical centres, radio and weather stations, trading posts, missions and schools. Officers of the administration investigate such matters as Eskimo economy, food and health conditions, trading, administration of family allowances, relief and old age allowances, education, social conditions, vital statistics and other items of general administration.

The Canadian Handicrafts guild, assisted by a grant from the administration, was attempting to supplement the income of the natives by organizing the handicraft industry. In 1951 Eskimos produced for successful commercial marketing carvings in stone, ivory and wood and articles made of various skins and furs.

Agriculture and Fisheries.—Limited general farming and horticultural operations were carried on in 1951 at most of the settlements in the Mackenzie district. Federal experimental substations carried on field work during the year. Commercial fishing on Great Slave lake, inaugurated in 1945, produced a total catch of 6,813,706 lb. during the summer season of 1950 and the winter season of 1950–51. Whitefish and lake trout were the principal catch.

Fur Trading.—Fur production in the territories during the year ended June 30, 1950, was valued at $909,504 with a total of 561,400 pelts taken during that period. Muskrats constituted 80% of the catch. Trapping continued to be the chief occupation of the native population and was strictly controlled by regulations. Reindeer herds were maintained in the Mackenzie delta region.

Production and Industry.—Mineral production in the Northwest Territories for the year 1950 was valued at $8,050,899 of which gold accounted for $7,635,227. Crude oil production was continued at Norman Wells on the Mackenzie river. After being processed at the Norman Wells refinery the oil was shipped to Yellowknife and other points in the territories.
(H. A. Y.)

Norway.

A democratic monarchy of northern Europe, Norway is bounded north by the Arctic ocean, east by Finland, the U.S.S.R. and Sweden and west by the North sea. Area: 125,182 sq.mi.; pop.: (Dec. 3, 1946, census) 3,094,873; (1950 est.) 3,281,000. Capital: Oslo (1946, 285,844; 1948, after extension of city limits, about 420,000). Other principal cities with 1946 census figures are Bergen (107,293); Trondheim (56,522) and Stavanger (49,173). Religion: Lutheran Christian. Ruler in 1951: King Haakon VII. Prime minister: Einar Gerhardsen, until November; thereafter, Oscar Torp.

Spitsbergen (Svalbard), Norwegian since 1925, is an archipelago lying about midway between northern Norway and the north pole. Area: 23,979 sq.mi. Pop. (1949): about 1,600 Norwegians and an estimated 2,350 Russians.

History.—Einar Gerhardsen, prime minister since June 1945 when the government returned from its wartime sojourn in London, resigned suddenly in Nov. 1951, saying only that the reasons were purely personal, and that six and a half years of strenuous service was enough.

Gerhardsen had had remarkable success in keeping labour at work and satisfied with the small automatic wage increases to adjust to the cost-of-living index. However, in the fall of 1951 a conflict arose from the demands of 180,000 workers; Gerhardsen could not persuade the labour and the employer organizations to come to agreement. Up to 1949 the government had the right to request the wage bureau to issue a binding judgment, but that power had been abandoned. Hence, a special bill was passed in November to use this system of force in the case of the 180,000. Gerhardsen resigned a few days later.

The new prime minister was Oscar Torp, a party stalwart who had served 12 years in various cabinet posts. He pledged that there would be no change in either domestic or foreign policy. Three other cabinet ministers resigned at the time of the shift in prime ministers: Olav Meisdalshagen, Kristian Fjeld and Reidar Carlsen. In their respective places the vice-president of the Labour party, Trygve Bratteli, became minister of finance; Rasmus Nordbö, a farm specialist, took over the department of agriculture; and Peder Holt, governor of Finnmark, went to the fisheries department. In the defense ministry, Jens Christian Hauge submitted his resignation too, but because of a series of conferences in connection with the North Atlantic treaty he was asked to stay for several weeks longer.

The communal elections in October indicated slight gains for Labour, Conservatives and Farmers over the 1947 voting, and heavy losses for the Communists. In the country as a whole the Communist vote declined by about one-third.

Norway was active in support of the policies of the North Atlantic Treaty organization. Early in the year the training period for conscripts was raised from 9 months to 12, and the age for induction was lowered from 20 to 19. Total military forces were to be increased 30% by the end of 1952, to provide an army of 270,000. Expenditures were almost doubled, to approximately $100,000,000. For the air force 11 fighter squadrons were being developed; fliers were being trained in the United States and in Germany; and a first instalment of five Thunderjets arrived from the United States.

The U.S.S.R. protested against the consolidation of several small cemeteries of soviet World War II prisoners in Norway. In October the soviet government charged that Spitsbergen had been turned over to the North Atlantic Treaty organization contrary to international agreements by which Norway was granted sovereignty. The Norwegian government denied the charges. In November the U.S.S.R. sent a second note repeating the complaints. Also in November the soviet press circulated stories mentioning Gen. Robert K. Taylor and United States plans to establish on Spitsbergen an air base from which to attack the Soviet Union. General Taylor, in charge of the northern air forces of the North Atlantic states, said that the soviet statements were ridiculous, and that he knew of no U.S. plans concerning Spitsbergen.

The Norwegians worked vigorously to put their economy on an even keel, but imports still far surpassed exports. The difference was made up by two means—European Recovery program aid, which by 1951 totalled more than $400,000,000, and the earnings of the merchant fleet. The fleet's net earnings for the year were up about $52,000,000; tonnage had risen to 5,260,000, almost half of which was in tankers. Industry increased its share in the national product from 34% prewar to 40%; production of electric power from Norway's great waterfalls was up 70% over 1939. Completion of the aluminum plant at Sunndalsöra seemed assured by a grant of $24,000,000 from the Economic Co-operation administration and by special arrangements to repay in aluminum for Swedish credits for housing and other equipment. With this plant in operation Norway hoped to produce 100,000 tons of aluminum yearly. Private U.S. co-operation was planned for the construction of a sponge iron and alloy steel plant at Larvik in the southeast. (F. D. S.)

Education.—Schools (1947–48): elementary, rural 5,404, pupils 224,789; in the towns, pupils 71,414; secondary 295, pupils 42,158. Universities (1949): 2, students 5,294; other institutions of higher education 6, students 1,836, excluding teachers' training colleges with 1,520 students.

Foreign Trade.—Imports (1950) kr. 4,846,000,000, exports kr. 2,789,000,000. Main sources of imports (1950): U.K. 22.3%; Sweden 14.5%; U.S. 12.2%; France 6.5%. Main destinations of exports: U.K. 18.2%; western Germany 11.3%; U.S. 9.9%; Sweden 7.8%. Main imports: ships and boats 17%; textiles 13%; coal, petroleum and products 10%; machinery 10%. Main exports: wood pulp and paper 23%; fish and products 16%; fats and oils 14%; nonferrous metals and manufactures 12%.

Finance and Banking.—Budget: (1950–51 est.) revenue kr. 2,562,000,000, expenditure kr. 2,562,000,000; (1951–52 est.) revenue kr. 2,866,000,000, expenditure kr. 2,866,000,000. National debt (Dec. 1950) kr. 10,972,000,000, including balance of occupation account kr. 6,202,000,000 and foreign debt kr. 1,062,000,000. Currency circulation (Sept. 1951) kr. 2,381,000,000. Deposit money (Aug. 1951) kr. 5,233,000,000. Gold and foreign exchange (Sept. 1951) U.S. $155,000,000. Monetary unit: krone (pl. kroner), with an exchange rate (Nov. 1951) of kr. 7.14 to U.S. $1.

Transport and Communications.—Roads (1950): 27,742 mi. Licensed motor vehicles (Dec. 1950): cars 60,111, commercial 59,674. Railways (1950): 2,776 mi., including state railways 2,725 mi.; traffic on state railways (1950): passenger-miles 961,900,000; freight net ton-miles 817,300,000. Shipping (merchant vessels of 100 gross tons and over, July 1950): 2,224; total tonnage 5,690,000. Air transport (1950): miles flown 4,800,000; passenger miles 99,600,000; freight net ton-miles 3,000,000; mail ton-miles 600,000. Telephones (1950): 447,500. Radio receiving set licences (1949): 709,116.

Agriculture and Fisheries.—Main crops (metric tons, 1950–51): wheat 69,000; barley 107,000; oats 181,000; rye 3,000; potatoes 1,169,000 Livestock (June 1950): cattle 1,237,000; sheep 1,812,000; pigs 422,000 goats 130,000; horses 191,000; chickens 4,985,000. Food production (metric tons, 1950): delivered milk, *c.* 50% of total production, 977,000; butter 11,500; cheese 25,400; meat 109,000, of which beef and veal 41,000, mutton and lamb 16,000, pork, excluding lard, 49,000. Wool production, greasy basis (1950–51), 3,000 metric tons. Fisheries (1950): total catch 1,344,000 metric tons; value kr. 323,000,000. Whale oil production (1950): 1,106,000 bbl.; value kr. 282,000,000.

Industry.—Industrial establishments, excluding electrical plants, construction and building industries (1949): 6,176; persons employed: 36,212 salaried staff and 206,950 workers; gross value of production kr. 7,328,500,000. Fuel and power (1950): coal 384,000 metric tons; manufactured gas 45,600,000 cu.m.; electricity 17,328,000,000 kw.hr. Timber production (1950): 1,400,000 cu.m. Raw materials (metric tons, 1950): iron ore, 65% metal content, 403,000; pig iron 220,000; copper 9,400; zinc 43,100; aluminum 46,600; nickel 10,000; ferrosilicon, calculated 45% basis, 63,900; other ferroalloys 94,800; sulphur 96,200; pyrites 749,400; nitrogen 160,700; wood pulp, wet basis, 727,800. Manufactured goods: cellulose, dry basis, 483,600; newsprint 114,000; other paper and board 317,000; cement 583,300. Merchant vessels of 100 gross tons and over launched (1950): 57; total tonnage 53,402. Index of industrial production (1937=100; 1950): general index 141; producers' goods 148; consumers' goods 127.

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FILMS OF 1951.—*Majestic Norway* (Almanac Films, Inc.).

Nose and Throat, Diseases of: *see* EAR, NOSE AND THROAT, DISEASES OF.

Nova Scotia.

Second smallest of the Atlantic provinces of Canada, Nova Scotia entered the confederation in 1867; area: 21,068 sq.mi.; pop. (1951 preliminary census) 638,277; capital: Halifax, pop. (1951 preliminary census) 84,433.

History.—The second session of the 21st legislature focused attention on Nova Scotia's main problem in 1951, which was the expanding costs of government services (especially in the fields of highways, public works, education, health and welfare) and the failure of sources of revenue to keep pace with the expenditures. Thus provincial tax increases went into effect on liquor, gasoline, amusements and telephone tolls. The 15-cent per gallon gasoline tax made the Nova Scotia levy the highest in Canada.

Education.—The provincial government paid 55.7% of the entire cost of education, which amounted to $8,739,000 in the 1951–52 estimates. Latest revised statistics for provincially controlled schools were for 1948: total enrolment 124,128; average daily attendance 103,858; teachers 3,958; total revenues $10,153,413.

Finance.—Revenue for the 1951–52 year was estimated at $40,714,128 (compared with actual revenue for 1950–51 of $36,778,962) and expenditures at $38,655,745 (1950–51, $36,641,088).

Transportation.—The Canso causeway linking mainland Nova Scotia with Cape Breton Island, to cost about $16,000,000 of federal and $7,000,000 of provincial money, was to be opened by 1955. By 1951 the total of paved highways reached 1,265 mi.

Agriculture.—A major step toward increased farm production was the near completion (with federal aid) of the 40,000-ac. reclamation scheme for marshlands, classified as among the most fertile in Canada. The 1951 potato crop dropped off 100,000 bu., and the apple crop fell from 750,000 bu.

HARVESTING SHAD in the Bay of Fundy, Nova Scotia, where nets are set up at low tide. When the tide sweeps in and covers the nets, fish are caught by their gills; they are plucked off at low tide as the fisherman drives across the flats in his wagon

in 1950 to 500,000 bu. Revised figures set the 1950 farm income at $55,000,000 (1949, $52,000,000). The total value of forest products in 1950 was $41,000,000.

Fisheries.—Landings for the first nine months of 1951 totalled 296,024,000 lb. (compared with 294,251,000 lb. for the same 1950 period), with a landed value of $16,167,000 ($20,800,000 for all of 1950). A $6,000,000 fish processing plant and wharf was opened at Louisburg, with an annual capacity of 66,000,000 lb.

Minerals.—A $10,000,000 federal loan to the Sydney coal interests helped boost coal production to 4,870,000 tons for Jan.–Sept. 1951, 320,000 tons more than the same 1950 period. Total 1950 mineral production was valued at about $60,000,000. (C. Cy.)

Nursing: *see* HOSPITALS.

Nutrition, Experimental.

Experimental nutritionists in 1951 continued to show interest in the possibility of producing food from mass cultures of microscopic plants. An alga commonly mentioned as a possible plant for mass culture was *Chlorella,* a green fresh-water microscopic unicellular form, which for years had been a favourite subject for research in photosynthesis. Fundamental work on the chemical composition of *Chlorella* and the effect of environmental conditions was undertaken by H. A. Spoehr and H. W. Milner. The object was to find environmental conditions which would modify the relative proportions of carbohydrates, proteins and lipids (fats)—three essential classes of nutrients.

By varying the composition of the "air," the solution in which the algae were grown, and the quality and quantity of sunshine available, Spoehr and Milner were able to vary considerably the composition of these tiny plants. The protein content varied from 9% to 58%, carbohydrate from 6% to 38% and fat from 4.5% to 85%.

Several scientists forecast that much of the world's future food supply would be grown by mass culture of some simple form of life such as *Chlorella.* The problems of conversion of algae into suitable and palatable forms of food remained unsolved, however, in 1951.

Arteriosclerosis.—Investigations designed to increase knowledge of the causes and to find more successful treatment of arteriosclerosis (hardening of the arteries) proceeded along two important lines: (1) attempts to produce the disease in animals and (2) documentation of the natural history of the disease in man. The extent to which arteriosclerotic lesions in animals can be considered to be experimental counterparts of the human disease was still widely discussed.

Experimental arteriosclerosis had been produced in several animal species such as the chicken, rabbit, dog and monkey. The disease in animals is usually induced by feeding a diet relatively high in fat and is associated with a prolonged rise in the blood fat component, cholesterol. A previous report that a high-cholesterol diet will induce arteriosclerosis in the golden hamster and the guinea pig was confirmed in 1951.

The production of arteriosclerosis in dogs requires not only the feeding of high cholesterol diets but the administration of a drug to slow down the activity of the thyroid gland. With such experimental studies the earliest lesions in the blood vessels appeared after about two months. The lesions were similar to those seen in the older dogs studied previously.

Observations made of chickens demonstrated spontaneous occurrence of arteriosclerosis comparable to that in man. The susceptibility of this species to arteriosclerosis was further demonstrated when it was found possible to produce lesions consistently by inclusion of cholesterol in the feed. In contrast to other species, particularly the rabbit and dog, chickens and other birds acquire arteriosclerosis under natural conditions of diet and environment. It would seem, therefore, that the chicken is particularly well adapted for laboratory investigation of arteriosclerotic changes. S. Rodbard and others in 1951 attempted an evaluation of the effect of age and the aging process on the susceptibility of chicks to arteriosclerosis when diets were supplemented with cholesterol. An interesting and unanticipated discovery was that certain age periods in the life of the chick are characterized by greater susceptibility to an increase in blood cholesterol and the blood vessel lesions.

Animal Nutrition.—Considerable information had been accumulated on the nutritional requirements of such experimental animals as the mouse and the rat. Very little information was available in 1951, however, on the nutritional requirements of inbred strains of such animals.

The nutritional requirements of the highly inbred strains of mice used extensively in experimental cancer studies had only recently been investigated. It was reported that C_{57} mice had a lower requirement for riboflavin than strain A mice. These strains differed markedly in their susceptibility to spontaneous mammary tumours, the A strain being susceptible and the C_{57} strain being resistant. It was also noted that strain C_{57} mice required less pantothenic acid for growth than did strain A mice, or mice of the C_3H strain, a strain highly susceptible to mammary tumours.

P. F. Fenton and C. J. Carr in 1951 determined the protein requirements for growth in four inbred strains of mice. The strains studied were C_{57}, I, A, and C_3H. The I strain is similar to the C_{57} strain in that it is resistant to spontaneous tumours, whereas the A and C_3H strains have a high incidence of spontaneous tumours.

Three levels of dietary protein were tested, 10%, 30% and 90%. Food consumption and weight gains were recorded. Mice of the I and C_{57} strains made relatively poor weight gains on the 10%-protein diet; during a 30-day experimental period these strains increased their body weight approximately six grams. In contrast, mice of the C_3H and A strains increased their body weight approximately 14 g. over a 30-day period on the 10%-protein diet.

On the 30%-casein diet the average 30-day body weight gains were 14, 13, 12 and 10 g., respectively, for strains C_3H, A, C_{57} and I. It is thus evident that increasing the dietary protein from 10% to 30% had no influence on the growth rate of strains C_3H and A, but resulted in a marked increase in the growth rate of strains C_{57} and I.

When diet containing 90% casein was fed, the mice of strains C_{57}, A and C_3H behaved alike and all gained about nine grams in body weight during the 30-day period. Strain I mice, in contrast, gained only about five grams during the same period on this diet.

These studies emphasized the fact that inbred strains of animals of a given species are characterized by different metabolic patterns which are reflected in differing nutrient requirements. The results clearly indicated that strain differences exist with respect to the utilization of protein for growth in mice. In the strains studied it was apparent that those with the lower protein requirement were distinguished by their susceptibility to spontaneous tumour development, while the strains with a high protein requirement were resistant to tumours. It appeared that the riboflavin and pantothenic acid requirements are low in strains which have a high protein requirement, and that such strains are further characterized by their resistance to spontaneous tumour development. (*See* also VITAMINS AND NUTRITION.)

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(F. J. S.; M. F. T.)

Nuts.

The four U.S. tree nut crops were all above average in 1951 and prices continued favourable. The pecan crop of 143,137,000 lb. was 14% greater than the 1950 crop and 15% above average for the preceding decade. Improved varieties, predominantly grown in Georgia and Alabama, accounted for all of the increase, those types producing 77,612,000 lb. in 1951 but only 57,753,000 lb. in 1950. Oklahoma was the leading producer of wild pecans; the Texas crop was reduced 77% compared with 1950.

The 1951 California almond crop of 42,700 tons exceeded moderately the 37,700 tons of 1950 and substantially the 25,480-ton average for 1940–49. Shelled almond production in the Mediterranean basin and the middle east was estimated at 65,600 tons, much below the 98,500 tons for 1950 but near the average for 1940–49.

The English walnut crop, produced largely in California but partly in Oregon, of 75,800 tons was 18% more than in 1950 and 11% above average. Mediterranean basin production was estimated at 53,000 tons compared with 57,400 tons in 1950 and 65,800 tons in 1949.

Filberts, mostly produced in Oregon but partly in Washington, amounted to 7,390 tons compared with 6,680 tons in 1950 and 6,693 tons average for 1940–49. A large crop of 133,100 tons, compared with 83,500 tons in 1950, was forecast for the important Mediterranean basin area, especially Turkey, Italy and Spain.

The Brazil nut harvest was estimated at 33,000 tons, about one-half larger than 1950 or average. The estimated cashew production in India was 50,400 tons, lower than the 56,000 tons of 1950 but 6% above the 1940–49 average. (*See* also PEANUTS.)

(J. K. R.)

Nyasaland.

Nyasaland is a British protectorate in central Africa. Area: (including lakes) 47,900 sq.mi.; (land only 36,800 sq.mi.). Pop.: (1945 census) 2,049,917; (1950 est.) 2,337,000. Religion: pagan, with Christian minority. Chief towns: Zomba (cap.), Blantyre, Limbe. Governor, in 1951: Sir Geoffrey Colby.

History.—Nyasaland celebrated its diamond jubilee as a protectorate on May 15, 1951. A ceremonial parade was held in Zomba and a special issue of stamps made. African opinion was strongly opposed to the proposals for a federation of the Rhodesias and Nyasaland produced by a conference of officials in London and discussed at Victoria Falls in September (*see* RHODESIA, SOUTHERN.)

Education.—European schools (1950) 5 (attendance 281); Asian and coloured 9 (attendance 645); African 4,184 (attendance 134,931).

Finance and Trade.—Currency: sterling, with Rhodesian silver coinage. Budget: (1950 actual) revenue £2,343,593, expenditure £3,235,677; (1951 est.) revenue £3,900,900, expenditure £3,865,543. Foreign trade (1950): imports £7,543,323; exports £5,052,061. Principal exports (1950 values): tobacco £2,766,731, tea £1,690,712.

Communications.—Roads (1948) 4,000 mi.; railways 316 mi.

(G. R. MN.)

Nylon: *see* RAYON AND OTHER SYNTHETIC FIBRES.

Oats.

The 1951 U.S. oat crop was an average one of 1,316,396,000 bu., resulting from above average yields on an acreage substantially reduced in the southwestern part of the main belt by a very wet and late sowing season, which caused some shift to other crops. Minnesota (212,764,000 bu.) replaced Iowa (182,886,000 bu.) as the leading oat producing state, followed by Wisconsin, Illinois and South Dakota.

Table I.—*U.S. Oat Crops*

	1951	1950	1949	Average 1940–49
Total production (thousands of bushels)	1,316,396	1,410,464	1,329,473	1,311,651
Acreage harvested (thousands) . . .	36,454	40,733	40,440	39,460
Yields (bushels per acre)	36.1	34.6	32.9	33.2

Table II.—*Oat Production of the Principal Producing Countries*

(In thousands of bushels)

Country	1951	1950	Average 1935–39
United States	1,316,396	1,410,464	1,045,329
U.S.S.R	—	750,000	1,165,000
Canada	502,114	419,930	338,071
France	248,160	227,690	329,304
Western Germany	190,000	175,000	194,500
United Kingdom	170,000	188,500	138,628

In spite of imports from Canada of more than 30,000,000 bu. in 1950–51 and an anticipated import in 1951–52 at about the same rate, the season average price received by farmers was estimated at 84.5 cents or 5 cents per bushel more than in 1950. Prices continued above the government support price of 72 cents per bushel and late in the year went above 90 cents per bushel. A national production goal of 1,360,000,000 bu. of oats was officially recommended for 1952 from 42,900,000 planted acres. The support price was set at not less than 78 cents.

The world oat crop of 1951 was estimated at 4,305,000,000 bu., as compared with 4,210,000,000 bu. in 1950 and 4,365,000,000 bu. before World War II, produced from 127,800,000 ac., as compared with 131,680,000 ac. in 1950 and 144,000,000 ac. prewar.

(J. K. R.)

Obituaries.

The following is a selected list of prominent men and women, of the United States and other countries, who died during the year 1951:

Abdullah ibn Hussein, king of the Hashemite Kingdom of Jordan (b. Mecca, Saud. Arab., 1882—d. Jerusalem, July 20, 1951), was the second son of King Hussein of the Hejaz. He joined his father in exile in Istanbul in 1893 and in 1907 was a member of the Ottoman parliament. During World War I he participated in the Arab revolt which started in June 1916. His father's unauthorized assumption of the title of "king of the Arab countries" was not viewed with favour by Ibn Sa'ud, king of Nejd. The estrangement between the two rulers resulted in a territorial dispute on the Hejaz-Nejd border. In May 1919 the Hejaz forces under Abdullah were annihilated by Ibn Sa'ud's army. In March 1921, after Transjordan was separated from Palestine, Winston Churchill, then British secretary of state for the colonies, offered Abdullah the rule of the new country as emir under British mandate. On May 25, 1946, he was crowned sovereign king of the Hashemite Kingdom of Transjordan (renamed Jordan in 1949). On May 15, 1948, he declared war on Israel, but his British-trained army failed to justify its reputation; an armistice was signed with Israel on April 3, 1949. On April 24, 1950, Abdullah announced in a speech from the throne the annexation of Arab Palestine to Jordan. He had interested himself particularly in plans for bringing about a union between Jordan, Syria and Iraq, the so-called "fertile crescent" scheme, but he encountered much opposition both in Damascus, Syr., and in Baghdad, Iraq. He was assassinated in Jerusalem. Abdullah was well known as a loyal friend of Great Britain.

Adamic, Louis, U.S. author (b. Blato, Slovenia, Yugos., March 23, 1899—d. near Riegelsville, N.J., Sept. 4, 1951).

Addison, Christopher Addison, 1ST VISCOUNT, OF STALLINGBOROUGH, LINCOLNSHIRE, British surgeon and politician (b. Hogsthorpe, Lincs., Eng., June 19, 1869—d. West Wycombe, Bucks., Eng., Dec. 11, 1951), was educated at Trinity college, Harrogate, Yorks., and at St. Bartholomew's Hospital Medical college, London. He was subsequently an anatomy lecturer at "Bart's," professor of anatomy at University college, Sheffield, and, in 1901, Hunterian professor at the Royal College of Surgeons, London. Elected Liberal member of parliament in 1910, he was parliamentary secretary, board of education, 1914–15, minister of munitions, 1916–17, minister in charge of postwar reconstruction, 1917, and first minister of health, 1919–21. He promoted an ambitious state-subsidized housing scheme, which caused an outcry against the heavy burden upon the taxpayer it would involve, and which strained the hitherto close relations between himself and Lloyd George, the prime minister. In 1921 Addison was transferred to a ministry without portfolio and in the same year he resigned from the government altogether. In 1922 he transferred his allegiance to the Labour party; in the same year he published *The Betrayal of the Slums* and, in 1926, *Practical Socialism.* In the 1929 general election Addison was returned to parliament, in the Labour interest, and the new prime minister, Ramsay MacDonald, appointed him successively parliamentary secretary to the ministry of agriculture and fisheries (1929–30) and minister of agriculture and fisheries (1930–31). In 1937 he was created a baron, and when the Labour party was returned to power in 1945 he was elevated to a viscountcy and appointed dominions secretary, remaining in charge when this department became the commonwealth relations office in 1947. In the same year, however, he asked to be relieved of some of his heavy duties because of his responsibilities as leader of the house of lords, and he was appointed lord privy seal. In 1948–49 he was paymaster general. When in March 1951 Herbert Morrison became foreign secretary, Addison succeeded him as lord president of the council.

Ahern, Michael J., U.S. educator and lecturer (b. New York, N.Y., May 25, 1877—d. Boston, Mass., June 5, 1951).

Aitken, Robert Grant, U.S. astronomer (b. Jackson, Calif., Dec. 31, 1864—d. Berkeley, Calif., Oct. 29, 1951), studied at Williams college, Williamstown, Mass., and taught mathematics and astronomy for several years before joining the staff of the Lick observatory on Mt. Hamilton, Calif. He was named associate director of the observatory in 1923 and director in 1930, retiring from that post in 1935. He devoted much of his career to the study of double stars, and in 1932 received the gold medal of the Royal Astronomical society. (*See* also *Encyclopædia Britannica.*)

"Alain" (EMILE-AUGUSTE CHARTIER), French writer (b. Mortagne, Orne, Fr., March 3, 1868—d. Le Vésinet, near Paris, Fr., June 2, 1951), took his pseudonym from Alain Chartier (*c.* 1392—*c.* 1430), French poet and political writer. He graduated from the Paris Ecole normale supérieure and taught philosophy at various *lycées.* He published about 50 books of which the best known were *Mars ou la guerre jugée* (1921), *Propos sur le christianisme* (1924) and *Les Eléments d'une doctrine radicale* (1925). His outlook was dominated by scepticism, resignation and pacifism, and he had considerable influence on French intellectuals and politicians. Although he continued to write in the *Nouvelle revue française* when it came under German control, he was awarded the Grand Prix National des Lettres in May 1951.

Allan, Sir Hugh Montague, Canadian steamship owner (b. Montreal, Que., Oct. 13, 1860—d. Montreal, Sept. 26, 1951).

Altamira y Crevea, Rafael, Spanish historian and jurist (b. Alicante, Sp., Feb. 10, 1866—d. Mexico City, Mex., June 1, 1951), was from 1897 to 1910 professor of the history of Spanish law in the University of Oviedo and from 1914 to 1936 was professor of the history of political and civil institutions in America in the University of Madrid. From 1922 to 1946 he was a judge of the Permanent Court of International Justice at The Hague. A republican, he did not return to Spain after the civil war, accepting instead a chair at the Autonomous National University of Mexico, Mexico City. His principal works were *Historia de España y de la civilización española* (4 vol., 1900–11) and *Psicologia del pueblo español* (3rd ed. 1945).

Amélie (MARIE AMÉLIE LOUISE HÉLÈNE DE BOURBON ORLÉANS), former queen of Portugal (b. Twickenham, Mdx., Eng., Sept. 28, 1865—d. Le Chesnay-Versailles, Fr., Oct. 25, 1951).

Anderson, Clifford C., U.S. archaeologist (b. 1870?—d. Xenia, O., Aug. 8, 1951).

Angly, Edward, U.S. war correspondent and author (b. Palestine, Tex., Jan. 29, 1898—d. New York, N.Y., Dec. 7, 1951).

Armstrong, Henry W. ("HARRY"), U.S. composer (b. Sommerville, Mass., July 22, 1879—d. New York, N.Y., Feb. 28, 1951), wrote the music for a number of ballads, of which "Sweet Adeline" was by far the most successful. The lyric for this ballad was written by Richard Gerard Husch, who wrote under the name Richard H. Girard. Originally entitled "You're the Flower of My Heart, Sweet Rosalie," it was not successful, but finally, in tribute to the opera singer, Adelina Patti, the name "Rosalie" was changed to "Adeline." The song was published in 1903 and later became immensely popular. Although it earned more than $2,000,000 during the following 50 years, the composers had sold their rights for $5,000, of which Armstrong had received $1,000.

Atwood, John Murray, U.S. theologian (b. Brockton, Mass., Sept. 25, 1869—d. Canton, N.Y., Nov. 4, 1951).

Azevedo, Philadelpho de Barros, Brazilian jurist (b. Rio de Janeiro, Braz., 1893?—d. The Hague, Neth., May 7, 1951).

Bachmann, Werner Emmanuel, U.S. chemist (b. Detroit, Mich., Nov. 13, 1901—d. Ann Arbor, Mich., March 22, 1951), studied at the University of Michigan at Ann Arbor and later at the University of Zürich, Switz., as a Rockefeller foundation fellow and in London and Munich as a Guggenheim Memorial foundation fellow. He became an instructor at the University of Michigan in 1925 and was made a full professor in 1939. Renowned professionally for his contributions in the field of organic synthesis, he was best known publicly for the development of a method of producing the explosive R.D.X. (cyclo-trimethylene-trinitramine) or cyclonite in quantity at low cost. The explosive, 50% more powerful than T.N.T., was widely used by the U.S. forces during World War II.

Badayev, Alexei Goodovich, soviet government official (b. Yuryevo, Russia, 1883—d. Moscow, U.S.S.R., Nov. 3, 1951).

Bailey, Mildred (MILDRED RINKER), U.S. blues singer (b. Indian reservation, Washington state, 1903?—d. Poughkeepsie, N.Y., Dec. 12, 1951).

Baker, Al, U.S. magician (b. Poughkeepsie, N.Y., 1874?—d. New York, N.Y., Oct. 24, 1951).

Baker, George Philip, British author (b. May 21, 1879—d. April 19, 1951).

Baldwin, Francis Marsh, U.S. biologist (b. West Upton, Mass., Jan. 16, 1885—d. Los Angeles, Calif., Feb. 2, 1951).

Ballantine, Henry Winthrop, U.S. law educator (b. Oberlin, O., Oct. 12, 1880—d. Berkeley, Calif., Dec. 4, 1951).

Bán, Antal, former Hungarian government official (b. 1903—d. announced at Zürich, Switz., Aug. 26, 1951).

Barbour, Sir John Milne, Irish industrialist (b. Lisburn, County Antrim, Ire., Jan. 4, 1868—d. near Belfast, N. Ire., Oct. 3, 1951).

Barere, Simon, Russian pianist (b. Odessa, Russia, 1896—d. New York, N.Y., April 2, 1951).

Barnes, Albert Coombs, U.S. art collector (b. Philadelphia, Pa., 1872—d. near Philadelphia, July 24, 1951), received an M.D. degree from the University of Pennsylvania, Philadelphia, in 1892 and later studied at the University of Heidelberg in Germany. He developed the formula for the antiseptic Argyrol, from which he made a fortune, but after about 1913 he devoted himself chiefly to the building up of an art collection, and in 1929 he sold his company, the A. C. Barnes Co., to the Zonite Products Corp. His collection eventually included art of all periods from before the time of Christ, containing 200 Renoirs, 100 Cézannes, 75 Matisses, 35 Picassos and more than 1,000 other pieces, which he reputedly purchased for only a quarter of their estimated $20,000,000 value. He was the author, or co-author, of five volumes on art: *The Art in Painting, Art of Cézanne, Art of Henri-Matisse, Art of Renoir* and *French Primitives and Their Forms.* He

1951 OBITUARIES: Abdullah ibn Hussein, king of Jordan; Ernest Bevin, British statesman; Fanny Brice, U.S. comedienne; Joseph B. Chifley, Australian statesman; Charles G. Dawes, U.S. financier

also established the Barnes foundation at Merion, Pa., to promote art education.

Bartholow, Otho F., U.S. religious leader and teacher (b. 1868?—d. Urbana, Ill., Sept. 26, 1951).

Basil, Vassily de (VASSILY GRIGORIEVICH VOSKRESENSKY), Russian ballet impresario (b. Caucasus (?), Russ., 1886?—d. Paris, Fr., July 27, 1951), was a colonel in the Imperial Russian army but after the Russian revolution went to western Europe and was for a time manager to the pianist Vladimir Horowitz. In 1925 he joined Prince Zereteli in the direction of the Russian Opera company, which appeared at the Lyceum theatre, London, with Fyodor Chaliapin in leading parts. From 1932 De Basil was co-director (and later was sole director) of the Ballets Russes de Monte Carlo. Under De Basil's direction this company became well-known in Europe and the United States; at various times it engaged such choreographers and dancers as Léonide Massine, Michel Fokine, George Balanchine, Irina Baronova and Tamara Toumanova.

Bates, Daisy, British friend of Australian aborigines (b. London, Eng., 1861—d. Adelaide, Austr., April 19, 1951).

Bauer, Harold, Anglo-American concert pianist (b. New Malden, Eng., April 28, 1873—d. Miami, Fla., March 12, 1951), began his musical career at the age of ten as a concert violinist. Ignace Jan Paderewski, the Polish pianist, prevailed upon Bauer to devote himself exclusively to the piano, and he became a concert soloist known to two generations in Europe and the Americas. He frequently participated in chamber music recitals, and for several years played sonata recitals with the Spanish cellist, Pablo Casals, and the French violinist, Jacques Thibaud. After 1941 he devoted himself largely to teaching and editing music. His reminiscences, published in 1948, were entitled: *Harold Bauer: His Book.* (*See* also *Encyclopædia Britannica.*)

Baur, Paul V. C., U.S. archaeologist (b. Cincinnati, O., Jan. 14, 1872—d. New Haven, Conn., June 5, 1951).

Baxter, Warner, U.S. actor (b. Columbus, O., March 29, 1893—d. Beverly Hills, Calif., May 7, 1951), was interested in amateur theatricals even while in high school, and retained that interest when he went into business—selling farm implements at first, and later insurance. In Dallas, Tex., he began playing roles in a stock company. He attempted to enter motion pictures, but remained on the stage for seven years before he became successful in films.

His best known role was as the Cisco Kid in the picture *In Old Arizona.* For this role he won an Academy Award in 1929 as the year's outstanding actor. He won further success later as Dr. Robert Ordway in the "Crime Doctor" series of movies. Other pictures in which he appeared were *Six Hours to Live, Paddy, the Next Best Thing, Forty-Second Street, Stand Up and Cheer, King of Burlesque, Slave Ship,* and *Kidnapped.* He virtually retired from the movies in the late 1940s and operated a real-estate venture in Malibu, Calif., where he had been a former mayor.

Baynton, Henry, British Shakespearean actor (b. Warwick, Warwick, Eng., Sept. 23, 1892—d. Worthing, Sus., Eng., Jan. 2, 1951).

Beakes, William E., U.S. radio pioneer (b. Newburgh, N.Y., 1880?—d. Miami, Fla., March 30, 1951).

Beattie, Douglas, U.S. opera singer (b. Calif., 1910—d. Fresno, Calif., Sept. 18, 1951).

Beck, Thomas Hambly, U.S. editor and publisher (b. Oakland, Calif., July 24, 1881—d. Stamford, Conn., Oct. 16, 1951).

Beebe, Lewis C., U.S. army officer (b. Iowa, Dec. 7, 1891—d. Faribault, Minn., Feb. 17, 1951).

Beerbohm, Lady (FLORENCE KAHN), U.S.-born British actress (b. Memphis, Tenn.—d. Rapallo, It., Jan. 1951).

Bender, Harold Herman, U.S. educator and etymologist (b. Martinsburg, W. Va., April 20, 1882—d. Princeton, N.J., Aug. 16, 1951).

Beneš, Vojta, Czechoslovak educator and political leader (b. Kozlany, Czech., May 17, 1878—d. South Bend, Ind., Nov. 20, 1951), was the brother of Eduard Beneš, president of Czechoslovakia. He began his career as a schoolteacher, and when the republic of Czechoslovakia was founded in 1919 he was superintendent of schools in Bohemia. He served in the chamber of deputies, 1925–35, and in the senate, 1935–39 and was central inspector of his country's public school system, 1930–36. He fled Czechoslovakia when Hitler invaded the country, returned after the end of World War II to serve again as senator until his resignation in 1948, after which he went to the United States.

Benmosché, Moses, British-born U.S. cancer research specialist (b. London, Eng., Dec. 5, 1883—d. New York, N.Y., Sept. 4, 1951).

Benson, Frank Weston, U.S. painter and etcher (b. Salem, Mass., March 24, 1862—d. Salem, Nov. 14, 1951).

Bernard, Merrill, U.S. climatologist (b. Burlington, Ia., July 25, 1892—d. Washington, D.C., April 13, 1951).

Bernus, Pierre, French editor (b. Basle, Switz., May 29, 1881—d. Paris, Fr., Dec. 22, 1951).

Bethune-Baker, James Franklin, British educator (b. Edgbaston, Warwick, Eng., Aug. 23, 1861—d. Cambridge, Cambs., Eng., Jan. 13, 1951).

Bevin, Ernest, British government official (b. Winsford, Som., Eng., March 9, 1881—d. London, Eng., April 14, 1951), son of an agricultural labourer, worked as a farmer's boy, van boy, streetcar conductor and truck driver. He became a national organizer of the Dockers' union in 1913 and in 1921 became secretary of the Transport and General Workers' union, of which he was the creator. From 1925 to 1940 he was a member of the general council of the Trades Union congress and in 1937 was its chairman. In May 1940 he became minister of labour and national service in Winston Churchill's coalition government and entered the house of commons as M.P. for central Wandsworth. He became secretary of state for foreign affairs in the Labour government in July 1945.

Bevin was present at the Potsdam conference in July–August 1945; he went to Moscow in Dec. 1945 to attend the "Big Three" foreign ministers' conference and returned there in March 1947 to take part in a "Big Four" council of foreign ministers. Until then Bevin had hoped that peace could be achieved through the friendly co-operation of the western powers with the U.S.S.R. and that a German peace treaty, reuniting the four occupation zones, was possible. In the summer of 1947, however, the soviet veto against the use of Marshall plan aid by the soviet-controlled European countries and Vyacheslav Molotov's refusal at the London meeting of the Council of Foreign Ministers (Nov.–Dec. 1947) to abandon the soviet plan of a highly centralized Germany closely tied to the U.S.S.R. finally convinced Bevin that he had been too optimistic; political, military and economic co-operation of the free nations of Europe was the only alternative. At Brussels, Belg., on March 17, 1948, he signed a treaty of alliance with France, Belgium, the Netherlands and Luxembourg. In Paris, on April 16, he presided over the signature of a convention creating the Organization for European Economic Cooperation. In Washington, D.C., on April 4, 1949, Bevin signed the North Atlantic treaty. In his last year of office Bevin's activity was reduced by poor health. On March 9, 1951, he resigned and was appointed lord privy seal.

Bickell, John P., Canadian mining financier (b. Molesworth, Ont., Sept. 26, 1884—d. New York, N.Y., Aug. 22, 1951).

Birdwood, William Riddell Birdwood, 1ST BARON OF ANZAC AND OF TOTNES, Devon, British field marshal (b. Kirkee, Bombay Presidency, Ind., Sept. 13, 1865—d. near London, Eng., May 17, 1951). (*See* also *Encyclopædia Britannica.*)

Bissonnette, Thomas Hume, Canadian-born U.S. biologist (b. Dundas, Ont., June 27, 1885—d. Hartford, Conn., Nov. 30, 1951).

Bjerknes, Vilhelm Friman Koren, Norwegian meteorologist (b. Norway, 1862—d. Oslo, Nor., April 9, 1951).

Blackwood, Algernon (Henry), British novelist and short story writer (b. Kent county, Eng., 1869—d. London, Eng., Dec. 10, 1951).

Blair, Emily (MRS. EMILY NEWELL BLAIR), U.S. author (b. Joplin, Mo., 1877?—d. Alexandria, Va., Aug. 3, 1951).

Blakstone, Nan (MRS. RONALD A. GERARD), U.S. singer (b. San Antonio, Tex., 1906—d. Chicago, Ill., Sept. 24, 1951).

Blamey, Sir Thomas Albert, Australian field marshal (b. Wagga Wagga, N.S.W., Austr., Jan. 24, 1884—d. Melbourne, Vict., Austr., May 27, 1951), was trained for the teaching profession but in 1906 joined the Australian permanent force. He later served in India and England and, during World War I, in Egypt, at Gallipoli and in France. In 1918 he became chief of staff of the Australian corps on the western front; his order to the Australians at the start of the final Allied offensive became a model for instruction at military schools and staff colleges. In 1919 he was chief of staff, Australian Imperial force. He was second chief of general staff, Australian Commonwealth Military forces, 1923–25, and chief commissioner of police, Victoria, 1925–37. From 1931 to 1937 he also commanded the 3rd Australian division and in 1939–40 was general officer commanding, 6th division, A.I.F. He commanded the 1st Australian corps in the middle east in 1940 and was appointed deputy commander in chief, middle east, under Lord Wavell in 1941; as such he was in charge of the ill-starred expedition to Greece. In 1942–45 he was commander in chief, Allied land forces, southwest Pacific area, under Gen. Douglas MacArthur, and received the surrender of the Japanese in that theatre in Sept. 1945. Blamey had been knighted in 1935 and was promoted field marshal in 1950; he was the first Australian soldier to attain this rank.

Bland, E. Beatrice, British impressionist painter (b. Lincoln, Lincs., Eng., 1868—d. London, Eng., Jan. 20, 1951).

Blegvad, Harald, Danish biologist (b. Samsö, Den., 1886?—d. announced Copenhagen, Den., Aug. 21, 1951).

Bliss, Gilbert Ames, U.S. mathematician (b. Chicago, Ill., May 9, 1876—d. Harvey, Ill., May 8, 1951).

Blue, Edna, U.S. welfare worker (b. New York, N.Y., 1901?—d. New York, March 24, 1951).

Bohr, Harald August, Danish mathematician (b. Copenhagen, Den., April 22, 1887—d. Copenhagen, Jan. 22, 1951).

Bolm, Adolf, Russian-born ballet dancer and choreographer (b. St. Petersburg, Russia, 1885?—d. Hollywood, Calif., April 16, 1951).

Bonomi, Ivanoe, Italian government official (b. Mantua, It., 1873—d. Rome, It., April 20, 1951), one of the founders of the Italian Socialist party in 1892, was elected deputy in 1909, but in 1912 was expelled from the party because he supported the Libyan war. In the same year, together with Leonida Bissolati-Bergamaschi, he founded the Socialist Reformist party which at the outbreak of World War I declared itself interventionist, whereas the "official" Socialist party was neutral. He was a minister in the Boselli cabinet (1916) and in the Orlando cabinet (1919), and minister of war and later minister of the treasury in the Giolitti cabinet (1920–21). In July 1921 he became prime minister but had to resign in Feb. 1922. Being anti-Fascist he was soon forced to retire from politics, not reappearing again until the German occupation of Rome in Sept. 1943, when he became head of the Roman Committee of National Liberation. From June 9, 1944, to June 12, 1945, he led two successive provisional governments. In 1948 he was elected president of the senate.

Bonsal, Stephen, U.S. writer and diplomat (b. Baltimore, Md., March 29, 1865—d. Washington, D.C., June 8, 1951), studied at St. Paul's school, Concord, N.H., the universities of Heidelberg and Bonn in Germany and in Vienna, Aus. At the age of 20 he was sent by the *New York Herald* to the Balkans to cover the Serbo-Bulgarian War. His other assignments as a correspondent included the Chino-Japanese War (1895); the Spanish-American War (1898); the China Relief expedition (1900); troubles in the Philippines (1901), Venezuela (1903), the Balkans (1904), and Russia (1907); and the Francisco Madero revolution in Mexico in 1910 and 1911.

He entered the U.S. foreign service as secretary of the legation and chargé d'affaires in Peking, China, and later served in the same capacity in Madrid, Sp., Tokyo, Japan, and in Korea. In 1917 he was named a major, stationed at the U.S. Army War college in Washington, D.C., and in 1918 he joined the headquarters staff of Gen. John J. Pershing, becoming attached to the U.S. mission to the peace conference at the end of World War I. At the Versailles peace conference he served as interpreter for Pres. Woodrow Wilson.

He won the 1945 Pulitzer prize in history for his book, *Unfinished Business*. He was also the author of other books extending over a half century of publishing history, from *Morocco as It Is* (1892) to *Suitors and Suppliants* (1946). His books helped to establish the behind-the-scenes exposé type of book later favoured by other foreign correspondents.

Booz, Edwin George, U.S. management counselor (b. Reading, Pa., Sept. 2, 1887—d. Evanston, Ill., Oct. 14, 1951).

Borchard, Edwin, U.S. law professor (b. New York, N.Y., Oct. 17, 1884—d. Hamden, Conn., July 22, 1951), served on the Yale university law school faculty for more than 30 years. An authority on international law and constitutional law, he also devoted much of his career to legal reforms. His book *Convicting the Innocent* (1932) was a study of miscarriages of justice. A lifelong exponent of U.S. neutrality, Borchard's works were frequently quoted in congressional debates prior to the U.S. entry into World War II. He served as adviser to many departments of the U.S. government.

Bosch, Ernesto, Argentine statesman (b. Buenos Aires, Arg., Jan. 8, 1863—d. announced Buenos Aires, Aug. 22, 1951).

Box, Charles Richard, British physician and surgeon (b. 1866—d. London, Eng., April 3, 1951).

Branham, Vernon C., U.S. criminologist (b. Denver, Colo., 1890?—d. Silver Springs, Md., Oct. 23, 1951).

Brice, Fanny, U.S. actress (b. New York, N.Y., Oct. 29, 1892—d. Hollywood, Calif., May 29, 1951), was born Fannie Borach, daughter of a lower east side New York saloonkeeper. She began her acting career at the age of 13 when she won an amateur singing contest. When she was 16 she obtained a job in the chorus of a George M. Cohan-Sam Harris review, but Cohan fired her when he discovered she could not dance. She then sang in burlesque houses in New York city, and eventually Florenz Ziegfeld, the producer, heard her and launched her on her career as a star.

She appeared as a singing comedienne in the *Ziegfeld Follies* for many years beginning in 1916. Her early acts included satires on ballet dancers, fan dancers and "vamp" actresses. She appeared with such stars as Eddie Cantor, Will Rogers, W. C. Fields and Willie Howard and in such reviews as *Music Box Review of 1924*, *Sweet and Low* and *Crazy Quilt*. She was especially renowned for her interpretations of two songs, "My Man" and "Rose of Washington Square."

She first created the character Baby Snooks, an annoying little girl, to amuse her friends, but brought Snooks to the radio in 1938 and played the role for many years. Her motion picture roles included acting the part of herself in *The Great Ziegfeld*, and appearances in *Everybody Sing* and *Be Yourself*.

She was married three times, first to Frank White, a Springfield, Mass., barber; later to Jules W. ("Nicky") Arnstein and then to the producer Billy Rose.

Bridie, James (Osborne Henry Mavor), British dramatist and physician (b. Pollokshields, Glasgow, Scot., Jan. 3, 1888—d. Edinburgh, Scot., Jan. 29, 1951).

Britton, Roswell Sessoms, U.S. educator (b. Shanghai, China, 1897?—d. New York, N.Y., Feb. 2, 1951).

Broch, Hermann Joseph, Austrian-born U.S. author and lecturer (b. Vienna, Aus., Nov. 1, 1886—d. New Haven, Conn., May 30, 1951).

Brockway, Howard, U.S. composer (b. Brooklyn, N.Y., Nov. 22, 1870—d. New York, N.Y., Feb. 20, 1951).

Broom, Robert, South African palaeontologist (b. Paisley, Renfrew, Scot., Nov. 30, 1866—d. Pretoria, Trans., U. of S.Af., April 6, 1951).

Brouckère, Louis de, Belgian government official (b. Roulers, Belg., 1870—d. Brussels, Belg., June 4, 1951).

Brown, Edward Killoran, Canadian-born U.S. educator (b. Toronto, Ont., Aug. 12, 1905—d. Chicago, Ill., April 23, 1951).

Brown, Lewis H(erold), U.S. industrialist (b. Creston, Ia., Feb. 13, 1894—d. Delray Beach, Fla., Feb. 26, 1951).

Browne, Arthur Heber, Anglican bishop of Bermuda (b. 1864—d. Hamilton, Bermuda, June 10, 1951).

Browning, Grace, U.S. social worker (b. Geary, Okla., Dec. 30, 1904—d. Indianapolis, Ind., Feb. 7, 1951).

Bryant, Lane (Mrs. Lena Himmelstein Bryant Malsin), U.S. clothing designer and retailer (b. Lithuania, 1879?—d. New York, N.Y., Sept. 26, 1951), went to the U.S. in 1895 and worked as a seamstress. She married David Bryant, a jewellery salesman, who died early in their marriage, and she was compelled to return to her work. In 1906 she opened a store, and it was in establishing a bank account that she accidentally signed her name "Lane" instead of "Lena." Embarrassed by the error, she did not correct it and was known as Lane Bryant thereafter. She won customers especially for her maternity dresses, designed to be "presentable but comfortable." In 1909 she married Albert Malsin, and thereafter devoted herself largely to creating designs while he ran the merchandising end of their business, which expanded rapidly. In 1923 the Lane Bryant enterprises were grossing $5,000,000 a year; by 1947 they were grossing $45,000,000 a year, and included 22 retail shops across the U.S. She had retired but had retained the title of vice-president of the company and took an interest in its operation until her death.

Buchholz, John Theodore, U.S. botanist (b. Polk County, Neb., July 14, 1888—d. Champaign, Ill., July 1, 1951).

Buck, Sir Peter Henry (Te Rangi Hiroa), New Zealand physician, politician and anthropologist (b. Urenui, Taranaki, N.Z., Aug. 15, 1880—d. Honolulu, T.H., Dec. 1, 1951).

Burch, Guy Irving, U.S. population analyst (b. Clayton, N.M., May 24, 1899—d. Washington, D.C., Jan. 13, 1951).

Burgess, (Frank) Gelett, U.S. author and humorist (b. Boston, Mass., Jan. 30, 1866—d. Carmel, Calif., Sept. 18, 1951), was graduated from the Massachusetts Institute of Technology, Cambridge, Mass., and began work as a draftsman with the Southern Pacific railway. He later taught topographical drawing at the University of California. Many of his subsequent writings were about California.

Burgess founded a magazine, the *Lark*, and in the first number appeared a quatrain which he wrote, and which became famous:

"I never saw a purple cow;
I never hope to see one;
But I can tell you anyhow,
I'd rather see than be one."

He thereafter went to New York city where he continued his humorous writing, which included *The Lively City o' Ligg* (1898), *Goops and How to Be Them* (1900), *The Rubaiyat of Omar Cayenne* (1904), and *Why Men Hate Women* (1927). He was credited with adding to the language a number of words, such as "blurb" and "goop," as well as a new meaning of the word "bromide."

Burton-Chadwick, Sir Robert, British government official (b. Birkenhead, Ches., Eng., June 20, 1869—d. London, Eng., May 21, 1951).

Busch, Fritz, German-born conductor (b. Siegen, Westphalia, Ger., March 13, 1890—d. London, Eng., Sept. 14, 1951).

Bush, John Fellows, U.S. former hospital official (b. Rochester, N.Y., 1874?—d. Rochester, N.Y., Nov. 29, 1951).

Bushnell, Edward Rogers, U.S. athlete and writer (b. Republican City, Neb., 1876?—d. Moorestown, N.J., Jan. 5, 1951).

Bustamante y Sirven, Antonio Sánchez de, Cuban jurist (b. Havana, Cuba, April 13, 1865—d. Havana, Aug. 24, 1951), studied at the University of Havana and at the University of Madrid in Spain, and began the practice of law in Havana in 1884. He was elected senator in 1902 when the republic of Cuba was constituted, and served until 1918. A delegate to the second peace conference at The Hague in 1907 and the Paris peace conference in 1919, he was made a member of the Permanent Court of Arbitration of The Hague in 1908 and a judge of the Permanent Court of International Justice in 1921. In 1928 he was chosen president of the sixth Pan-American conference, held at Havana, and was the author of a code of private international law which was adopted by that conference. He taught law for many years at the University of Havana, and lectured from time to time in the United States. He was the author of numerous works pertaining to international law. (*See* also *Encyclopædia Britannica.*)

Butler, Sir Harold Beresford, British labour relations expert (b. Oxford, Eng., Oct. 6, 1883 -d. Reading, Berks. Eng., March 26, 1951).

Byron, Joseph Wilson, U.S. army officer (b. Fort Meade, S.D., June 3 1892—d. at sea in the Caribbean, April 13, 1951).

Cadbury, Dame Elizabeth Mary (Mrs. George Cadbury), British social worker (b. London, Eng., June 24, 1858—d. Birmingham, Eng., Dec. 4, 1951).

Caffey, Francis Gordon, U.S. retired jurist (b. Gordonsville, Ala., Oct. 28, 1868—d. Verbena, Ala., Sept. 20, 1951).

Cahan, Abraham, Russian-born U.S. newspaperman and novelist (b. Podberezie, Russia, July 7, 1860—d. New York, N.Y., Aug. 31, 1951).

Cahier, Sarah, U.S. singer and teacher (b. Nashville, Tenn., 1874?—d. Manhattan Beach, Calif., April 15, 1951).

Caldwell, Fred T., U.S. business executive (b. Bloomfield, Ia., 1883—d. New York, N.Y., Dec. 21, 1951).

Caldwell, Robert J., U.S. industrialist and author (b. Louisville, Ky., May 12, 1875—d. Winter Park, Fla., Dec. 21, 1951).

Callaway, Llewellyn Link, U.S. jurist (b. Tuscola, Ill., Dec. 15, 1868—d. Helena, Mont., Aug. 6, 1951).

Capper, Arthur, former U.S. senator and publisher (b. Garnett, Kas., July 14, 1865—d. Topeka, Kas., Dec. 19, 1951), began his career as a typesetter on the *Topeka Daily Capital*. He later became a reporter, then city editor of that paper, and moved to New York city in 1891, serving as a reporter in New York and Washington, D.C., until 1893, when he returned to Kansas and entered business as owner of the *North Topeka Mail*, a small weekly farm journal. He later bought or founded numerous other publications in the farm field, including *Capper's Weekly, Capper's Farmer, Household, Missouri Ruralist, Kansas Farmer, Ohio Farmer, Pennsylvania Farmer, Michigan Farmer*—publications with tremendous influence in the farm belt and with a rich circulation and advertising revenue.

Capper was president of the board of regents of Kansas State Agricultural college, Manhattan, 1910–13, and in 1915 entered politics as governor of Kansas—the first native-born chief executive of the state. In 1918 he was elected to the U.S. senate and continued in service until his retirement on Jan. 3, 1949, when he was the oldest member of that body, though second to Kenneth McKellar of Tennessee in point of service.

Capper did not vote consistently with his Republican associates in the senate. He favoured U.S. entry into the Permanent Court of International Justice, and was author of a resolution that would have bound the U.S. to a general embargo against a nation that might violate the Kellogg pact to outlaw war as an instrument of national policy. He also favoured the New Deal type of farm legislation embodied in the Agricultural Adjustment act. Before World War II he was a leading noninterventionist, and in 1940 was one of four senators who voted against a big navy appropriation. He also opposed peacetime conscription.

Carbonara, Teresa, Italian-born U.S. educator (b. Italy, 1895?—d. New York, N.Y., Feb. 21, 1951).

Carey, William Francis, U.S. engineer and industrialist (b. Hoosick Falls, N.Y., Sept. 14, 1878—d. Indio, Calif., Feb. 23, 1951).

Carl, Prince (OSCAR CARL WILHELM), president of Swedish Red Cross (b. Stockholm, Swed., Feb. 27, 1861—d. Stockholm, Oct. 23, 1951).

Carmona, Antonio Oscar de Fragosa, Portuguese army officer and statesman (b. Lisbon, Port., Nov. 24, 1869—d. Lisbon, April 18, 1951), was a full general when first brought into contact with Portuguese politics as a member of a nonparty cabinet in Nov. and Dec. 1923. After the military *coup d'état* of May 28, 1926, headed by a triumvirate composed of himself, Gen. Gomes da Costa and Comdr. Mendes Cebeçâdas, he succeeded in removing his two colleagues. By July he was prime minister and on Nov. 26, 1926, he also assumed by decree the position of president of the republic. By the plebiscite of March 25, 1928, he was confirmed as president for five years (prolonged to seven in 1933 in accordance with the constitution of that year), and was re-elected in 1935, 1942 and 1949. Meanwhile Antonio de Oliveira Salazar had become prime minister in 1932 and was Portugal's real leader. On May 28, 1947, Carmona was raised to the rank of first marshal of Portugal. (*See* also *Encyclopædia Britannica.*)

Carpenter, John Alden, U.S. composer (b. Park Ridge, Ill., Feb. 28, 1876—d. Chicago, Ill., April 26, 1951), studied music at Harvard university under John Knowles Paine. Graduating from Harvard in 1897, he entered his father's mill, railroad and ship supply firm, and remained with this firm until his retirement in 1936. He continued to study music under Sir Edward Elgar and Bernhard Ziehn, however, and began to compose about the turn of the century. By 1912 his work had become fairly well-known. His *Concertino* for piano and orchestra was first played in 1916 by the Chicago Symphony orchestra with Percy Grainger conducting. His *Adventures in a Perambulator*, depicting the emotions of a baby on an outing, was perhaps his most-played work. His ballets included *The Birthday of the Infanta, Krazy Kat* and *Skyscrapers*.

Carter, Henry, British religious leader (b. Plymouth, Dev., Eng., Nov. 3, 1874—d. London, Eng., June 19, 1951).

Carton de Wiart, Henry Victor Marie Ghislain, COUNT, Belgian lawyer and statesman (b. Brussels, Belg., Jan 31, 1869—d. Brussels, May 6, 1951), entered politics as a member of the Catholic (later Social Christian) party; in 1896 he was elected a member for Brussels of the chamber of representatives and was afterwards constantly re-elected. From 1911 to 1918 he served as minister of justice. In 1919 he was appointed minister of state, and he served for a short period as minister to The Hague. He was prime minister and minister of the interior in 1920–21, minister of social welfare in 1933–34, minister without portfolio in 1949 and minister of justice in 1950. He was also a writer of distinction: *La Cité ardente* (1904) and *Les Vertus bourgeoises* (1910) gave him a European literary reputation. Until 1947 he was president of the Inter-Parliamentary union.

Casas, José Joaquin, Colombian government official (b. Chiquinquirá, Boyacá, Colom., Feb. 24, 1866—d. Bogotá, Colom., Oct. 8, 1951).

Cathcart, George Clark, British physician (b. Edinburgh, Scot., 1860?—d. Edinburgh, Jan. 4, 1951).

Chambers, Frank A., U.S. smoke expert (b. 1884?—d. Chicago, Ill., March 21, 1951).

Chambers, Ralph Hamilton, U.S. consulting civil engineer (b. St. Joseph, Mo., April 17, 1871—d. New York, N.Y., Dec. 22, 1951).

Chang Po-ling, Chinese educator (b. Tientsin, China, 1874—d. Hong Kong, China, Feb. 27, 1951).

Chapman, Virgil Munday, U.S. senator (b. Middleton, Ky., March 15, 1895—d. Bethesda, Md., March 8, 1951).

Chase, Irving Hall, U.S. industrialist (b. Waterbury, Conn., May 13, 1858—d. Waterbury, March 14, 1951).

Chase, Stanley Perkins, U.S. educator and author (b. Portland, Me., April 14, 1884—d. Brunswick, Me., Jan. 21, 1951).

Cheatle, Sir George Lenthal, British surgeon (b. June 13, 1865—d. Bushey, Herts., Eng., Jan. 2, 1951).

Chen Kuo-fu, Chinese government official (b. Wu-hsing, China, 1892—d. Taipei, Formosa, Aug. 25, 1951).

Chevallier, Pierre, French politician (b. 1909—d. Orleans, Fr., Aug. 12, 1951).

Cheyney, Peter (REGINALD EVELYN PETER SOUTHOUSE-CHEYNEY), British novelist (b. Feb. 22, 1896—d. London, Eng., June 26, 1951).

Chibas y Rivas, Eduardo, Cuban former senator (b. Santiago de Cuba, Cuba, Aug. 26, 1907—d. Havana, Cuba, Aug. 16, 1951).

Chifley, Joseph Benedict, Australian government official (b. Bathurst, N.S.W., Austr., Sept. 22, 1885—d. Canberra, N.S.W., Austr., June 13, 1951), was educated at the Patrician Brothers' High school, Bathurst. He worked for a time in a store, then joined the N.S.W. railways and became prominent in the Railway Locomotive Engine-Drivers' union. In 1928 he was elected representative of Macquarie (the Bathurst constituency) in the federal house of representatives and from 1929 to 1932 he was minister for defense. But he had lost his parliamentary seat in the election of 1931 and did not return to the house until 1940. In 1941 the Labour party returned to power: Chifley was appointed commonwealth treasurer and in 1942 was given an additional portfolio—postwar reconstruction. In April 1945, during the illness of the prime minister, John Curtin, Chifley acted for him and on Curtin's death (July 5) he succeeded to the Labour party leadership, and (on July 13) to the post of prime minister. He was confirmed in power in the 1946 elections, but his government's policy of nationalizing the private banks and the increasing labour unrest led to the defeat of the Labour party in 1949, when Chifley was succeeded as prime minister by Robert Menzies.

Christian, Henry Asbury, U.S. pathologist (b. Lynchburg, Va., Feb. 17, 1876—d. Whitefield, N.H., Aug. 24, 1951).

Christians, Mady (MARGUERITA MARIA CHRISTIANS), Vienna-born actress (b. Vienna, Aus., Jan. 19, 1900—d. Norwalk, Conn., Oct. 28, 1951), was the daughter of an actor-manager father and a mother who was a concert singer. Her family came to the U.S. in 1912, where her father managed the old Irving Place theatre in New York city, and she made her debut there at the age of 16. Returning to Europe, in 1917 she enrolled in Max Reinhardt's school of acting, Berlin, Ger., and for five years she toured Europe under Reinhardt's supervision, playing in a variety of dramatic as well as musical comedy roles.

She returned to the U.S. in 1931 and appeared initially in a series of plays that were failures. In Oct. 1938 she opened in *Hamlet* with Maurice Evans. Her subsequent roles included appearances in Shakespeare's *Henry IV* (part I), Lillian Hellman's *Watch on the Rhine*, and—perhaps her best-remembered role—that of the principal character (Mama) in John van Druten's adaptation of *I Remember Mama*, which was first produced in Oct. 1944 and continued for 720 performances on Broadway. She also appeared in numerous motion pictures.

Clovese, Joseph ("UNCLE JOE"), last surviving Negro veteran of the U.S. Civil War (b. St. Bernard parish, La., Jan. 28, 1844?—d. Allen Park, Mich., July 13, 1951).

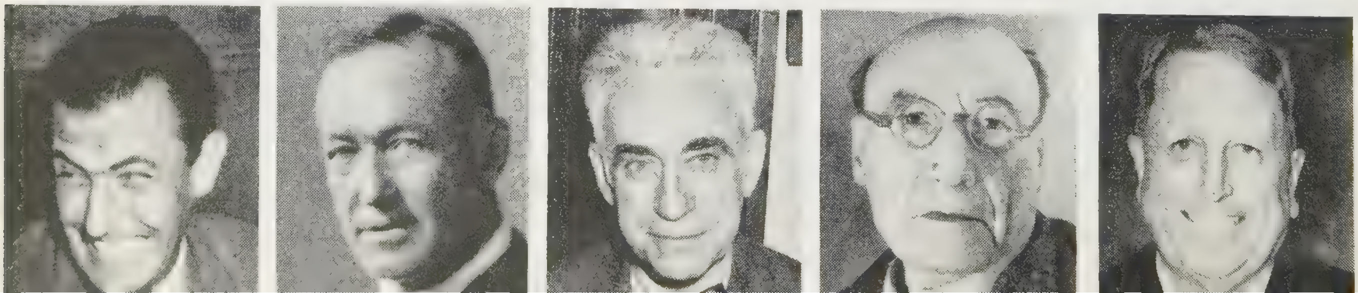
Cochran, Sir Charles Blake, British impresario (b. Lindfield, Sus., Eng., Sept. 25, 1872—d. London, Eng., Jan. 31, 1951).

Cody, Henry John, Canadian clergyman (b. Embro, Ont., Dec. 6, 1868—d. Toronto, Ont., April 27, 1951), was educated at the Galt Collegiate institute and the University of Toronto. He became rector of St. Paul's Anglican church in Toronto in 1899. He was a candidate for the bishopric of Toronto in 1909 but was defeated. However, he declined the positions of bishop of Nova Scotia (1904) and archbishop of Melbourne, Austr. (1921), besides refusing various other honours in order to remain with his Toronto parish. He served as minister of education for Ontario in 1918–19 and concurrently represented northeast Toronto in the Ontario legislature. He left his pulpit in 1932 to become president of the University of Toronto, serving in that capacity until 1945, and as chancellor of the university from 1944 to 1947.

Coe, George Albert, U.S. religious educator (b. Monroe county, N.Y., March 26, 1862—d. Claremont, Calif., Nov. 9, 1951).

Cogshall, Wilbur Adelman, U.S. astronomer (b. Mendon, Mich., Feb. 8, 1874—d. Rockford, Ill., Oct. 5, 1951).

Cohn, Jefferson Davis, British-born U.S. financier and sportsman (b. London, Eng., 1881—d. New York, N.Y., Feb. 20, 1951).



1951 OBITUARIES: Eddy Duchin, U.S. musician; Lincoln Ellsworth, U.S. explorer; John Erskine, U.S. educator; André Gide, French novelist; William Randolph Hearst, U.S. publisher

Collins, Edward Trowbridge ("EDDIE"), U.S. baseball player, manager and coach (b. Millerton, N.Y., May 2, 1887—d. Boston, Mass., March 25, 1951), entered professional baseball while still an undergraduate at Columbia university. He played second base with the Philadelphia Athletics from 1906 until 1914. In that time he starred in four world series, and when he was sold to the Chicago White Sox it was for a reported $50,000, the highest price ever paid for a ball player up to that time. He played second base for the White Sox for 12 years, ending as player-manager in 1925 and 1926. He rejoined the Athletics, but in 1933 went to the Boston Red Sox as general manager and vice-president. He continued in the position of vice-president after Joe Cronin was made the team's general manager in 1948. In their fourth annual poll (1939), the Baseball Writers' Association of America voted Collins a member of Baseball's Hall of Fame at Cooperstown, N.Y. His batting average over 25 years was .333, and his best two campaigns were in 1911 when he hit .365 and in 1923 when he hit .360.

Colpitts, Walter William, Canadian-born U.S. consulting engineer (b. Moncton, N.B., Sept. 17, 1874—d. Princeton, N.J., Dec. 23, 1951).

Cook, Waldo Lincoln, U.S. newspaper editor (b. Woonsocket, R.I., Feb. 19, 1865—d. Springfield, Mass., Sept. 16, 1951).

Coxey, Jacob S(echler), U.S. businessman and politician (b. Selinsgrove, Pa., April 16, 1854—d. Massillon, O., May 18, 1951), was the leader of the famed "Coxey's army" of the unemployed, which marched on Washington, D.C., in 1894. Coxey, as "general" of this army, sought to dramatize his idea that public works should be sponsored by the national government to end unemployment. He also sought currency and credit reforms. He was impelled to organize the march after he had been forced to discharge a number of his employees because of the economic slump of 1893.

Coxey himself was not too adversely affected by the panic. He was reasonably well-to-do and was widely known in sports fields. In fact, he led the march riding in a buggy pulled by a pacer from his stable, Acolyte, that was valued at $40,000. He was arrested in Washington for walking on the grass and for parading with banners in a restricted area and spent 20 days in jail. He eventually won a hearing before a subcommittee of the house ways and means committee, but no action was taken on his proposals.

He repeatedly sought public office and was elected mayor of Massillon in 1931, though he lost when he sought re-election in 1934 and again in 1943. On May 1, 1944, as a type of anniversary of the earlier march, he went to Washington and completed the speech unfinished 50 years before.

Dautry, Raoul, French government official (b. Montluçon, Fr., 1880—d. Lourmarin, Fr., Aug. 21, 1951).

Davenport, Ray Hills, U.S. inventor and business executive (b. Riseville, Pa., 1873?—d. Elizabeth, N.J., March 1, 1951).

Davis, Arthur Joseph, British architect (b. London, Eng., May 21, 1878—d. London, July 22, 1951).

Dawes, Charles Gates, U.S. former vice-president (b. Marietta, O., Aug. 27, 1865—d. Evanston, Ill., April 23, 1951), studied at the Cincinnati Law school, was admitted to the bar in 1886, and practised in Lincoln, Neb., until 1894. He became interested in utility companies in the midwest, and his success in these ventures brought him to public attention. He entered Republican politics as Illinois campaign manager for Pres. William McKinley in 1896 and was comptroller of the currency in the McKinley administration from 1898 to 1902. He then went into the banking field in Chicago.

When the U.S. entered World War I in 1917 Dawes went to France as a lieutenant colonel of the 17th engineers and later was promoted to the rank of brigadier general and appointed to the administrative staff of Gen. John J. Pershing. After the war he helped administer the disposal of U.S. war surplus in France. Returning to the U.S., he advocated U.S. ratification of the Versailles treaty including U.S. membership in the League of Nations, despite his party's general opposition to both stands.

He campaigned for federal budget reforms, and was named first director of the bureau of the budget in 1921. In 1923 he was named to a commission to study Germany's ability to pay war reparations. The result was the Dawes plan, which called for a restoration of sound currency in Germany as a prerequisite to reparations payments and for more realistic scales of payments themselves. For this effort he was awarded the Nobel peace prize in 1925, jointly with Sir Austen Chamberlain, British foreign secretary.

In 1924 he was nominated for vice-president on the Republican ticket headed by Calvin Coolidge which won an overwhelming triumph. He was U.S. delegate to the London Naval conference in 1930; U.S. ambassador to Great Britain, 1929–32, and in 1932 was named president of the Reconstruction Finance corporation. He resigned the same year and re-entered the banking field.

Dawes was also a musician and composer and was author of several books. (*See* also *Encyclopædia Britannica.*)

Day, Clive, U.S. educator and author (b. Hartford, Conn., Feb. 11, 1871—d. Greensboro, Vt., July 27, 1951).

Day, Edmund Ezra, U.S. educator (b. Manchester, N.H., Dec. 7, 1883—d. Ithaca, N.Y., March 23, 1951), was president of Cornell university, Ithaca, from 1937 to 1949. He studied at Dartmouth college, Hanover, N.H., and at Harvard university, receiving his Ph.D. at the latter institution in 1909. He taught at Harvard until 1923, meanwhile serving in government posts in World War I. He next went to the University of Michigan, Ann Arbor, where he headed the economics department, and also organized and served as dean of the school of business administration. From 1928 to 1937 he was director for social sciences for the Rockefeller foundation. At Cornell he established the first state school of industrial and labour relations in the U.S., a graduate school of aeronautical engineering and other projects that contributed to the growth of the university.

De Jesús, Angel Román, Puerto Rican jurist (b. Ciales, P.R., Aug. 9, 1891—d. San Juan, P.R., April 30, 1951).

Dempster, James H., Canadian-born U.S. roentgenologist (b. Elgin county, Ont., May 12, 1873—d. Detroit, Mich., Aug. 5, 1951).

De Nardis, Camillo, Italian composer (b. Orsogna, It., May 26, 1857—d. Naples, It., Aug. 5, 1951).

De Priest, Oscar Stanton, U.S. former congressman (b. Florence, Ala., March 9, 1871—d. Chicago, Ill., May 12, 1951).

Diegel, Leo, U.S. professional golfer (b. Detroit, Mich., April 27, 1899—d. North Hollywood, Calif., May 8, 1951).

Diffendorfer, Ralph Eugene, U.S. Methodist missionary and author (b. Hayesville, O., 1879?—d. New York, N.Y., Jan. 31, 1951).

Dix, Dorothy (MRS. ELIZABETH MERIWETHER GILMER), U.S. journalist (b. Montgomery county, Tenn., Nov. 18, 1870—d. New Orleans, La., Dec. 16, 1951), began newspaper work as a columnist on the *New Orleans Picayune*, and soon persuaded her editor to permit her to write a column to answer the various letters from readers about romantic problems. Thus began her famous *Dorothy Dix Talks* which became one of the most widely read U.S. news syndicate features. From 1900 to 1927 she worked largely out of New York city and then she returned to New Orleans. She received more than 2,000 letters a week about "heart problems," and worked daily on a schedule that called for her to develop a story angle, then to expand it in the form of advice felt to be suitably general and of universal romantic interest. She was also the author of several books, including *Fables for the Elite*, *My Joy Ride Around the World*, and *Hearts à la Mode*.

Dodd, Alvin Earl, U.S. industrial expert (b. Hudson, N.Y., March 11, 1883—d. New York, N.Y., June 2, 1951).

Dodero, Alberto Augustín, Uruguayan shipping executive (b. Montevideo, Urug., Jan. 2, 1887—d. Montevideo, March 2, 1951).

Dougherty, Dennis Joseph Cardinal, archbishop of Philadelphia and ranking prelate of the Roman Catholic hierarchy in the U.S. (b. Girardville, Pa., Aug. 16, 1865—d. Philadelphia, Pa., May 31, 1951), was the fifth American to become a cardinal, and the first American to be named a papal legate to a Eucharistic congress.

He worked summers as a breaker boy in a coal mine during his elementary school years, and studied for the priesthood in St. Mary's college, Montreal, Que., and the Theological Seminary of St. Charles Borromeo, Philadelphia, being ordained in Rome, It., May 31, 1890, after a session at the North American college there. He returned to St. Charles as a member of the faculty and became known as a brilliant instructor. From 1903 to 1915 he served as bishop in dioceses of the Philippines.

In 1915 he was appointed bishop of Buffalo, N.Y., assigned to restore the finances of the diocese which had been strained by the construction of a new cathedral. Within three years he had wiped out a deficit of $1,600,000. In 1918 he was named archbishop of Philadelphia, and Pope Benedict XV vested him with the red hat of the cardinalate in 1921.

He was one of the authors of the Legion of Decency movement, aimed against indecent motion pictures. He consistently voiced opposition to the encroachment of the state upon the liberties of the individual. His especial interests also included the status of the Roman Church in Mexico, and the growing problem of intemperance. He was incensed at the trials by Communist nations of members of the Catholic hierarchy, and the only press conference he ever called as a cardinal was for the purpose of speaking out, in 1949, against the Hungarian government's imprisonment of Joseph Cardinal Mindszenty.

Douglas, Lloyd C(assel), U.S. minister and author (b. Columbia City, Ind., Aug. 27, 1877—d. Los Angeles, Calif., Feb. 13, 1951), was one of the most popular American authors, although he did not write his first novel until he was 50 years old. He was the son of a minister and, after receiving the A.M. degree from Wittenberg College, Springfield, O., in 1903, he was ordained in the Lutheran ministry. He served in pastorates in North Manchester, Ind., Lancaster, O., and Washington, D.C. From 1911 to 1915 he was director of religious work at the University of Illinois, Urbana. The next six years he was minister of the First Congregational church in Ann Arbor, Mich., from there moving to Akron, O., then to Los Angeles, Calif., and finally to the St. James United church at Montreal, Que., from which pulpit he retired to write.

His written works were of a moral, didactic and distinctly religious tone. His first novel, *The Magnificent Obsession*, published in 1929, was an immediate and sensational success. Critics held that his type of fiction was in the tradition of the great religious writings of an earlier generation, such as *Ben Hur* and *Quo Vadis*.

Douglas then wrote *Forgive Us Our Trespasses*; *Green Light*; *White Banners*; *Disputed Passage*; *Doctor Hudson's Secret Journal*; *The Robe*, and *The Big Fisherman*. *The Robe* sold more than 2,000,000 copies, without any reprint edition. Douglas sold the motion picture rights to this story, but after $750,000 had been spent on the production the project was abandoned. This experience prompted Douglas, when he produced *The Big Fisherman* as the sequel to *The Robe*, to stipulate that *The Big Fisherman* would be his last novel, and that he would not permit it to be made into a motion picture, used over the radio, condensed or serialized.

Douglas, Robert Langton, British art expert (b. 1864—d. Fiesole, It., Aug. 15, 1951).

Driscoll, Charles Benedict, U.S. journalist and editor (b. Wichita, Kan., Oct. 19, 1885—d. Yonkers, N.Y., Jan. 15, 1951), had written the syndicated column "New York Day by Day" from 1938, when its original author O. O. McIntyre died, until his own death. As executive editor of the McNaught Syndicate, Inc., he had also contracted for or sponsored columns such as those by Mrs. Franklin D. Roosevelt, former Gov. Alfred E. Smith, Jimmie Fidler, Will Rogers, Irvin S. Cobb and Albert Einstein. His hobby was buried treasure and his best-known book, published in 1930, was *Doubloons, the Story of Buried Treasure.*

Drum, Hugh Aloysius, U.S. general (b. Fort Brady, Mich., Sept. 19, 1879—d. New York, N.Y., Oct. 3, 1951), received a presidential appointment as second lieutenant of infantry in Sept. 1898, while a student at Boston college.

He was promoted to first lieutenant in 1900 and captain in 1906. In 1911 he was graduated from the Army School of the Line and in 1912 completed the course at the Army Staff college, both at Ft. Leavenworth, Kan. He served in the Philippines and on the Mexican border in 1914. In World War I he was a brigadier general and served as chief of staff of the U.S. 1st army. Between the wars he was deputy chief of staff under Gen. Douglas MacArthur. By 1940 he was the senior ranking officer of the army in permanent commission, and had commanded all units from a brigade to a field army. After the Japanese attack on Pearl Harbor he was commanding general of the U.S. Eastern Defense command and of the 1st army, and in 1943 he retired with the rank of lieutenant general. From 1943 to 1948 he commanded the New York state guard, and in 1944 he assumed the position of president of the Empire State building, succeeding Alfred E. Smith. During half of his 45 years in military service he held the rank of general officer.

Duchin, Edwin Frank ("Eddy"), U.S. pianist and orchestra leader (b. Cambridge, Mass., April 1, 1909—d. New York, N.Y., Feb. 9, 1951), studied at the Massachusetts College of Pharmacy, Boston. He played the piano for college orchestras and in 1928 received an audition from orchestra leader Leo Reisman. He accepted a job as pianist on condition that he be permitted to return to finish his college studies. He received his pharmacy degree in 1929, then rejoined the Reisman orchestra and never returned to pharmacy.

In 1931 he made his debut with his own orchestra, and soon became one of the country's most popular orchestral entertainers. His orchestra appeared in motion pictures and at major night clubs and hotels. In 1942 he enlisted in the navy, and served on destroyer duty in both the Atlantic and the Pacific, leaving the service as a lieutenant commander. He wrote four books on piano technique.

Duffy, George Gavan, Irish judge (b. Rock Ferry, Ches., Eng., Oct. 21, 1882—d. Dublin, Ire., June 10, 1951).

Dugan, Winston Dugan, 1st Baron of Victoria and of Lurgan in the County of Armagh, British government official (b. May 8, 1877—d. London, Eng., Aug. 17, 1951).

Dumaine, Frederic Christopher, U.S. industrialist (b. Hadley, Mass., March 6, 1886—d. Groton, Mass., May 27, 1951).

Dumond, Frank, U.S. painter and art director (b. Rochester, N.Y., 1865—d. New York, N.Y., Feb. 6, 1951).

Duryea, Nina Larrey Smith (Mrs. Chester B. Duryea), U.S. author and playwright (b. Cohasset, Mass., Aug. 11, 1869—d. Great Barrington, Mass., Nov. 1, 1951).

Dykema, Peter W., U.S. music educator and composer (b. Grand Rapids, Mich., Nov. 25, 1873—d. Hastings-on-the-Hudson, N.Y., May 13, 1951).

Early, Stephen Tyree, U.S. journalist and government official (b. Crozet, Va., Aug. 27, 1889—d. Washington, D.C., Aug. 11, 1951), attended school in Virginia and in Washington, D.C., and began newspaper work in 1908. He covered the U.S. navy department for the Associated Press during the time that Franklin D. Roosevelt served as assistant secretary of the navy. He served overseas as a captain with a machine-gun outfit in World War I, winning the Silver Star, and in 1920 was associated with Franklin D. Roosevelt's unsuccessful campaign for the vice-presidency. He rejoined the Associated Press in 1920 and left that organization seven years later to become Washington representative of Paramount-Publix corporation and Paramount News. When Roosevelt became president in 1933 Early became the president's assistant secretary in charge of press relations and later secretary. Throughout most of the Roosevelt regime he was known as the official spokesman of the White House.

In May 1945 he retired to private business as a vice-president of Pullman, Inc., but returned to government service in April 1948 as undersecretary of defense. He left government service again in Sept. 1950 but was recalled for an emergency period in December of that year after the death of the presidential press secretary Charles G. Ross, remaining only long enough for the appointment of a successor.

Eisler, Paul, U.S. composer and conductor (b. Vienna, Aus., Sept. 9, 1878—d. New York, N.Y., Oct. 16, 1951).

Ellenbogen, Wilhelm, Austrian Socialist leader (b. Nicolsburg, Moravia, 1863—d. New York, N.Y., Feb. 25, 1951).

Ellinger, Desirée, British singer (b. Manchester, Lancs., Eng., Oct. 7, 1893—d. London, Eng., April 30, 1951).

Ellmaker, Lee, U.S. publisher (b. Lancaster, Pa., Aug. 7, 1896—d. Philadelphia, Pa., March 27, 1951).

Ellsworth, Lincoln, U.S. explorer (b. Chicago, Ill., May 12, 1880—d. New York, N.Y., May 26, 1951), was the son of a mine operator and financier from whom he inherited the fortune that made his later explorations financially possible. He studied at the Sheffield scientific school at Yale university and at the Columbia university school of mines, but on leaving college turned to frontier life in the northwest, as an axman on a railroad survey across Canada and as a mining engineer. He qualified as a flier in France during World War I, but was not accepted for active duty. In 1924 he led an expedition sponsored by Johns Hopkins university to make a geological cross section of the Andes mountains from the Pacific ocean to the headwaters of the Amazon river. In 1941, as a lieutenant commander of the U.S. naval reserve, he led a journey of exploration into Peru to search for the tombs of the Inca emperors.

It was as an explorer in the arctic and antarctic that he was best known. In 1925, with Roald Amundsen, he led a transpolar flight of two planes from Spitsbergen to Alaska, which almost ended tragically in a forced landing with the loss of one plane near the pole. In 1926, with Amundsen and Col. Umberto Nobile in the latter's dirigible "Norge," he flew across the pole to Alaska. Congress awarded him a special gold medal for his polar explorations.

In 1931 he helped Sir Hubert Wilkins plan his submarine expedition to the arctic and in the same year flew in the "Graf Zeppelin" on its arctic flight. In 1933 and again in 1934 he was prevented by accidents from attempting flights across the antarctic continent with the pilot Bernt Balchen. In 1935, however, he flew across the continent with Herbert Hollick-Kenyon as pilot. The explorers were downed in a blizzard, being rescued finally from the shack that had been occupied by Adm. Richard E. Byrd during his previous antarctic explorations. On his antarctic flights Ellsworth claimed more than 300,000 sq. mi. of territory for the United States.

Erhardt, John George, U.S. ambassador (b. Brooklyn, N.Y., Nov. 4, 1889—d. Capetown, U. of S. Af., Feb. 18, 1951).

Errol, Leon, U.S. stage and motion-picture comedian (b. Sydney, N.S.W., Austr., July 3, 1881—d. Hollywood, Calif., Oct. 12, 1951).

Erskine, John, U.S. educator and author (b. New York, N.Y., Oct. 5, 1879—d. New York, N.Y., June 2, 1951), as a youth wished to be a musician, and he studied piano and composition, the latter with the composer Edward MacDowell. Throughout his life Erskine continued to play with amateur groups and occasionally on the concert stage. He was active in Metropolitan Opera affairs and served as president of the Juilliard School of Music from 1928 to 1937.

He pursued his higher education at Columbia university, taught English at Amherst college, Mass., then went to Columbia university where he remained from 1909 to 1937 as professor of English literature.

Erskine was a challenging and inspiring teacher, especially because of his ability to instil in his students a new appreciation of the great works of the past. Among his disciples in the Great Books movement were Mortimer Adler, Clifton Fadiman and Mark Van Doren. His influence remained after his death, implicit in the extension of the Great Books movement to hundreds of communities and tens of thousands of students.

As an author, Erskine was best known for his *Private Life of Helen of Troy*, a work that used a classical background to comment on the contemporary "jazz age." Published in 1925, the book established Erskine's popular reputation as a writer. It was translated into 16 languages. He published 30 books in the next 20 years, many of them also having classical themes. Among them were reconstructions of the stories of Sir Galahad, Adam and Eve and François Villon.

Essary, Helen (Mrs. William J. Murphy), U.S. news columnist (b. Baltimore, Md., 1886?—d. Washington, D.C., Aug. 15, 1951).

Fairbank, Janet Ayer (Mrs. Kellogg Fairbank), U.S. author (b. Chicago, Ill.—d. Milwaukee, Wis., Dec. 28, 1951), was married in 1900 to Kellogg Fairbank, Chicago attorney, and began her novel-writing with *At Home* (1910). She was a leader in the cause of woman suffrage and was prominent in Democratic politics as Illinois national committeewoman from 1924 to 1928. Her other novels included *The Smiths* (1925), *The Lion's Den* (1930), *The Bright Land* (1932), *Rich Man—Poor Man* (1936) and a book of short stories, *Idle Hands* (1927).

Falcaro, Joe, Italian-born U.S. bowling champion (b. Naples, It., 1896?—d. Flushing, N.Y., Sept. 6, 1951).

Felici, Ettore, papal nuncio to Ireland (b. Segni, It., March 12, 1881—d. Dublin, Ire., May 9, 1951).

Fellowes, Edmund Horace, British Elizabethan music authority (b. London, Eng., Nov. 11, 1870—d. Windsor, Eng., Dec. 21, 1951).

Fellows, Frank, U.S. congressman (b. Bucksport, Me., Nov. 7, 1889—d. Bangor, Me., Aug. 27, 1951).

Fentress, E. S., U.S. newspaper publisher (b. near Parsons, Kan.—d. Waco, Tex., Feb. 14, 1951).

Fergusson, Sir Charles, former governor general and commander in chief of New Zealand (b. Edinburgh, Scot., Jan. 17, 1865—d. Ayrshire, Scot., Feb. 20, 1951).

Firestone, Russell Allen, U.S. business executive (b. Akron, O., Dec. 3, 1901—d. New York, N.Y., Dec. 12, 1951).

Fiset, Sir Eugene (Marie-Joseph), Canadian government official (b. Rimouski, Que., March 15, 1874—d. Rivière du Loup, Que., June 8, 1951).

Fisher, Dudley, U.S. cartoonist (b. Columbus, O., 1890?—d. Rockport, Mass., July 10, 1951), was the originator of the cartoon "Right Around Home," first conceived for the *Columbus Dispatch*, but eventually syndicated by King Features Syndicate to nearly 200 newspapers. He also was the author of the strip "Myrtle," which he began in 1942 and in which the principal character was based on his daughter Marion.

Flaherty, Robert Joseph, U.S. motion picture producer (b. Iron Mountain, Mich., Feb. 16, 1884—d. Dummerston, Vt., July 23, 1951).

Flowers, Robert Lee, U.S. college president (b. Alexander county, N.C., Nov. 6, 1870—d. Durham, N.C., Aug. 24, 1951).

Foerster, Josef Bohuslav, Czechoslovak composer (b. Bohemia, Dec. 30, 1859—d. Stara Boleslav, Czech., May 29, 1951).

Forbes, Ralph, U.S. actor (b. London, Eng., Sept. 30, 1905—d. New York, N.Y., March 31, 1951), made his first stage appearances in England but moved to the U.S. in 1924. He played opposite Ruth Chatterton in *The Magnolia Lady*, and they were married in Dec. 1924. They acted together in *The Little Minister* and *The Man With a Load of Mischief*, after which Forbes went to Hollywood and appeared in motion pictures. His marriage to Ruth Chatterton ended in divorce, as did his later marriage to Heather Angel. In 1946 he married Dora L. Sayers. His plays included *Private Lives*; *The Doctor's Dilemma*, opposite Katharine Cornell; *Hedda Gabler* opposite Katina Paxinou; *A Kiss for Cinderella* with Luise Rainer. His motion picture films included appearances in *The Little Minister, Bachelor Father, The Green Goddess, Her Wedding Night, Frenchman's Creek, Stage Door, The Last of Mrs. Cheyney, Mary of Scotland*, and *Romeo and Juliet.*

Foster, Frances Middleton, U.S. educator and editor (b. New York, N.Y., 1888?—d. Bronxville, N.Y., Nov. 5, 1951).

Fremstad, Olive (ANNA OLIVIA), Swedish-born U.S. singer (b. Stockholm, Swed., 1871?—d. Irvington, N.Y., April 21, 1951).

Fulton, Chester Alan, U.S. mining engineer (b. Brooklyn, N.Y., Dec. 18, 1883—d. Baltimore, Md., Aug. 16, 1951).

Fyfe, W. Hamilton, British author and journalist (b. London, Eng., Sept. 28, 1869—d. Eastbourne, Sus., Eng., June 15, 1951).

Gates, Eleanor, U.S. novelist and playwright (b. 1875?—d. Los Angeles, Calif., March 7, 1951).

Gauss, Christian, U.S. educator (b. Ann Arbor, Mich., Feb. 2, 1878—d. New York, N.Y., Nov. 1, 1951).

Geist, Walter, U.S. manufacturing executive (b. Milwaukee, Wis., Dec. 1, 1894—d. Milwaukee, Jan. 29, 1951).

Gentile, Don S., U.S. air force officer (b. Piqua, O., June 12, 1920—d. near Ritchie, Md., Jan. 28, 1951), was the 12th ranking U.S. ace in World War II. He became a royal Canadian air force cadet in July 1941. The following December he was appointed an R.C.A.F. pilot officer and flew with various R.C.A.F. squadrons out of England until June 1942 when he joined the Eagle squadron. He destroyed his first enemy aircraft in Aug. 1942, and the following month he was commissioned a second lieutenant in the U.S. army and assigned to the 8th air force as a fighter pilot. He and his wingman, Capt. John T. Godfrey, were praised by Gen. H. H. Arnold as the greatest combat team of any war. Hermann Goering, commander of the German *Luftwaffe*, remarked that he "would gladly give two of his best squadrons for the capture of the Italian Gentile and the Englishman Godfrey." Winston Churchill described the pair of fliers as the Damon and Pythias of the 20th century. They alternated flying protection for each other, and together destroyed more enemy planes than any other two U.S. fighter pilots. Gentile flew 182 combat missions, and destroyed 19.80 German planes in the air and 6 on the ground. (The fractional number is accounted for by "kills" he shared with other pilots.) He crashed in a jet training plane while on a routine flight out of Andrews air force base.

George VI, king of Great Britain, Ireland and the British dominions beyond the seas (b. York Cottage, Sandringham, Eng., Dec. 14, 1895—d. Sandringham, Eng., Feb. 6, 1952). *See* article GEORGE VI.

Georges, Alphonse Joseph, French army officer (b. Montluçon, Allier, Fr., Aug. 15, 1875—d. Paris, Fr., April 24, 1951), graduated from Saint-Cyr and later attended the École Supérieure de Guerre. He subsequently served in Algeria and, during World War I, after being badly wounded as an infantry battalion commander, held staff posts at Salonika and on the western front. In 1925 he became chief of staff to Marshal Henri Philippe Pétain during the Moroccan campaign against Abdel Krim. Appointed to command the Algiers division in 1928, three years later he became commander of the 19th (Algerian) army corps. He was severely wounded in Oct. 1934 while in the company of King Alexander of Yugoslavia at the time of the latter's assassination at Marseilles, Fr. General of the army in 1939, Georges became deputy to the Allied commander in chief Gen. Maurice Gustave Gamelin, and commander in chief of the northeastern front; however, the two generals quarrelled and Georges found himself deprived of much of his authority. After the French capitulation in 1940 he went into retirement, but in 1943 escaped to Algiers and placed his services at the disposal of Gen. Henri Giraud.

Gerard, James Watson, U.S. lawyer and diplomat (b. Geneseo, N.Y., Aug. 25, 1867—d. Southampton, L.I., N.Y., Sept. 6, 1951), won historic fame as U.S. ambassador to Germany during the early years of World War I. Though without previous diplomatic experience, he was responsible for a firm U.S. attitude toward Germany, which also included representations on behalf of the Allied nations then at war with the Germans, which won him acclaim on both sides of the Atlantic. Gerard attended Columbia university and the New York Law school, and served in the Spanish-American War. His first public office was as counsel to the sheriff of New York county. He was next elected to the New York state supreme court, but resigned in 1913 when he was appointed ambassador to Germany. During World War I he raised large sums for the national treasury through his speaking campaigns on behalf of the Liberty Loans. He later wrote two books, based on his experiences in Germany, both of which gained wide circulation. They were *My Four Years in Germany*, and *Face to Face with Kaiserism* (1918). (*See* also *Encyclopædia Britannica.*)

Germanos (LUCAS STRENOPOULOS), Greek Orthodox archbishop (b. near Silivri, eastern Thrace, Turk., Sept. 27, 1868—d. London, Eng., Jan. 23, 1951).

Gide, André Paul Guillaume, French writer (b. Paris, Fr., Nov. 22, 1869—d. Paris, Feb. 19, 1951), attended the Ecole Alsacienne, Paris, a Protestant secondary school, until the age of 11, when his father died, leaving him in the care of his mother and aunt, women of rigid morals. His first book, *Les Cahiers d'André Walter* (1891), in which he attempted to describe the sufferings of adolescence, was published anonymously and at his own expense. He became a frequenter of the Parisian *fin-de-siècle* literary world revolving round such figures as Paul Valéry, Stéphane Mallarmé, Pierre Louys, Maurice Maeterlinck and Oscar Wilde. Entering the literary field as an essayist, André Gide found expression also in poetry, fiction, drama, criticism, reminiscence and translation from English literature. Before World War I he published about 20 books, of which *Les nourritures terrestres* (1897), *L'Immoraliste* (1902), *Le retour de l'enfant prodigue* (1907) and *Les Caves du Vatican* (1914) were the most important. He earned, however, small recognition until his emergence after the war as an apostle of revolt against traditional morality: in the atmosphere of disillusion that succeeded victory, works such as the autobiographical *Si le grain ne meurt* (1921), *Corydon* (written in 1911 but published in 1924) and the novel *Les Faux-Monnayeurs* (1926) appealed to a large section of French and European youth. A visit to the French Congo in 1926 produced *Voyage au Congo* (1927) in which he attacked the abuses of colonialism. This book marked the awakening of a social consciousness and Gide's conversion to communism followed in the early 1930s. A journey to soviet Russia, however, resulted in disenchantment with the Communist regime (*Retour de l'U.R.S.S.*, 1936). In 1947 he received the Nobel prize for literature. In the years before his death, the successive volumes of Gide's *Journal*, which had been published in France since 1930, began to appear in English translation. (*See* also *Encyclopædia Britannica.*)

Gillet, Martin Stanislaus, French archbishop (b. Louppy-sur-Loison, Meuse, Fr., Dec. 14, 1875—d. Aix-les-Bains, Fr., Sept. 4, 1951).

Gillette, Wilson Darwin, U.S. congressman (b. Sheshequin, Pa., July 1, 1880—d. Towanda, Pa., Aug. 7, 1951).

Goddard, Charles William, U.S. screen writer (b. Portland, Me., Nov. 26, 1879—d. Miami, Fla., Jan. 11, 1951).

Goldsborough, T(homas) Alan, U.S. jurist (b. Greensboro, Md., Sept. 16, 1877—d. Washington, D.C., June 16, 1951), studied at Washington college, Chestertown, Md., and the University of Maryland at College Park, and began the practice of law in Denton, Md. In 1904 he was elected county prosecutor. He served in the U.S. house of representatives from 1921 to 1939, when he resigned to accept an appointment as U.S. district judge in the District of Columbia.

Judge Goldsborough attained national prominence through his two rulings holding John L. Lewis and the United Mine Workers union in contempt of court for violating injunctions restraining them from continuing strikes. In 1946 he levied fines of $10,000 against Lewis and $3,500,000 against the union, the latter penalty being reduced to $700,000 by the U.S. supreme court. In 1948 he denied the union's contention that a nation-wide halt of production was a "voluntary work stoppage," and fined Lewis $20,000 and the union $1,400,000, both fines being upheld by the supreme court.

Judge Goldsborough also presided at the trial of Oscar Collazo, Puerto Rican nationalist, for murder committed during the attempted assassination of Pres. Harry S. Truman on Nov. 1, 1950.

Gonzalez, Elpidio, former vice-president of Argentina (b. Argentina, 1875?—d. Buenos Aires, Arg., Oct. 18, 1951).

Goodenough, Sir William MacNamara, British financier (b. March 10, 1899—d. Gloucestershire, Eng., May 23, 1951).

Grant, Bert, U.S. composer of popular ballads (b. New York, N.Y., 1878?—d. New York, N.Y., May 10, 1951).

Graves, Henry Solon, U.S. educator (b. Marietta, O., May 3, 1871—d. Brattleboro, Vt., March 7, 1951).

Greene, Henry Copley, Austrian-born U.S. author and historian (b. Vienna, Aus., Nov. 21, 1871—d. Cambridge, Mass., Dec. 29, 1951).

Grever, Maria, Mexican-born U.S. composer (b. Mexico City, Mex., 1894—d. New York, N.Y., Dec. 15, 1951).

Grey, Frank Herbert, U.S. composer and conductor (b. Philadelphia, Pa., Nov. 15, 1883—d. Beverly Hills, Calif., Oct. 3, 1951).

Gruenwald, Alfred, Austrian-born U.S. librettist and playwright (b. Vienna Aus., 1883?—d. Forest Hills, N.Y., Feb. 24, 1951).

Gurney, Henry Lovell Goldsworthy, British high commissioner of Malaya (b. June 27, 1898—d. near Fraser's Hill, Malaya, Oct. 6, 1951).

Haggin, Ben Ali, U.S. portrait painter (b. New York, N.Y., 1882?—d. New York, N.Y., Sept. 2, 1951).

Haldeman-Julius, E(manuel), U.S. publisher (b. Philadelphia, Pa., July 30, 1889—d. Girard, Kan., July 31, 1951).

Hall, James Norman, U.S. author (b. Colfax, Ia., April 22, 1887—d. Papeete, Tahiti, July 5, 1951), was the coauthor with Charles Bernard Nordhoff of the famous trilogy about the British ship "Bounty"—*Mutiny on the Bounty, Men Against the Sea* and *Pitcairn's Island.*

He graduated from Grinnell college in Iowa in 1910, and was in England on a tour when World War I broke out in 1914. He enlisted and became a member of the "First Hundred Thousand" who responded to Earl Kitchener's call for volunteers. He served in France for several months in 1915 as a lance corporal in charge of a machine-gun section, and the next year he joined the Lafayette escadrille of U.S. volunteer fliers. For two years he was one of the most widely known U.S. pilots, famed for reckless adventures in the air. He was later with Eddie Rickenbacker in the U.S. 94th aero pursuit squadron.

His books on the war included *Kitchener's Mob* (1916) and *High Adventure* (1918). In 1920 he went to the south seas in search of further adventure, and he remained there the rest of his life, taking up residence in Tahiti where, in collaboration with Nordhoff, he wrote the books that brought him fame. *Mutiny on the Bounty*, the first book of the trilogy, became especially renowned after it was made into a motion picture. Hall was sole author of a number of books, and with Nordhoff also wrote *Faery Lands of the South Seas* (1921); *Falcons of France* (1929); *The Hurricane* (1936); *The Dark River* (1938); *Out of Gas* (1939); *Botany Bay* (1941); and *Men Without Country* (1942).

Harkins, William D., U.S. nuclear scientist (b. Titusville, Pa., Dec. 28, 1873—d. Chicago, Ill., March 7, 1951).

Hart, Richard, U.S. stage, screen and television actor (b. Providence, R.I., 1915?—d. New York, N.Y., Jan. 2, 1951).

Hartford, John A., U.S. merchant (b. 1872?—d. New York, N.Y., Sept. 20, 1951).

Hazen, Henry Honeyman, U.S. public health specialist (b. Oldwick, N.J., July 21, 1879—d. Washington, D.C., May 1, 1951).

Hearst, William Randolph, U.S. publisher and editor (b. San Francisco, Calif., April 29, 1863—d. Beverly Hills, Calif., Aug. 14, 1951), was one of the most controversial figures of his day in both journalism and politics. He developed mass-circulation methods in newspaper and magazine publishing which his opponents characterized as "yellow journalism," based principally on sensational news stories.

The son of wealthy parents, Hearst attended Harvard university but left the school in 1885 without taking a degree. He became editor of the *San Francisco Examiner*, which was owned by his father, and in 1896 entered the New York city newspaper field by purchasing the *Morning Journal*, which he later renamed the *American*. Then followed a lively contest for mass circulation between the Hearst publication and Joseph Pulitzer's New York newspaper, the *World*.

Hearst was elected to the U.S. house of representatives in 1902 and served two terms. In 1904 he received 200 votes in the Democratic national presidential convention at St. Louis, Mo., his nomination having been seconded by Clarence Darrow. Judge Alton B. Parker, however, won the nomination with 658 votes. Hearst next ran for mayor of New York city and was defeated by about 4,000 votes in nearly 500,000 ballots. He then ran for governor of New York state against Charles Evans Hughes, but lost out by a small margin of votes. Again in 1909 he was defeated in the race for the mayoralty of New York city, and after other setbacks in New York politics he transferred his residence in 1927 to California. At the 1932 Democratic national convention, Hearst was said to have clinched the presidential nomination for Franklin D. Roosevelt by swinging his papers' support from John Nance Garner to Roosevelt, in a manoeuvre that gave Garner the vice-presidential candidacy. However, before the New Deal had been in effect more than a few months, Hearst turned against the administration and thereafter campaigned ceaselessly against it and its successor.

At the height of his power Hearst administered a publishing empire that included more than a score of the top-circulation newspapers of the United States, from coast to coast, plus magazines and motion-picture and radio holdings that made him renowned as the man who, in terms of the number of people reached by his views, probably wielded more editorial influence than any other man of his era.

A reorganization of his properties in 1937 and again in 1939 seemed to curtail his personal power and authority, though his publishing empire continued intact until his death.

Hedrick, Ulysses Prentiss, U.S. horticulturist (b. Independence, Ia., Jan. 15, 1870—d. Clifton Springs, N.Y., Nov. 14, 1951).

Heflin, J(ames) Thomas, former U.S. senator (b. Louina, Ala., April 9, 1869—d. Lafayette, Ala., April 22, 1951), attended Southern university at Greensboro, Ala., and Alabama Polytechnic institute at Auburn. He began the practice of law, but within a few months entered politics and was elected (1893) mayor of Lafayette. From then until 1930, when he was read out of the Democratic party for bolting it in protest against the nomination of Alfred E. Smith for the presidency, Heflin was never defeated in a political campaign.

He was successively mayor of Lafayette; register in chancery; secretary of state of Alabama (1902); representative in congress (1904–20) and U.S. senator (1920–31). He initially entered the senate to fill the unexpired term of Sen. John H. Bankhead. He eventually lost his senate seat to Bankhead's son after the party dispute of 1930.

His advocacy of higher prices for cotton won him the nickname of "Cotton Tom," and he was almost a model for the popular picture of an ultra-conservative southern senator, with his frock coat, cream-coloured vest, striped trousers, patent-leather boots and black felt hat. His chief oratorical targets were the "wolves of Wall Street," the liquor interests, the Roman Catholic hierarchy and Tammany Hall. He professedly was proudest of his sponsorship of a bill setting aside the second Sunday in May as Mother's day.

Hektoen, Ludvig, U.S. pathologist (b. Westby, Wis., July 2, 1863—d. Chicago, Ill., July 5, 1951).

Hervey, Harry Clay, U.S. author and screen writer (b. Beaumont, Tex., Nov. 5, 1900—d. New York, N.Y., Aug. 12, 1951).

Hill, David Spence, U.S. educator and author (b. Nashville, Tenn., Dec. 14, 1873—d. Louisville, Ky., Nov. 10, 1951).

Holt, Hamilton, U.S. educator and former college president (b. Brooklyn, N.Y., Aug. 18, 1872—d. Putnam, Conn., April 26, 1951).

Holt, Jack, U.S. motion picture actor (b. Winchester, Va., May 31, 1888—d. Los Angeles, Calif., Jan. 18, 1951), was a great-great-grandson of Chief Justice John Marshall and the son of an Episcopal minister. He studied civil engineering at the Virginia Military institute, Lexington, Va., and shortly went to Alaska, where he worked for six years as a surveyor, labourer, miner and teamster. Returning to San Francisco, Calif., he entered motion pictures as a stunt man, but soon began playing character roles. His first big parts cast him as a villain, but he proved so popular with the audiences that he was soon cast as a hero. He played opposite many great actresses, including Pavlova, Mary Pickford and Clara Kimball Young. His chief fame was as a cowboy star until later years of his career when he again played character roles.

Holt, William Franklin, U.S. agricultural leader (b. Merced county, Mo., 1864?—d. Los Angeles, Calif., Nov. 21, 1951).

Honeywell, J. Frank, U.S. author of juvenile books (b. Pontiac, Ill., 1877?—d. San Diego, Calif., Aug. 6, 1951), began his writing career as a Chicago, Ill., newspaperman, then turned to writing fiction thrillers for boys. His series of sequel-books extended from his *Over There* books written during World War I to his *The Radio Boys* series that continued to sell toward the end of the half-century.

Howard, Henry, U.S. chemist and inventor (b. Jamaica Plain, Mass., July 5, 1868—d. Cambridge, Mass., Aug. 26, 1951).

Hupfeld, Herman, U.S. composer of popular songs (b. Montclair, N.J., Feb. 1, 1894—d. Montclair, June 8, 1951).

Hutcheson, Ernest, Australian-born pianist, composer and conductor (b. Melbourne, Vict., Austr., July 20, 1871—d. New York, N.Y., Feb. 9, 1951).

Ingalls, Robert Ingersoll, U.S. industrialist (b. Huntsville, O., Oct. 27, 1882—d. Birmingham, Ala., July 12, 1951).

Inverchapel, Archibald John Kerr Clark Kerr, 1st Baron, of Lock Eck, Argyllshire, British diplomat (b. Hamilton, Lanarkshire, Scot. (?), March 17, 1882—d. Greenock, Renfrewshire, Scot., July 5, 1951), was educated privately, entered the diplomatic service in 1906 and during the period 1906–25 served in Berlin, Buenos Aires, Washington, Rome, Tehran, Tangier and Cairo. He was minister to the Central American republics, 1925–28, and to Chile, 1928–30. From 1931 to 1935 he was minister to Sweden, and from 1935 to 1938 was ambassador to Iraq. In 1938 he went to Chungking, China, as successor to Sir Hughe Knatchbull-Hugessen, who had been severely wounded in an air attack. In Jan. 1942 he succeeded Sir Stafford Cripps as ambassador to Moscow. In 1946 he went on a special mission to Java to try to effect a settlement of the complex political situation; in the same year he was created a baron. From 1946 to 1948 he was British ambassador to the United States.

Irvine, Harry, U.S. actor (b. Vellore, British India—d. Nyack, N.Y., Aug. 7, 1951).

Irwin, Robert Benjamin, U.S. welfare worker (b. Rockford, Ia., June 2, 1883—d. Bremerton, Wash., Dec. 12, 1951).

James, Edwin Leland, U.S. editor (b. Irvington, Va., June 25, 1890—d. New York, N.Y., Dec. 3, 1951), studied at Chesapeake academy and at the Randolph-Macon college, Ashland, Va., and worked on newspapers in Baltimore, Md., Pittsburgh, Pa., and Albany, N.Y., before moving to the *New York Times* in 1915. He covered politics in Albany, then in 1918 went to Europe as chief correspondent with the U.S. army. He served as Paris correspondent during the 1920s, becoming his paper's chief European correspondent before he returned to New York city, and became managing editor of the paper in 1932.

Jeffreys, Charles William, English-born artist (b. Rochester, Kent, Eng., Aug. 25, 1869—d. Toronto, Ont., Oct. 8, 1951).

Jenkins, Charles Francis, U.S. publisher (b. Norristown, Pa., Dec. 17, 1865—d. Philadelphia, Pa., July 2, 1951), was chairman of the board of the publishers of the *Farm Journal*, largest U.S. farm magazine, for 68 years. During this period the circulation of the publication increased from 25,000 to more than 2,800,000. For 40 years Jenkins helped manage the *Friends Intelligencer*, a weekly publication of the Society of Friends. He established the Hemlock arboretum on his estate where were reputedly grown the largest variety of hemlocks in the world.

Johnson, Ligon, U.S. copyright lawyer (b. Tuskegee, Ala., Jan. 20, 1873—d. Greenwich, Conn., March 29, 1951).

Johnson, Sir Robert Stewart, British shipbuilder (b. Londonderry, Londonderry, Ire., Aug. 7, 1872—d. Birkenhead, Ches., Eng., Aug. 28, 1951).

Johnson, William C., U.S. industrialist (b. Birmingham, Ala., May 25, 1902—d. Milwaukee, Wis., July 26, 1951).

Johnston, Alvanley, U.S. labour leader (b. Seeleys Bay, Ont., May 12, 1875—d. Cleveland, O., Sept. 17, 1951), studied in Canada and the U.S. and began railroad work for the Great Northern railroad in 1892. He became an engineer for that road in 1897 and in 1909 was made general chairman of the Great Northern unit of the Brotherhood of Locomotive Engineers. He was assistant to the head of the union from 1918 to 1925 and its head, or grand chief engineer, from 1925 until he retired in 1950. When he assumed leadership of the union its finances were in a perilous state, since brotherhood funds had been invested in banks, investment companies and Florida real estate, all of which were collapsing. The financial difficulties eventually resulted in his being indicted with others in 1933 in connection with the failure of the Standard Trust company of Cleveland, O. He was sentenced to from 1 to 30 years, but the sentence was reversed in 1935. He was a figure in major rail strike threats in 1941 and 1943, while perhaps his most sensational appearance in the public prints came in connection with the strike in 1946 which was called off only minutes before Pres. Harry S. Truman was to seek from congress power to draft the strikers.

Jouvet, Louis, French actor and producer (b. Crozon, Finistère, Fr., Dec. 24, 1887—d. Paris, Fr., Aug. 16, 1951), studied pharmacy as a youth and worked for a time as a druggist before turning permanently to the theatre. From 1910 to 1914 he played at the Odéon, the Châtelet and Jacques Copeau's Théâtre du Vieux Colombier. During World War I he served in the front lines for three years as a medical corpsman. In 1918 he went to New York city, appearing there with Copeau's company. Returning to Paris the next year, he designed a new theatre for the Vieux Colombier and continued to play leading parts with the company. In 1922 he joined the Comédie des Champs-Elysées as stage manager and two years later was appointed director. During the next ten years he produced and acted in a number of successes, starting with *Au Grand large* in 1926 and including a repertory of Molière as well as contemporary dramatists. His production of Jean

Giraudoux's *Siegfried* in 1928 was the start of a long and fruitful collaboration between Giraudoux and Jouvet which lasted until the playwright's death in 1944. In 1934 Jouvet organized the Théâtre de l'Athénée-Louis Jouvet and in the same year was appointed to the faculty of the Conservatoire de Paris. He closed his theatre after the Germans occupied Paris in 1940, refusing to operate under German direction and touring instead with his company in Switzerland, unoccupied France, South and Central America, Mexico and Cuba. In Feb. 1945 he returned to France and in December of that year presented Giraudoux's last play, *The Madwoman of Chaillot.*

From 1932 Jouvet had appeared in scores of French motion pictures, including many which enjoyed success in the United States—*Volpone, La Kermesse Heroïque* (*Carnival in Flanders*), *The Lower Depths*, etc.

Kahn, Howard, U.S. newspaper man (b. Bloomington, Ind., Jan. 30, 1886—d. St. Paul, Minn., March 28, 1951).

Keck, Charles, U.S. sculptor (b. New York, N.Y., Sept. 9, 1875—d. Carmel, N.Y., April 23, 1951), was an assistant to Augustus Saint-Gaudens from 1893 to 1898, and was one of the best-known practitioners in the Saint-Gaudens tradition. Among his art works, of which examples may be found in almost every state of the U.S., are: an equestrian monument of Thomas J. ("Stonewall") Jackson at Charlottesville, Va.; a Booker T. Washington monument, Tuskegee, Ala.; a Soldiers' memorial, Brooklyn, N.Y.; an equestrian monument of Andrew Jackson, Kansas City, Mo.; a statue in Rio de Janeiro commemorating the centennial of the independence of Brazil, presented on behalf of the people of the U.S.; a peace memorial to St. Isaac Jogues, Lake George, N.Y.; and the Father Duffy memorial in New York city.

Kee, John, U.S. congressman (b. Glenville, W.Va., Aug. 22, 1874—d. Washington, D.C., May 8, 1951).

Kellermann, Bernhard, German novelist (b. Fürth, Ger., March 4, 1879—d. Klein Glienicke, near Berlin, Ger., Oct. 17, 1951). (*See* also *Encyclopædia Britannica.*)

Kellogg, Will Keith, U.S. industrialist and philanthropist (b. Battle Creek, Mich., April 7, 1860—d. Battle Creek, Oct. 6, 1951), conceived the idea of manufacturing and marketing cereals from his association with his brother, a physician, who was superintendent of a sanitarium at Battle Creek. He was 46 years old when he set up a toasted corn flake company. The company later added other cereal products and grew to be an international enterprise. In 1930 Kellogg established the W. K. Kellogg foundation to promote "health, happiness and welfare of mankind, principally of the children and youth." The foundation operated from a trust fund of more than 1,000,000 shares of stock in the Kellogg company, which by 1951 had earned $47,000,000, of which more than $32,000,000 had been spent on vast child-welfare, public-health and similar programs. Kellogg made many gifts to his native Battle Creek, including an auditorium, two schools, a youth centre with swimming pool, a gymnasium and an airport. He also established a 600-ac. bird sanctuary in southwestern Michigan, an 800-ac. horse ranch near Los Angeles, Calif., which eventually was handed over to the University of California and then to the U.S. Army remount service, and made large gifts to various educational institutions.

Kelso, James Anderson, U.S. theologian and archaeologist (b. Rawalpindi, India, June 6, 1873—d. Pittsburgh, Pa., Nov. 3, 1951).

Kenedy, Arthur, U.S. publisher (b. Brooklyn, N.Y.—d. New York, N.Y., Feb. 3, 1951).

King, Robert N., U.S. research expert (b. Brooklyn, N.Y.—d. Westport, Conn., May 12, 1951).

King, Stanley, U.S. college president (b. Troy, N.Y., May 11, 1883—d. Chilmark, Mass., April 28, 1951), was graduated from Amherst college, Mass., and studied law at Harvard university. He practised law in Boston, was for some years in business and became president of Amherst college in 1932. He was the first Amherst president who was neither minister nor educator. He retired in 1946.

Kingery, Robert, U.S. engineer (b. Emporia, Kan., Sept. 26, 1890—d. Evanston, Ill., Nov. 13, 1951).

Klem, William J., U.S. baseball umpire (b. Rochester, N.Y., Feb. 22, 1874—d. Coral Gables, Fla., Sept. 16, 1951).

Knapp, Joseph Palmer, U.S. publisher and insurance executive (b. Brooklyn, N.Y., May 14, 1864—d. New York, N.Y., Jan. 30, 1951), attended the Polytechnic institute of Brooklyn and Columbia university. His father owned a lithographing firm and the younger Knapp began working for it, eventually buying out the business. The elder Knapp then concentrated on the insurance field; he had founded the Metropolitan Life Insurance company in 1868 to obtain the type of life insurance he desired for his employees. The son founded the American Lithographic company in 1895, retaining it until 1929.

He helped to develop a multicolour press, which led to his establishing the *Associated Sunday Magazine* in 1903, the first syndicated Sunday newspaper supplement. With associates he purchased the Crowell Publishing company in 1906, and in 1911 the company bought the *American Magazine.* In 1919 he took over the P. F. Collier & Son firm, including *Collier's* magazine and a substantial subscription book business. He was chairman of the board of Crowell-Collier Publishing company from 1937 to 1946.

Publications of his firms included *Collier's*, the *American Magazine*, the *Woman's Home Companion* and *This Week* (through United Newspapers Magazine corporation, which he owned). He was also a former director and former chairman of the finance committee of Metropolitan Life, and was known as an active proponent of wildlife preservation.

Knappen, Theodore Temple, U.S. civil and hydraulic engineer (b. Minneapolis, Minn., 1900?—d. New York, N.Y., March 20, 1951).

Knott, William John, U.S. hotel owner and operator (b. New York, N.Y., 1882?—d. Glen Cove, L.I., N.Y., Oct. 25, 1951).

Koussevitzky, Sergei (Alexandrovitch), Russian-born conductor (b. Vyshny, Volochek, Tver, Russia, July 26, 1874—d. Boston, Mass., June 4, 1951), studied at the Philharmonic Music school at Moscow, where he also taught, leaving there to play in the Imperial orchestra at Petrograd. He cultivated the double bass as a solo instrument and gave recitals throughout Europe. In 1910 he founded an orchestra of 85 musicians and toured the large cities of Russia besides making trips elsewhere by chartered steamer on the Volga river. He left Russia in 1920 and conducted orchestras in France, Germany, England and other European countries. He visited the United States in 1916–17, and in 1924 was made conductor of the Boston Symphony orchestra. Under his leadership the orchestra, while retaining its emphasis on traditional classics, also became famed for its courageous innovations and especially for its introduction of new composers to the U.S. musical scene. Koussevitzky gave his final concert with the Boston Symphony on April 29, 1949.

Especially renowned as an interpreter of such contemporary composers as Jean Sibelius and Igor Stravinsky, Koussevitzky explained his philosophy of music as follows:

"The works of the great classic masters are indispensable, but music is not a static art. Music constantly is being made which is an expression of the period in which it appears." Until his last illness he had been working with Boris Goldovsky, Boston composer and conductor, on an opera to be called *Pique Dame.*

Kretschmer, Herman Louis, U.S. urologist (b. Chicago, Ill., April 22, 1879—d. Chicago, Sept. 23, 1951).

Lambert, Constant, British composer and conductor (b. London, Eng., Aug. 23, 1905—d. London, Aug. 21, 1951).

Lampland, Carl Otto, U.S. astronomer (b. Dodge County, Minn., Dec. 29, 1873—d. Flagstaff, Ariz., Dec. 14, 1951).

Laureano, Napoleão, Brazilian cancer specialist (b. Brazil, 1915?—d. Rio de Janeiro, Braz., May 31, 1951), made himself a living symbol of the need for better cancer-fighting facilities when he went to the U.S., discovered that he himself was doomed by the disease, then toured his native country raising funds for a cancer hospital to be constructed in João Pessao. Before his death he was assured that the hospital would be built.

Lehtonen, Aleksi Emanuel, Finnish archbishop (b. Nystad, Fin., June 21, 1891—d. Turku [Abo], Fin., March 27, 1951).

Lescohier, A. William, U.S. business executive (b. Detroit, Mich., June 27, 1885—d. Detroit, Nov. 17, 1951).

Lewis, Sinclair, U.S. novelist (b. Sauk Centre, Minn., Feb. 7, 1885—d. Rome, It., Jan. 10, 1951), graduated from Yale university, then worked as a free-lance writer and newspaper reporter, and magazine and book editor. He published several unsuccessful novels before *Main Street* (1920) finally established him as a fiction writer of major stature. His earlier novels included *Our Mr. Wrenn* (1914), *The Trail of the Hawk* (1915), *The Job* and *The Innocents* (1917) and *Free Air* (1919).

Lewis was the son of a physician and was thought to have described his father's career in his book *Arrowsmith* (1925). Others of his better known works were *Babbitt* (1922), *Mantrap* (1926), *Elmer Gantry* (1927), *Dodsworth* (1929), *Ann Vickers* (1933), *Work of Art* (1934), *It Can't Happen Here* (1935), *Cass Timberlane* (1945), *Kingsblood Royal* (1947) and *The God-Seeker* (1949). He was generally regarded as one of the most influential American writers of all time. His frank appraisals of the mores of the American middle class founded an entire school of followers and imitators, many of whom imitated only his indignation and none of his sensitivity. In 1926 he refused the Pulitzer prize for the best novel of the year on the grounds that the prize was unworthily hedged with conditions as to depicting "wholesomeness" in U.S. life. In accepting the Nobel prize for literature, which was awarded him in 1930, he pointed out that no such restrictions obtained. (*See* also *Encyclopædia Britannica.*)

Lewis, Tracy Hammond, U.S. outdoor writer and sportsman (b. New York, N.Y., Nov. 30, 1890—d. Richmond, Va., Nov. 7, 1951).

Lewisohn, Sam Adolph, U.S. financier, philanthropist and art patron (b. New York, N.Y., March 21, 1884—d. Santa Barbara, Calif., March 13, 1951).

Leyendecker, Joseph Christian, German-born artist (b. Montabour, Ger., March 23, 1874—d. New Rochelle, N.Y., July 25, 1951).

1951 OBITUARIES: Sergei Koussevitzky, Russian-born conductor; Sinclair Lewis, U.S. novelist; Maxim Litvinov, soviet diplomat; Carl Mannerheim, Finnish military leader; Henri Philippe Pétain, French marshal

Liaquat Ali Khan, Pakistani statesman (b. Karnal, India, Oct. 1, 1895—d. Rawalpindi, Pak., Oct. 16, 1951), the son of a wealthy landowner, was educated at the Mohammedan Anglo-Oriental college in Aligarh, and at Allahabad university, both in India, and at Exeter college, Oxford, Eng., where he took a law degree in 1921. He was called by the Inner Temple in 1922, returned to India in that year and in 1923 joined the All-India Moslem league. He was a member of the United Provinces legislative council and leader of the Democratic party in the house from 1926 to 1940 when he was elected to the central legislative assembly. His close association with Mohammed Ali Jinnah began in 1936 when he was elected general secretary of the resuscitated Moslem league; later he became deputy leader of the party. He was appointed to the viceroy's executive council in 1946 and held the portfolio of finance. On Aug. 15, 1947, Jinnah appointed him the first prime minister and minister of defense of the new nation of Pakistan. After the death of Jinnah (Sept. 11, 1948), Liaquat became undisputed leader of Pakistan. Virtually the whole of his career from that time until his death was taken up with the protracted dispute with India over Kashmir. In April 1950, however, he negotiated with Jawaharlal Nehru an agreement on the treatment and rights of minorities. While he was addressing a public meeting at Rawalpindi, Liaquat Ali Khan was assassinated by a member of the Khaksar semimilitary movement.

Liautaud, André, Haitian government official and agriculturalist (b. Port au Prince, Haiti, Oct. 1, 1906—d. Port au Prince, July 26, 1951).

Linley, Betty, British-born actress (b. Malmesbury, Eng., 1889?—d. New York, N.Y., May 9, 1951).

Lister, Charles Baynard, U.S. firearms expert and editor (b. Wilmington, Del., July 4, 1898—d. Washington, D.C. May 14, 1951).

Lister, Francis, British actor (b. London, Eng., April 2, 1899—d. London, Oct. 28, 1951).

Litten, Frederic Nelson, U.S. author and educator (b. Chicago, Ill., May 26, 1885—d. Lake Bluff, Ill., July 26, 1951).

Littlefield, Catherine (MRS. STERLING NOEL), U.S. choreographer and ballet dancer (b. Philadelphia, Pa., Sept. 16, 1904—d. Chicago, Ill., Nov. 19, 1951).

Litvinov, Maxim Maximovich (MEYIR MOYSEVEVICH VALLAKH), Soviet diplomat (b. Bialystok, Russian-occupied Poland, July 17, 1876—d. Moscow, U.S.S.R., Dec. 31, 1951), was the son of a bank clerk. After an education in the local Russian *Realschule*, he enlisted in the Tsarist army. In 1898 he joined the Russian Social Democratic Labour party (R.S.D.L.P.). Arrested and deported to Siberia, he escaped in 1902, went to Switzerland and the following year was delegate to the London congress of the R.S.D.L.P., where the party split into the Bolshevik and Menshevik fractions, Litvinov joining the former. In 1905 he was sent back to Russia, where he helped to found *Novaya Zhizn* (*New Life*), returning to London two years later after the revolution had failed. At the beginning of 1918, after the Bolshevik revolution, L. D. Trotsky, then foreign commissar, made him plenipotentiary to Great Britain. In Oct. 1918 he was arrested as a hostage for Robert Bruce Lockhart, for whom he was exchanged, and in Jan. 1918 Litvinov joined the *collegium* of the people's commissariat of foreign affairs. In 1920 he was appointed soviet minister to Estonia and the following year became first deputy commissar of foreign affairs. He took part in the Genoa and The Hague conferences of 1922. From 1927 to 1930 he headed the soviet delegation to the preparatory commission of the disarmament conference, and in the latter year he became commissar of foreign affairs; in 1932 he was chief of the soviet delegation at the disarmament conference at Geneva, Switz. He secured the recognition of the soviet regime by the United States and visited Washington, D.C., in Oct. 1933. Between 1937 and 1938 he represented the U.S.S.R. in the council of the League of Nations. In 1939, he was succeeded as commissar of foreign affairs by V. M. Molotov; as a Jew he could not be helpful in the new policy of collaboration with nazi Germany inaugurated by Joseph Stalin. After the German invasion of the U.S.S.R., however, Stalin appointed him ambassador to Washington and minister to Cuba in 1941. On Aug. 21, 1943, Litvinov was replaced by A. A. Gromyko and returned to Moscow where until Aug. 25, 1946, he was nominally a deputy commissar of foreign affairs. (*See* also *Encyclopædia Britannica.*)

Liversedge, Harry Bluett, U.S. marine corps officer (b. Volcano, Calif., 1894—d. Bethesda, Md., Nov. 25, 1951).

Lord, Frederic Wait, U.S. engineer and author (b. Brooklyn, N.Y., July 3, 1871—d. New York, N.Y., Dec. 31, 1951).

Lucke, Charles Edward, U.S. mechanical engineer (b. New York, N.Y., June 20, 1876—d. New York, March 25, 1951).

Luckenbach, John Lewis, U.S. marine architect and shipping executive (b. Kingston, N.Y., Nov. 19, 1883—d. New York, N.Y., July 4, 1951).

Maarseveen, Johannes H. van, Netherlands government leader (b. Utrecht, Neth., 1894?—d. Utrecht, Nov. 19, 1951).

Macaulay, Robert Wilson, Australian churchman and author (b. Newcastle-on-Tyne, Northumb., Eng., 1883?—d. Melbourne, Vict., Austr., Aug. 1, 1951).

McClung, Nellie (MRS. R. W. MCCLUNG), Canadian author and suffragist (b. Chatsworth, Ont., 1874?—d. Victoria, B.C., Sept. 1, 1951).

McClure, Roy Donaldson, U.S. surgeon (b. Bellbrook, O., Jan. 17, 1882—d. Detroit, Mich., March 31, 1951).

McCrea, Roswell Cheney, U.S. economist (b. Norristown, Pa., July 30, 1876—d. Newton, N.J., July 2, 1951).

MacHarg, William (Briggs), U.S. author (b. Dover Plains, N.Y., Sept. 18, 1872—d. Alpine, N.J., Feb. 21, 1951).

McIntyre, John T(homas), U.S. novelist and playwright (b. Philadelphia, Pa., Nov. 26, 1871—d. Philadelphia, May 21, 1951).

McKay, Hugh Deane, U.S. advertising executive (b. Louisville, Ky., May 3, 1896—d. New York, N.Y., Nov. 30, 1951).

Mahoney, Benjamin Franklin, U.S. aircraft builder (b. Wilkes-Barre, Pa., 1901?—d. Los Angeles, Calif., July 31, 1951).

Mahoney, Michael (KLONDIKE MIKE), Alaskan gold-rush figure (b. 1873?—d. Santa Monica, Calif., April 8, 1951).

Mannerheim, Carl Gustaf Emil, BARON, Finnish army officer and statesman (b. Villnas, near Turku, Fin., June 4, 1867—d. Lausanne, Switz., Jan. 27, 1951), was the son of a Swedish-Finnish landowner and attended the Fredrikshamn Cadet school near Viipuri and the Nikolaev Cavalry school in St. Petersburg, Russia. He distinguished himself in the Russo-Japanese War, in which he rose to the rank of colonel. In World War I he commanded a cavalry division in Poland and later an army on the Rumanian front. Finland proclaimed its independence and in Jan. 1918 Mannerheim was appointed commander in chief of the nascent Finnish army. Through his leadership, the Finnish Communists, armed and supported by the Russians, were defeated. In Dec. 1918 he was elected regent of Finland and on July 17, 1919, he promulgated the republican constitution; in the first presidential election he was defeated. In 1931 he was called back from retirement to serve as chairman of the council of national defense. In May 1933 he was created field marshal and it was his decision to build the defenses across the Karelian isthmus, which came to be known as the Mannerheim line. On Nov. 30, 1939, the U.S.S.R. attacked Finland, and Mannerheim at 72 took command of his country's forces. Despite his skill and the Finns' heroism the Mannerheim line was broken and Finland had to accept terms (March 12, 1940). On June 27, 1941, in Finland's second war with the Soviet Union, Mannerheim again assumed command and on June 4, 1942, he was made marshal of Finland. On the same day he was visited at his headquarters by Adolf Hitler, who was pressing him to cut the Anglo-soviet supply route to Murmansk and to attack Leningrad; but the Finnish army remained passive. On Aug. 1, 1944, Mannerheim was elected president of the republic. On Sept. 19 the armistice was signed with the U.S.S.R., and on March 4, 1946, he resigned. He spent the remaining years of his life nursing his health in Switzerland.

Manney, Charles Fonteyn, U.S. composer (b. Brooklyn, N.Y., Feb. 8, 1872—d. New York, N.Y., Oct. 31, 1951).

Marchetti-Selvaggiani, Francesco Cardinal, Italian prelate (b. Rome, It., Oct. 1, 1871—d. Vatican City State, Jan. 13, 1951), was ordained priest in 1896 and later served in the papal diplomatic service in Bavaria, Switzerland and elsewhere. He was consecrated titular archbishop of Seleucia in Isauria in 1916. In 1918 he went to Venezuela, being papal nuncio there in 1920. From 1920 to 1923 he was nuncio to Austria. He was elevated to the Sacred College of Cardinals in 1930 and in 1936 was consecrated bishop of Frascati, It. In 1948 he became dean of the Sacred College.

Margetson, Arthur, British actor (b. London, Eng., April 27, 1897—d. London, Aug. 13, 1951).

Margotti, Carlo, Italian Roman Catholic archbishop (b. near Ravenna, It., April 22, 1891—d. Gorizia, It., July 31, 1951).

Mario, Queena (QUEENA MARION TILLOTSON), U.S. opera singer (b. Akron, O., Aug. 21, 1896—d. New York, N.Y., May 28, 1951).

Marshall, Albert Edward, British-born chemist (b. Liverpool, Eng., May 18, 1884—d. Providence, R.I., Sept. 15, 1951).

Marshall, Charles (CARLO MARZIALI), U.S. dramatic tenor (b. Auburn, Me., 1887—d. Lake George, N.Y., May 8, 1951).

Marshall, Henry Wright, U.S. publisher and industrial leader (b. near Springfield, O., Jan. 29, 1865—d. Lafayette, Ind., Jan. 31, 1951).

Martin, Townsend, U.S. playwright (b. New York, N.Y., 1896—d. New York, Nov. 22, 1951).

Maude, Cyril, British stage and screen actor (b. London, Eng., April 24, 1862—d. Torquay, Devon., Eng., Feb. 20, 1951).

Maurice, Sir Frederic Barton, British army officer (b. Jan. 19, 1871—d. Cambridge, Eng., May 19, 1951).

Maxwell, James Laidlaw, British authority on leprosy (b. June 9, 1873—d. Hangchow, China, Aug. 10, 1951).

Mayo, Margaret, U.S. playwright and actress (b. Brownsville, Ill., 1882?—d. Ossining, N.Y., Feb. 25, 1951).

Mecklem, Austin Merrill, U.S. artist (b. Colfax, Wash., Dec. 17, 1894—d. Kingston, N.Y., Oct. 7, 1951).

Medtner, Nicholas R., Russian-born composer and pianist (b. Moscow, Russia, Dec. 24, 1879—d. London, Eng., November 13, 1951).

Mengelberg, Willem, Dutch orchestral conductor (b. Utrecht, Neth., March 28, 1871—d. Chur, Switz., March 21, 1951).

Meyer, Annie Nathan (MRS. ALFRED MEYER), U.S. novelist and playwright, one of the founders of Barnard college (b. New York, N.Y., Feb. 19, 1867—d. New York, Sept. 23, 1951).

Meyer, Henry Herman, U.S. educator (b. Champaign, Ill., Nov. 21, 1874—d. Brooklyn, N.Y., Oct. 6, 1951).

Meyerhof, Otto (Fritz), German-born U.S. physiologist (b. Hanover, Ger., April 12, 1884—d. Philadelphia, Pa., Oct. 6, 1951), was educated at the

Königlische Wilhelmsgymnasium, Berlin, and at Heidelberg university. He was awarded the Nobel prize in physiology and medicine for 1922 (jointly with A. V. Hill) for his work on the chemistry of the functioning muscle. He was director of the Kaiser Wilhelm Institute of Physiology, Heidelberg, from 1929 until 1938 when the Nazi persecution of Jews forced him to leave Germany, and he then became director of research, Institute of Biology, Paris. When France was invaded in 1940 he escaped to the U.S. He was appointed research professor of biochemistry, University of Pennsylvania, in Philadelphia, and became a U.S. citizen. Meyerhof was a foreign member of the Royal Society, London.

Michelfelder, Sylvester Clarence, U.S. Lutheran leader (b. New Washington, O., Oct. 27, 1889—d. Chicago, Ill., Sept. 30, 1951).

Milligan, Harold Vincent, U.S. organist, composer and author (b. Astoria, Ore., Oct. 31, 1888—d. New York, N.Y., April 12, 1951).

Minnigerode, Cuthbert Powell, director emeritus of the Corcoran Gallery of Art, Washington, D.C. (b. St. Louis, Mo., June 2, 1876—d. Washington, D.C., March 1, 1951).

Mitchell, Sir James, Australian government official (b. Bunbury, W. Austr., Austr., Apr. 27, 1866—d. Perth, W. Austr., July 26, 1951).

Montez, Maria (MME. JEAN PIERRE AUMONT), Dominican-born actress (b. Ciudad Trujillo, Dom. Rep., June 6, 1920—d. Paris, Fr., Sept. 7, 1951), the daughter of the Spanish consul to the Dominican Republic, was educated in the Canary Islands. While working as an artist's model in New York city she was offered a screen test, and began her motion-picture acting career. She played roles in adventure films, set against western, oriental or south seas backgrounds. In 1943 she received honours from the Dominican Republic for "promoting friendly relations between the United States and the Dominican Republic and for outstanding feminine achievement." The same year she married the French actor, Jean Pierre Aumont. She died in her bath, either of a heart attack or of drowning following a heart attack.

Moore, Bryant Edward, U.S. army officer (b. Ellsworth, Me., June 6, 1894—d. Han River (west central front), Korea, Feb. 24, 1951).

Moore, Charles Ruby, U.S. engineer and inventor (b. Edwardsville Crossing, Ill., 1881?—d. Washington, D.C., March 17, 1951).

Moorhead, Louis D., U.S. physician and surgeon (b. Chicago, Ill., Nov. 22, 1892—d. Chicago, Sept. 14, 1951).

Moreno, Alfredo Baquerizo, Ecuadorian statesman (b. 1850?—d. New York, N.Y., March 19, 1951).

Morris, Homer Lawrence, U.S. relief and welfare worker (b. Dublin, Ind., July 1, 1886—d. Philadelphia, Pa., Nov. 26, 1951).

Morton, Mark, U.S. industrialist and experimental farmer (b. Omaha, Neb., Nov. 22, 1858—d. near West Chicago, Ill., June 25, 1951), was the son of J. Sterling Morton, former U.S. secretary of agriculture and founder of Arbor day. After working in the railroading, lumber and packing industries, he joined his brother Joy, who had been junior partner in E. I. Wheeler and Co., agents in Chicago for the Michigan Salt association. In 1885 the firm of Joy Morton and Co. was organized. In 1910 this became the Morton Salt Co., of which Mark was the vice-president and director until his death. He was also president of the Western Cold Storage Co. for many years and was one of the founders of the International Live Stock exposition held annually in Chicago. He established and generously endowed the Mark Morton foundation to benefit retired or disabled employees of the salt company and for general charitable purposes.

Mushanov, Nikola, Bulgarian government official (b. Drenovo, Bulg. [then a Turkish province], 1872—d. Bulgaria, June, 1951).

Musser, Paul Howard, U.S. educator (b. Bedford, Pa., March 27, 1892—d. Philadelphia, Pa., Nov. 21, 1951).

Nagai, Takashi, Japanese scientist (b. Matsue, Japan, 1908?—d. Nagasaki, Japan, May 1, 1951).

Nashimoto, Morimasa, Japanese prince (b. Tokyo, Japan, March 9, 1874—d. Tokyo, Jan. 1, 1951).

Natzka, Oscar, New Zealand-born opera singer (b. Auckland, N.Z., June 15, 1907—d. New York, N.Y., Nov. 5, 1951).

Nelles, Percy Walker, Canadian naval officer (b. Brantford, Ont., Jan. 7, 1892—d. Victoria, B.C., June 13, 1951).

Newsome, Albert Ray, U.S. historian (b. Marshville, N.C., June 4, 1894—d. Chapel Hill, N.C., Aug. 5, 1951).

Neymann, Clarence Adolph, U.S. psychiatrist and neurologist (b. Chicago, Ill., Nov. 7, 1887—d. St. Petersburg, Fla., Jan. 12, 1951).

Nishina, Yoshio, Japanese physicist (b. 1889?—d. Tokyo, Japan, Jan. 10, 1951).

Nörlund, Poul, Danish archaeologist (b. Slagelse, Den., 1888—d. Copenhagen, Den., May 27, 1951).

Novello, Ivor (DAVID IVOR DAVIES), British actor-manager, playwright and composer (b. Cardiff, Wales, Jan. 15, 1893—d. London, Eng., March 6, 1951), son of the Welsh musician, Dame Clara Novello Davies, was educated at Magdalen College school, Oxford. During World War I, in which he served with the royal naval air service, his song "Keep the Home Fires Burning" became very popular. He first appeared on the stage in 1921, and in 1924 presented his first play, *The Rat* (written in collaboration with Constance Collier). He subsequently wrote, produced and acted in such successful comedies as *The Truth Game* (1928), *A Symphony in Two Flats* (1929), *Party* (1932), and *Proscenium* (1933), and wrote *Comedienne* (1938), in which Dame Lilian Braithwaite took the lead. But he became best-known for his "Ruritanian" musical plays like *Glamorous Night* (1935), *Careless Rapture* (1936), *The Dancing Years* (1939), *Perchance to Dream* (1945) and *King's Rhapsody* (1949). His last musical play, *Gay's the Word* (1950), was a cheerful travesty of the spectacular romances which had brought him success. He also acted in many British and U.S. films.

Oestreicher, John C(ahill), U.S. newspaper editor (b. Brooklyn, N.Y., Sept. 22, 1905—d. New Rochelle, N.Y., Dec. 16, 1951).

Omholt, Mrs. Ella Reeve Bloor ("MOTHER BLOOR"), U.S. left wing leader (b. near Mariners, Staten Island, N.Y., July 8, 1862—d. Quakertown, Pa., Aug. 10, 1951).

Osborn, Alexander Perry, U.S. lawyer, banker and broker (b. Garrison-on-Hudson, N.Y., June 6, 1884—d. Tucson, Ariz., March 6, 1951).

Osborn, William Church, U.S. lawyer, civic leader and art collector (b. Chicago, Ill., Dec. 21, 1862—d. New York, N.Y., Jan. 3, 1951).

Palmer, Courtlandt, U.S. composer and pianist (b. New York, N.Y., 1872—d. New York, Dec. 15, 1951).

Patenotre, Raymond, French former government official and newspaper publisher (b. Atlantic City, N.J., 1900?—d. Paris, Fr., June 19, 1951).

Patton, Fred, U.S. singer and teacher (b. Manchester, Conn., Oct. 2, 1888—d. Detroit, Mich., October 25, 1951).

Paullin, James Edgar, U.S. physician and authority on poliomyelitis (b. Fort Gaines, Ga., Nov. 3, 1881—d. Atlanta, Ga., Aug. 13, 1951).

Pavlenko, Peter Andreyevich, Russian novelist (b. St. Petersburg, Russia, 1899—d. Moscow, U.S.S.R., June 16, 1951).

Peabody, Dean, Jr., U.S. architect, educator and author (b. Reading, Mass., July 3, 1888—d. Hubbardston, Mass., Aug. 7, 1951).

Penton, Brian Con, Australian editor, novelist (b. Brisbane, Queens., Austr., Aug. 4, 1904—d. Sydney, N.S.W., Austr., Aug. 24, 1951).

Perry, John Morris, U.S. lawyer (b. Brooklyn, N.Y., 1866?—d. New York, N.Y., March 1, 1951).

Perth, (James) Eric Drummond, 16TH EARL OF, British statesman (b. Aug. 17, 1876—d. Rogate, Sus., Eng., Dec. 15, 1951).

Pétain, Henri Philippe Benoni Omer Joseph, French soldier and statesman (b. Cauchy la Tour, Pas de Calais, Fr., April 24, 1856—d. Ile d'Yeu, Fr., July 23, 1951), graduated from Saint-Cyr military academy in 1878. In World War I, in Aug. 1914, as colonel, he commanded the 33rd Infantry regiment; at the end of August he was promoted brigadier general; at the battle of the Marne he commanded the 6th division; and in October he was at Arras commanding the 33rd army corps. In Feb. 1916, when the situation at Verdun became critical, Gen. Joseph Joffre sent Pétain there as army commander. Although the battle of Verdun cost the French an estimated 350,000 men, it was regarded as a triumph for Pétain, and made him the hero of France. In May 1916 he was appointed commander of the centre army group, and a year later he succeeded Gen. Robert Nivelle as French commander in chief. When Gen. Eric Ludendorff launched his offensive in March 1918, Pétain's nerve showed signs of cracking: Raymond Poincaré described him in his memoirs as "defeatist" and Georges Clemenceau preferred Ferdinand Foch, chief of the general staff, as candidate for the supreme command of the Allied armies in France. On July 23, 1918, Pétain was awarded the *Médaille Militaire* and in November of that year he was made marshal of France.

After the war he was appointed vice-president of the Supreme War council and in Jan. 1922 he was also made inspector general of the army. In 1925-26, jointly with Gen. Primo de Rivera, he led the French-Spanish forces against the revolt of Abd el-Krim in Morocco. In 1934 he was minister of war in the Gaston Doumergue cabinet. In March 1939 Edouard Daladier appointed Pétain French ambassador to Spain, but Paul Reynaud recalled the marshal in May 1940 and made him vice premier in the hope that his presence would strengthen the national morale. In June Pétain led the cabinet majority in favour of capitulation and asked Adolf Hitler for an armistice. On July 10, at Vichy, a panic-stricken national assembly voted by 569 votes to 80 full executive and legislative powers to him as head of the *Etat Français*. On Oct. 24 he met Hitler at Montoire, Fr., and an agreement in principle on collaboration was reached.

Until 1944 Pétain hoped for a peace of compromise, with France acting as intermediary. On Aug. 20, 1944, the Germans forced him to leave Vichy for Belfort and later Sigmaringen, Germany. On April 26, 1945, he presented himself at the Swiss-French frontier. His trial before the High Court of Justice in Paris opened on July 23, and on Aug. 15 he was sentenced to death, degradation and loss of property, but with a recommendation to mercy. Gen. Charles de Gaulle, then prime minister, commuted the sentence to detention for life. Pétain was imprisoned in the fortress of Portalet, was transferred to a fort on the Ile d'Yeu in Nov. 1945 and thence, a month before he died, to the Villa Luco. (*See* also *Encyclopædia Britannica.*)

Petsche, Maurice, French statesman (b. Paris, Fr., Dec. 1, 1895—d. Paris, Sept. 16, 1951), graduated from the École des Sciences Politiques and was first elected to the French chamber of deputies from the department of Hautes-Alpes in 1925. He was re-elected deputy several times thereafter, serving also as undersecretary of war and later undersecretary of finance in the cabinets of André Tardieu in 1929 and 1930. From 1930 to 1932 he was a French delegate to the League of Nations. During the German occupation of France in World War II he was an active member of the resistance movement. After the liberation of France he was elected to the assembly which drafted the new constitution of the fourth republic, and in Nov. 1946 was elected to the new national assembly, again from the department of

Hautes-Alpes. On Jan. 12, 1949, he was appointed minister of finance in the cabinet of Henri Queuille, holding that position in succeeding governments until the national elections of June 1951. Pres. Vincent Auriol called on Petsche to form his own government following the elections, but he failed to win the assembly's approval on Aug. 3. Taken ill shortly thereafter, Petsche did not resume his post as finance minister and was appointed instead to the honorary office of minister of state in the cabinet of René Pleven. As minister of finance, Petsche fought a determined but losing battle against postwar inflation in France. He devalued the franc in 1949 and adopted numerous other measures to bolster the French economy.

Phemister, Dallas B(urton), U.S. surgeon (b. Carbondale, Ill., July 15, 1882—d. Chicago, Ill., Dec. 28, 1951), was one of the first to show that surgical shock was due to loss of blood and was noted also for devising a procedure to equalize bone growth in children. He established the department of surgery at The University of Chicago medical centre, and was chief of surgery at the centre from 1925 until his retirement in 1945. He served as president of the American College of Surgeons and of the American Surgical association and was a member of the Society of Clinical Surgery.

Philipson, Mrs. Hilton (Mabel Russell), British actress and member of parliament (b. Jan. 1, 1887—d. Brighton, Eng., Jan. 9, 1951).

Phillips, Henry Albert, U.S. author, editor and lecturer (b. Brooklyn, N.Y., Jan. 28, 1880—d. Stamford, Conn., Jan. 28, 1951).

Pitoeff, Ludmilla, Russian-born French actress (b. Tiflis, Georgia, Russ., 1896—d. Rueil, near Paris, Fr., Sept. 15, 1951).

Plotnikoff, Eugene, Russian-born composer and cellist (b. Odessa, Russia, Aug. 30, 1877—d. New York, N.Y., Sept. 28, 1951).

Poe, E. Holley, U.S. engineering executive (b. Pawnee, Okla., Sept. 14, 1896—d. Tulsa, Okla., March 9, 1951).

Poindexter, Joseph Boyd, former governor of Hawaii (b. Canyon City, Ore., April 14, 1869—d. Honolulu, T.H., Dec. 3, 1951).

Poor, Charles Lane, U.S. astronomer and inventor (b. Hackensack, N.J., Jan. 18, 1886—d. New York, N.Y., Sept. 27, 1951).

Pressburger, Arnold, Austrian-born film producer (b. Austria, Aug. 27, 1885—d. Hamburg, Ger., Feb. 17, 1951).

Prince, William Meade, U.S. illustrator and author (b. Roanoke, Va., July 9, 1893—d. Chapel Hill, N.C., Nov. 10, 1951).

Purcell, Charles Henry, U.S. engineer (b. North Bend, Neb., Jan. 27, 1883—d. Sacramento, Calif., Sept. 8, 1951).

Pyle, Robert, U.S. horticulturalist (b. London Grove, Pa., March 7, 1877—d. West Chester, Pa., Sept. 28, 1951).

Queipo de Llano, Gonzalo, Spanish military officer (b. Tordesillas, Sp., Feb. 5, 1875—d. Seville, Sp., March 9, 1951).

Radford, Cyrus Sugg, U.S. retired Marine general (b. Hopkinsville, Ky., June 3, 1868—d. Toms River, N.J., Jan. 19, 1951).

Rajpipla, Maharaja of (Maharana Shri Sir Vijayasinhji Chhatrasinhji), Indian prince and sportsman (b. Rajpipla, India, 1889?—d. London, Eng., April 29, 1951).

Randolph, Robert Isham, U.S. engineer and civic leader (b. Chicago, Ill., April 14, 1883—d. Santa Barbara, Calif., Oct. 18, 1951).

Ransohoff, Nicholas S., U.S. orthopaedic surgeon (b. Salt Lake City, Utah, Oct. 18, 1895—d. Long Branch, N.J., April 25, 1951).

Raper, Henry Stanley, British expert on chemical physiology (b. Bradford, Yorks., Eng., 1882—d. Manchester, Eng., Dec. 12, 1951).

Rautenstrauch, Walter, U.S. educator (b. Sedalia, Mo., Sept. 7, 1880—d. New York, N.Y., Jan. 3, 1951).

Razmara, Ali, Iranian army officer and government official (b. Tehran, Iran, 1901—d. Tehran, March 7, 1951), graduated in 1925 from the French military academy of Saint-Cyr. He served in the pacification campaigns in the Kurdistan and Laristan provinces. In 1938 he became director of the Tehran Military Cadet college. His book on the military history of Persia earned him international repute. In 1944, during the Allied occupation of Iran, the shah made him general and ordered him to reorganize the military forces. Two years later he was appointed chief of staff and was responsible for the entry of the central government forces into Iranian Azerbaijan to supervise the elections there, from which resulted the collapse of the Soviet-sponsored puppet rule. On June 26, 1950, the shah appointed him prime minister. Though efficient and hard-working, he had no large personal following. He tried to make the rich carry more of the burden of the state and he was opposed to the nationalization of the oil industry on the grounds that, for the time being, it would be impossible to run the industry with Iranian technicians only. On March 7, 1951, he was assassinated outside the Maschede Soltaneh mosque by Abdullah Rastigar, a member of the Fadayian Islam (Devotees of Islam) organization.

Reed, Alfred C., U.S. professor of medicine (b. Pleasant Hill, Mo., Dec. 2, 1884—d. Mill Valley, Calif., June 20, 1951).

Remez, David, Israeli government official (b. Copees, province of Mohilev, Russia, April, 1886—d. Jerusalem, May 19, 1951).

Reynolds, William Neal, U.S. tobacco manufacturer and sportsman (b. Patrick county, Va., March 22, 1863—d. Winston-Salem, N.C., Sept. 10, 1951), was the brother of Richard Reynolds who founded the R. J. Reynolds Tobacco company. William Reynolds became a partner in the company in 1886, president in 1918, and chairman of the board in 1924, and from 1931 until he retired in 1942, he was chairman of the executive committee.

His horse Mary Reynolds won the 1933 Hambletonian, the top U.S. harness race, and his horses Tar Heel and Solicitor were leading three-year-old pacers during the 1951 season. His benefactions included the donation of the Kate Bitting Reynolds Memorial hospital for Negroes in Winston-Salem; $100,000 toward a new library in Winston-Salem and $100,000 for a Presbyterian school for mountain children at Roaring Gap, N.C.

Rickard, Edgar, French-born mining engineer (b. Pontgibaud, Fr., Jan. 17, 1874—d. San Francisco, Calif., Jan. 21, 1951).

Riddell, Robert Gerald, Canadian permanent representative to the United Nations (b. Edmonton, Alta., May 4, 1908—d. Virginia Beach, Va., March 16, 1951), studied at the University of Manitoba and the University of Toronto, Can., and at Oxford university in England. He lectured in history at the University of Toronto and was senior tutor at Victoria university until 1942. In 1943 he joined the Canadian department of external affairs as a special assistant to the undersecretary of state. In 1946 he became head of the first political division, in charge of United Nations affairs and international conferences. Later he represented Canada at meetings of various U.N. bodies, including the Security council and the general assembly. In June 1950 he became permanent representative for Canada to the United Nations, assuming his duties Aug. 14. On Aug. 16, 1950, he was chosen as alternate Canadian representative to the fifth regular session of the general assembly. He wrote and edited numerous articles and publications on historical subjects and international affairs.

Riddle, Samuel D., U.S. turfman (b. Glen Riddle, Pa., July 1, 1861—d. Glen Riddle, Jan. 8, 1951), was best known as the owner of the famous U.S. race horse Man o' War. He bought the big chestnut with the 24-foot stride in Aug. 1918 and raced him during the 1919 and 1920 seasons. In that time the horse lost only 1 of 21 races, and won purses totalling $249,465. One of his offspring, War Admiral, also owned by Riddle, won the 1937 Kentucky Derby, Preakness and Belmont Stakes, the "triple crown" of horse racing.

Rigby, Edward, British actor (b. Ashford, Kent, Eng., Feb. 5, 1879—d. Richmond, Sur., Eng., April 5, 1951).

Ritt, Joseph Fels, U.S. mathematician and educator (b. New York, N.Y., Aug. 23, 1893—d. New York, Jan. 5, 1951).

Rizzo, Count Luigi, Italian naval officer (b. Milazzo, Sicily, 1887—d. Rome, It., [announced] June 28, 1951).

Robertson, Sir Malcolm Arnold, British diplomat (b. Sept. 2, 1877—d. Walmer, Kent, Eng., April 23, 1951).

Robinson-Duff, Frances, U.S. dramatic coach (b. Blue Hill, Me., 1877?—d. New York, N.Y., Oct. 30, 1951).

Rockart, John R., U.S. architect (b. St. Paul, Minn., 1872?—d. Bronxville, N.Y., Oct. 13, 1951).

Rohwer, Sievert Allen, U.S. entomologist (b. Tulluride, Colo., Dec. 22, 1888—d. Washington, D.C., Feb. 12, 1951).

Romañach, Leopoldo, Cuban painter (b. Carralillo, Cuba—d. Havana, Cuba, Sept. 10, 1951).

Romberg, Sigmund, Hungarian-born composer (b. Szegedin, Hung., July 29, 1887—d. New York, N.Y., Nov. 9, 1951), was the author of more than 70 musical stage and motion picture plays and of about 2,000 songs. He was regarded as a prodigy of the violin at the age of seven, but he never actually attended music school until he moved to Vienna, Aus., as a youth. He went to New York City in 1909, with a letter of introduction from the composer Franz Lehar to the producer J. J. Shubert, but he was obliged to begin work in a pencil factory while trying to establish himself in music. Eventually he began playing in restaurant orchestras, then formed his own orchestra. His first musical hit (1914) was *The Whirl of the World*. Then followed musical shows including his first operetta *The Blue Paradise* (1915), *Soldier Boy* (1916), *The Girl from Brazil* (1916), *Maytime* (1917), and *Sinbad* (1918).

He himself confessed that he could not remember the titles of all the songs he had written. His best known musicals included *In Blossom Time* (1921), *The Student Prince* (1924), *The Desert Song* (1926) and *New Moon* (1927). He was also busily engaged in later years writing scores for motion pictures and for radio. For a time he virtually commuted between Hollywood, Calif., where he was at work on motion picture scores, and New York

1951 OBITUARIES: Sigmund Romberg, Hungarian-born composer; Artur Schnabel, Austrian-born pianist; Arnold Schönberg, Austrian-born composer; John Sloan, U.S. painter; Arthur Vandenberg, U.S. senator

City, where he worked on stage plays. One of his early adaptations for the screen was of Giacomo Puccini's *Girl of the Golden West.*

Rosanoff, Martin Andre, Russian-born chemist (b. Nicolaeff, Russia, Dec. 28, 1874—d. Pittsburgh, Pa., July 30, 1951).

Ross, Edward Alsworth, U.S. sociologist (b. Virden, Ill., Dec. 12, 1886—d. Madison, Wis., July 22, 1951).

Ross, Harold Wallace, U.S. editor (b. Aspen, Colo., Nov. 6, 1892—d. Boston, Mass., Dec. 6, 1951), worked on newspapers in Salt Lake City, Utah, Marysville, Calif., Sacramento, Calif., Panamá, New Orleans, La., Atlanta, Ga., and San Francisco, Calif. From 1917 to 1919 he served overseas with the U.S. expeditionary force. He became an editor of the army newspaper, *Stars and Stripes*, and through that association came to know some of the outstanding U.S. literary figures. His associates, banded under the name of the Thanatopsis Literary and Inside Straight club, included Raoul Fleischmann, heir to a yeast fortune, who underwrote the publication of a new magazine the *New Yorker*, first published in 1925.

Ross was credited with being the guiding genius behind the steady rise of this magazine's popularity. He attracted to it—or discovered for it—many of the best-known cartoonists of the day. It was also known as one of the more literate magazines in the field of criticism. Among its authors and cartoonists were James Thurber, Peter Arno, William Steig, Wolcott Gibbs, Leonard Q. Ross, Clarence Day, Robert Benchley and Dorothy Parker.

Ross, John K. L., Canadian industrialist, sportsman and naval officer (b. Lindsay, Ont., 1876?—d. Jamaica, B.W.I., July 25, 1951), was the son of James R. Ross, one of the builders of the Canadian Pacific railway. He was graduated from McGill university, Montreal, Que., in 1897, began his business career in the machine shops of the Montreal street railway and eventually became manager of several British streetcar-line companies.

He served as a destroyer commander in World War I, and during World War II purchased a yacht for the Canadian government to use as a torpedo vessel. He commanded the ship for two years on antisubmarine patrols in the Atlantic, was awarded the Order of the British Empire and received two mentions in dispatches.

In the years between the wars he owned a large racing stable and his horse Sir Barton was the only Canadian horse to win a Kentucky Derby, which it did in 1919. Ross made many gifts, among them being the $700,000 Ross pavilion to the Royal Victoria hospital in Montreal.

Rothier, Leon, French-born opera singer (b. Rheims, Fr., Dec. 26, 1874—d. New York, N.Y., Dec. 6, 1951).

Rubien, Frederick W., U.S. sports leader (b. 1871?—d. Manhasset, N.Y., July 5, 1951).

Russell, Elbert, U.S. educator (b. Friendsville, Tenn., Aug. 29, 1871—d. St. Petersburg, Fla., Sept. 21, 1951).

Russell, William Logie, Canadian-born psychiatrist (b. New Brunswick, Can., July 24, 1863—d. Santa Barbara, Calif., March 31, 1951).

Ryazanov, Vasily G., Soviet army officer (b. 1889?—d. Moscow (?), U.S.S.R., July 8, 1951).

Sadako, Dowager Empress of Japan (b. 1884?—d. Tokyo, Japan, May 17, 1951).

Salinas, Pedro, Spanish-born author and educator (b. Madrid, Sp., Nov. 27, 1892—d. Boston, Mass., Dec. 4, 1951).

Sapieha, Adam Stefan Cardinal, Polish prelate (b. Krasiczyn, Pol., May 14, 1867—d. Cracow, Pol., July 23, 1951), of princely birth, was ordained priest in Oct. 1893. For a few years he was professor at the Lwow seminary and canon of the metropolitan chapter, but Pope Pius X called him to Rome in 1905, and he remained at the pontifical court until, on Dec. 17, 1911, the pope consecrated him prince-bishop of Cracow. During World War I Sapieha had done important work as chairman of an episcopal relief committee and in the restored Polish state he at once became prominent in the nation as well as in the church. In 1925 Cracow was raised to be a metropolitan see. During the German occupation, 1939-45, the archbishop spoke again and again for the Polish nation. He was elevated to the Sacred college by Pius XII in Feb. 1946 as cardinal priest. He was at the time of his death the last cardinal at liberty behind the "iron curtain."

Sauerbruch, (Ernst) Ferdinand, German surgeon (b. Barmen [part of Wuppertal from 1929], Ger., July 3, 1875—d. Berlin, Ger., July 2, 1951), was professor of surgery at Zürich university, 1911-18, at Munich university, 1918-28, and at Berlin university, 1928-49. He was noted for his method of using a loop of skin-protected muscle in the stump of an amputated member to operate, for instance, the hand, or even the fingers, of an artificial arm. His main publication on this topic was *Die willkürlich bewegbare künstliche Hand* (1911).

Saunders, Hilary Aidan St. George, British historian and novelist (b. Eng., Jan. 14, 1898—d. Nassau, the Bahamas, Dec. 16, 1951).

Sawyer, Wilbur Augustus, U.S. medical scientist (b. Appleton, Wis., Aug. 7, 1879—d. Oakland, Calif., Nov. 12, 1951).

Schlarman, Joseph H., U.S. Roman Catholic bishop (b. Breese Township, Ill., Feb. 23, 1879—d. Peoria, Ill., Nov. 10, 1951).

Schnabel, Artur, Austrian-born pianist (b. Lipnik, Aus., April 17, 1882—d. Axenstein, Switz., Aug. 15, 1951).

Schönberg, Arnold, Austrian-born composer and musician (b. Vienna, Aus., Sept. 13, 1874—d. Brentwood, Calif., July 13, 1951).

Schultz, Adolph George ("GERMANY"), U.S. former football star (b. 1882?—d. Detroit, Mich., April 14, 1951).

Schultz, Leonard, U.S. architect (b. Chicago, Ill., Dec. 5, 1877—d. Scarsdale, N.Y., Aug. 25, 1951).

Schulz, Edward Hugh, U.S. army engineer (b. Wheeling, W.Va., Jan. 23, 1873—d. Berkeley, Calif., March 3, 1951).

Schwab, Laurence, U.S. author and producer (b. Boston, Mass., Dec. 17, 1893—d. Southampton, L.I., N.Y., May 29, 1951).

Schwarz, Frank Henry, U.S. mural painter (b. New York, N.Y., June 21, 1894—d. Mount Vernon, N.Y., Sept. 5, 1951).

Scott, John, Canadian newspaper editor and publisher (b. St. John, N.B., 1874?—d. Toronto, Ont., Sept. 23, 1951), sold papers as a boy and meantime managed a baseball team. It was through his newspaper contacts in publicizing the results of his team's play that he entered the field of journalism, first as a sports writer on the *St. John Gazette.* He spent 26 years on the *Montreal Gazette*, then from 1927 to 1936 was managing director of the Mail Printing Company, Ltd., which published the *Toronto Mail and Empire* until it was merged with the *Toronto Globe.* For a time he was president of the Canadian Press, Canada's national news service. He retired in 1936.

Seashore, Robert Holmes, U.S. psychologist (b. Iowa City, Ia., June 14, 1902—d. Chicago, Ill., Aug. 27, 1951).

Seton-Watson, Robert William, British historian (b. Ayton, Perthshire, Scot., Aug. 20, 1879—d. Isle of Skye, Scot., July 25, 1951), was educated at Winchester college and at New college, Oxford. When visiting Vienna and Budapest in 1905 he became interested in political movements of the Habsburg monarchy; he started writing to the *Spectator* as "Scotus Viator" and in 1908 published a book on the *Racial Problems in Hungary*, followed in 1911 by *The Southern Slav Question.* In 1910 he met Thomas Masaryk and their friendship enabled Seton-Watson to render outstanding services to the Czechoslovak cause. Masaryk in exile was on the board of Seton-Watson's *The New Europe* (1916-20), a weekly review which stood for the reconstruction of central and eastern Europe on national and democratic principles. In 1922 Seton-Watson was appointed professor of central European history in the University of London and became joint editor (with Sir Bernard Pares) of the *Slavonic and East European Studies.* He held the London chair until 1945 when he became the first professor of Czechoslovak studies at Oxford; he retired in 1949. His most notable books included *A History of the Roumanians* (1934), *Britain in Europe, 1789-1914* (1937), *From Munich to Danzig* (1939) and *History of the Czechs and Slovaks* (1944). He contributed to the *Encyclopædia Britannica.*

Sherman, Forrest Percival, U.S. naval officer (b. Merrimack, N.H., Oct. 30, 1896—d. Naples, It., July 22, 1951), was the youngest naval officer to become chief of naval operations of the United States and the first naval flier to hold that post in time of peace. He studied a year (1913-14) at Massachusetts Institute of Technology, Cambridge, and entered the U.S. Naval academy, Annapolis, Md., graduating in 1917, second in his class. During World War I he saw duty in European waters, and after that war he became a naval aviator. Early in World War II he served with the war plans division of the office of chief of naval operations and later was given command of the carrier "Wasp," which was sunk by the Japanese in 1942. He then served as chief of staff to Vice-Adm. John H. Towers, commander of the navy's Pacific air forces, and as deputy chief of staff to Adm. Chester W. Nimitz, commander in chief of the Pacific fleet. In Dec. 1945 he was named deputy chief of naval operations and helped draw up the original plans for unification of the armed services. In Jan. 1948 he was named commander of the U.S. naval force patrolling the Mediterranean. It was from this duty that he was recalled to Washington, Nov. 1, 1949, to become chief of naval operations, succeeding Adm. Louis E. Denfeld. In 1951 he was one of the first to testify in support of the removal of Gen. Douglas MacArthur from his command in the Pacific. He was on a mission to Europe involving the collaboration of the Spanish government in the defense of western Europe when he died.

Shidehara, Kijuro, Japanese civil leader (b. Osaka, Japan, Aug. 11, 1872—d. Tokyo, Japan, March 10, 1951), studied at the Imperial university of Tokyo and entered the foreign service in 1899. In 1912 he was named counsellor of the embassy in Washington, D.C., and in 1914 he went to The Hague for a year as minister. He was one of the signers of the Versailles treaty ending World War I. From 1919 to 1922 he was ambassador to the U.S. He was Japanese foreign minister from 1924 to 1927 and again from 1929 to 1931 and as such defended Japan's invasion of Manchuria on the grounds that Japan was saving the country from the Russians. He faded from leadership during World War II, but emerged as the first prime minister of Japan under Allied occupation following that war. He had received the title of baron in 1920, but this status was taken from him in the postwar reforms. At the time of his death he was speaker of Japan's house of representatives. (*See* also *Encyclopædia Britannica.*)

Sikelianos, Angelos, Greek poet (b. Levkas, Ionian Islands, Gr., 1884—d. Athens, Gr., June 19, 1951).

Simkhovitch, Mary Kingsbury (MRS. VLADIMIR G. SIMKHOVITCH), U.S. settlement-house worker (b. Chestnut Hill, Mass., Sept. 8, 1867—d. New York, N.Y., Nov. 15, 1951).

Sinclair, Arthur, Irish actor (b. Dublin, Ire., Aug. 3, 1883—d. Belfast, N. Ire., Dec. 14, 1951).

Skum, Nils Nilsson, Lapp artist (b. 1872?—d. Siskawaara Mts., Swed., Dec. 27, 1951).

Sloan, John, U.S. artist (b. Lock Haven, Pa., Aug. 2, 1871—d. Hanover, N.H., Sept. 8, 1951), studied at the Pennsylvania Academy of the Fine Arts, Philadelphia, worked as an illustrator for Philadelphia newspapers and in 1905 went to New York city, where he did magazine and book illustrations while helping to launch a revolt of young modernists against the formalism of the preceding generation of artists. He and his associates, residents of New York's Greenwich Village, were known as the "eight" and "the black gang" and were credited with creating "the ash-can school" of art. Their insistence was on painting life as they saw it, not as a romanticized and remote experience.

His work went unrecognized for years. He never exhibited a painting until he was 29, and never sold one until he was 49. Fortune came rapidly after that, and by the time of his death his paintings were on exhibit in most of the major museums of the United States. His influence was exerted directly on a generation of American artists, since he devoted much of his time to teaching.

"Honest, ironic and an exceptional draftsman, he painted the back alleys and barrooms, characters of questionable virtue, bringing to art the beauty of realism, to become a heroic figure in contemporary American art," in the words of the catalogue of the *Encyclopædia Britannica* Collection of Contemporary American Painting. One of his paintings in this collection, "Chinese Restaurant," was uniformly voted one of the most popular of the 126 paintings exhibited by Britannica during their five-year tour of the United States.

Smith, George Albert, president of the Church of Jesus Christ of Latter Day Saints (b. Salt Lake City, Utah, April 4, 1870—d. Salt Lake City, April 4, 1951), was a church leader the greater part of his life. His grandfather was a cousin of Joseph Smith, founder of the Mormon sect, and a counsellor to Brigham Young. George Albert Smith was named to the Latter Day Saints Council of Twelve Apostles in 1903 and was made president of the apostles in 1943, being elevated to the position of president of the church in 1945. He was active in the management of various business enterprises controlled by the church and a leading spirit in the promotion of dry farming, irrigation and the preservation of far western historical sites.

Smith, George Milton, U.S. cancer specialist (b. Hong Kong, China, July 5, 1879—d. Pine Orchard, Conn., Feb. 26, 1951).

Smith, Henry Lewis, U.S. X-ray pioneer and educator (b. Greensboro, N.C., July 30, 1859—d. Greensboro, Feb. 27, 1951).

Smith, Hurlbut William, U.S. industrialist and civic leader (b. Centre Lisle, Broome County, N.Y., June 24, 1865—d. Syracuse, N.Y., Dec. 16, 1951).

Smith, Robert B., U.S. librettist and lyricist (b. Chicago, Ill., 1875?—d. New York, N.Y., Nov. 6, 1951).

Solh, Riad es, Lebanese statesman (b. Saida, Lebanon, 1894—d. Amman, Jor., July 16, 1951), was sentenced to death during World War I by a Turkish court martial for his pro-Arab activities, but the sentence was commuted to deportation. After World War I he fought against the French mandate in the Lebanon, was sentenced to death by a French court martial, but was pardoned in 1924. He opposed the Franco-Lebanese treaty of Nov. 13, 1936, and was exiled. From Sept. 1943 to Jan. 1945 he was the first prime minister of Lebanon; he returned to power in June 1947 and resigned in Feb. 1951. His assassination, while on a visit to King Abdullah, was attributed to members of the Syrian Nationalist party.

Sommerfeld, Arnold (Johannes), German physicist (b. Königsberg, Ger., Dec. 5, 1868—d. Munich, Ger., April 26, 1951).

Soule, Malcolm Herman, U.S. bacteriologist (b. Allegany, N.Y., Dec. 5, 1896—d. Ann Arbor, Mich., Aug. 3, 1951).

Speare, Dorothy (MRS. CHARLES J. HUBBARD), U.S. operatic singer, author and lecturer (b. Newton Center, Mass., Dec. 13, 1898—d. Boston, Mass., Feb. 4, 1951).

Stacpoole, Henry de Vere Stacpoole, British novelist (b. Dublin, Ire., 1863—d. Isle of Wight, Eng., April 12, 1951).

Stacy, Walter Parker, U.S. jurist (b. Ansonville, N.C., Dec. 26, 1884—d. Raleigh, N.C., Sept. 13, 1951).

Stanley, Robert Crooks, U.S. industrialist (b. Little Falls, N.J., Aug. 1, 1876—d. Dongan Hills, Staten Island, N.Y., Feb. 12, 1951).

Stevens, Ashton, U.S. drama critic (b. San Francisco, Calif., Aug. 11, 1872—d. Chicago, Ill., July 12, 1951), was drama critic for the Chicago Hearst newspapers for 40 years, after beginning his reporting of the theatre in San Francisco and continuing it for the *New York Evening Journal*, the present *Journal-American*. He was the friend of most theatrical personages of the 20th century, and collaborated with Charles Michelson on the play *Mary's Way Out*. An expert banjo player, he wrote the article on this instrument for the *Encyclopædia Britannica*.

Stires, Ernest Milmore, U.S. Protestant Episcopal bishop (b. Norfolk, Va., May 20, 1866—d. Palm Beach, Fla., Feb. 12, 1951), studied at the University of Virginia at Charlottesville and at the Protestant Episcopal Theological Seminary in Virginia at Alexandria, and was ordained a priest in 1892. He served in ministries in Virginia, Georgia and Illinois, then moved to St. Thomas' church in New York city, which he built into a prosperous parish. He was consecrated bishop of Long Island, N.Y., Nov. 24, 1925, and retired in 1942. For a number of years he was chairman of the fabric committee that was responsible for planning the building of the Cathedral of St. John the Divine in New York city.

Stolberg, Benjamin, German-born labour publicist and author (b. Munich, Ger., Nov. 30, 1891—d. New York, N.Y., Jan. 21, 1951).

Street, Sir Arthur William, British government official (b. Cowes, Isle of Wight, May 16, 1892—d. London, Eng., Feb. 24, 1951).

Street, Charles Evard ("GABBY"), U.S. baseball player and manager (b. Huntsville, Ala., Sept. 30, 1883—d. Joplin, Mo., Feb. 6, 1951), entered professional baseball at the age of 16 and remained in the game for 40 years. He played in several minor leagues, then entered the major leagues with Cincinnati in 1904. He spent the next year with the Boston Braves, returned to the minors as catcher for the Chattanooga, Tenn., Southern Association team, and in 1908 became catcher for the Washington Senators in the American league. He gained fame as the catcher for Walter Johnson, and had the novel distinction of being the first man to catch a baseball dropped from the top of the Washington monument in Washington, D.C.

From 1920 to 1929 he managed various minor league teams, and in the latter year went to the St. Louis Cardinals as coach. In 1930, as manager of this team, he led it to the National league championship, and in 1931 the team again won the pennant and the world series as well. His last major-league job was as manager of the St. Louis Browns, in 1938. In later years he was a radio baseball announcer in St. Louis, Mo.

Sumner, (Benedict) Humphrey, British historian (b. Aug. 8, 1893—d. Oxford, Eng., April 25, 1951).

Swinton, Sir Ernest Dunlop, British army officer and military historian (b. Bangalore, India, Oct. 21, 1868—d. Oxford, Eng., Jan. 15, 1951).

Szyk, Arthur, Polish-born artist and miniaturist (b. Lodz, Pol., June 3, 1894—d. New Canaan, Conn., Sept. 13, 1951).

Taylor, Floyd, U.S. journalist (b. Riverside, Calif., March 20, 1902—d. Plandome, L.I., N.Y., Aug. 24, 1951).

Tennyson-D'eyncourt, Sir Eustace (Henry William), British naval architect (b. April 1, 1868—d. Hailsham, Sus., Eng., Feb. 1, 1951).

Thomas, George, U.S. educator (b. Hyde Park, Utah, Dec. 29, 1866—d. Salt Lake City, Utah, April 11, 1951).

Thomas, John Webster, U.S. business executive (b. Tallmadge, O., Nov. 18, 1880—d. Akron, O., Nov. 26, 1951).

Thompson, Cecil Vincent Raymond, British journalist and author (b. London, Eng., 1906?—d. New York, N.Y., June 12, 1951).

Thyssen, Fritz, German industrialist (b. Mülheim, Ger., Nov. 9, 1873—d. Buenos Aires, Arg., Feb. 8, 1951), was the son of August Thyssen, who was generally credited with founding the German iron and steel industry. His father died in 1926 and the son acceded to the industrial empire. He became one of Germany's wealthiest and most powerful men, holding 15% of the total capital of the Vereinigte Stahlwerke, a trust that controlled most of Germany's ore reserve and employed 200,000 workers.

Historically, Thyssen's greatest significance was in his espousal of the cause of Adolf Hitler and the nazi party in Germany. He was one of Hitler's earliest supporters, and helped organize the meeting of German industrialists on Jan. 26, 1933, which heard Hitler outline his nazi program and which eventually supported him in his drive to become Germany's chancellor. Thyssen spent 3,000,000 marks to sponsor Hitler. His excuse was that Hitler would save Germany from communism.

When he eventually saw Hitler lead the country into some of the very abuses he had feared and eventually into World War II, Thyssen fled the country. His property, then valued at $88,000,000, was confiscated, and he was deprived of his citizenship. Eventually, for propaganda purposes, he was labelled a Communist by the nazis. In 1941 while he was trying to make his way to South America he was picked up by the Vichy government in France and turned over to the nazis. He reportedly spent some time in the Dachau concentration camp. After World War II a denazification court found him guilty of being a "minor nazi," and he was ordered to turn over 15% of his available property in Germany to the fund for the victims of nazi persecution.

Titus, Paul, U.S. gynecologist and obstetrician (b. Batavia, N.Y., May 6, 1885—d. Pittsburgh, Pa., June 28, 1951).

Trevelyan, Robert Calverley, British poet and author (b. England, June 28, 1872—d. Surrey, Eng., March 21, 1951).

Truslow, Francis Adams, U.S. lawyer (b. Summit, N.J., May 4, 1906—d. on shipboard, July 8, 1951).

Tyrwhitt, Sir Reginald, British naval officer (b. May 10, 1870—d. London, Eng., May 30, 1951).

Usborne, Cecil Vivian, British naval officer, inventor and author (b. Queenstown, Ire., May 17, 1880—d. London, Eng., Jan. 31, 1951).

Valle, Mario, Italian-born baritone and stage director (b. Rome, It., 1881?—d. New York, N.Y., May 14, 1951).

Valtin, Jan (RICHARD JULIUS HERMAN KREBS), German-born author (b. Darmstadt [or near Mainz?], Ger., Dec. 17, 1905—d. Chestertown, Md., Jan. 1, 1951), was the author of a book of supposed reminiscences of a career as a Communist plotter and a supposed member of the gestapo, entitled *Out of the Night*. Although the book itself created a sensation in the early days of World War II, chiefly for its exposé of methods of the gestapo, it was not established whether or not Valtin ever had all of the experiences he claimed. He was reputed to have joined the Communists in Germany at the end of World War I; fled when they were defeated; studied in the soviet sabotage school in Leningrad, then served as a Communist agent trying to create an uprising in Hawaii. In 1921 he first visited the U.S. In 1926 he was sentenced to serve ten years in San Quentin prison in California for assault with a deadly weapon, and in 1929 he was released and deported to Germany. According to his own book, he entered the fight against the nazis, was seized and tortured, pretended to join the nazis, and finally fled the country. During that period, his book related, he worked for the gestapo. In March 1938 he fled Germany as a seaman and jumped ship at a U.S. east coast port. In 1947 Valtin was granted U.S. citizenship, at which time his World War II record with the U.S. 24th division was offered as partial evidence of his worth as a potential citizen.

Van Alstyne, Egbert A., U.S. composer (b. Marengo, Ill., 1878?—d. Chicago, Ill., July 9, 1951), wrote more than 500 popular songs during his career. Many of the most famous so-called "barbershop" tunes were his products. The list includes some written in collaboration with lyric writers Harry Williams, Gus Kahn and Haven Gillespie. The songs include "In the Shade of the Old Apple Tree," "Navajo," "Seminole," "Pretty Baby," "Your Eyes Have Told Me So," "Drifting and Dreaming," "Little Old Church in the Valley," "That Old Girl of Mine," "Pony Boy," "Won't You Come Over to My House" and "Sailing Away on the Henry Clay." In 1950 Van Alstyne was given a tribute in the form of a pageant, witnessed by the 100,000 persons who attended the 21st annual Chicagoland Music festival, which featured many of his songs and marked one of his last public appearances.

Vandenberg, Arthur Hendrick, U.S. publisher and senator (b. Grand Rapids, Mich., March 22, 1884—d. Grand Rapids, April 18, 1951), began the study of law at the University of Michigan, Ann Arbor; but after family financial reverses he went to work, entering the newspaper field. He became manager of the *Grand Rapids Herald* at the age of 22, and continued as manager or editor until 1928, when he was appointed to the U.S. senate on the death of Sen. Woodbridge N. Ferris. He had, meanwhile, won wide attention for his editorials and as early as 1916 served as chairman of the Republican state convention. From 1921 to 1928 he was a member of the Republican state committee in Michigan.

During his earlier career he opposed U.S. intervention abroad and in the years immediately preceding World War II was one of the outstanding isolationists—though he used the term "insulationist." He had opposed U.S. entry into the League of Nations and saw the beginnings of World War II as justifying that earlier stand. Accordingly, it was a spectacular political development when, in a complete reversal of policy, he announced in a Jan. 1945 senate speech that he thereafter favoured U.S. positive leadership in world affairs.

After the 1946 elections, when the Republicans obtained control of the senate, Vandenberg, as chairman of the committee on foreign relations, began to steer important legislation through the senate under what he termed an "unpartisan" foreign relations policy. He was a delegate to the United Nations Conference on International Organization at San Francisco, Calif., in 1945. He served as U.S. adviser to the council of foreign ministers at the 1946 Paris peace conference and was an early exponent of the policy of firmness in dealing with the U.S.S.R. The culmination of his bipartisan leadership was his sponsorship in the senate of the Marshall plan for economic aid to western Europe, and the later plan for military aid that eventually was embodied in the North Atlantic Treaty organization.

Vandenberg had been a chief Republican presidential possibility as early as 1940, and wielded great influence in his party's inner circles virtually throughout his adult life.

Van der Meersch, Maxence, French novelist (b. Roubaix, Fr., May 4, 1907—d. Le Touquet, Fr., Jan. 14, 1951).

Varela, José Enrique, high commissioner of Spanish Morocco (b. near Cadiz, Sp., 1891?—d. Tetuán, Spanish Morocco, March 24, 1951).

Vavilov, Serghey Ivanovich, Russian scientist (b. Moscow, Russia, 1891—d. Moscow, Jan. 25, 1951), graduated from Moscow university in 1914, served in the Russian army and, after World War I, was appointed lecturer in physics at his old university. For his research in optics he was elected in 1931 corresponding member of the Soviet Academy of Sciences, was made full member a year later and in 1945 was elected president. He was also an editor of the *Bolshaya Sovietskaya Entsiklopedia.* He was awarded the Stalin prize in 1943 and 1946.

Voronoff, Sergei (Serghei Voronov), Russian-born French surgeon (b. Voronezh, Russia, July 10, 1866—d. Lausanne, Switz., Sept. 1, 1951), served as chief surgeon of the Russian hospital in France during World War I, much of his surgery being devoted to bone-grafting. In 1921, he became director of experimental surgery at the Collège de France, Paris, where he carried out experiments in grafting glands into sheep, with a view to improving their physique and the quality of their wool. On Oct. 5, 1937, he attracted attention when he informed the Société de Pathologie Comparée, Paris, that intelligence and physical growth of backward children could be improved by grafts of thyroid glands of monkeys. Among his published works were *Life, a Study of the Means of Restoring Vital Energy* (1921); *The Study of Old Age and My Method of Rejuvenation* (1926); and *Conquest of Life* (1932). Voronoff had become a French citizen in 1897.

Walker, Dame Ethel, British artist (b. Edinburgh, Scot., June 9, 1861—d. London, Eng., March 2, 1951).

Walker, John Moore, U.S. churchman (b. Macon, Ga., Nov., 24, 1888—d. Atlanta, Ga., July 16, 1951).

Walker, Robert, U.S. screen actor (b. Salt Lake City, Utah, 1919?—d. Los Angeles, Calif., Aug. 28, 1951).

Walsh, Gerald Groveland, U.S. educator and author (b. South Norwalk, Conn., Nov. 9, 1892—d. New York, N.Y., Dec. 17, 1951).

Waltz, Jean Jacques (Oncle Hansi), French caricaturist and writer (b. Colmar, France, Feb. 23, 1873—d. Colmar, June 10, 1951).

Warfield, David, U.S. actor (b. San Francisco, Calif., Nov. 28, 1866—d. New York, N.Y., June 27, 1951), had played the part of a comedian for ten years before he attracted the notice of David Belasco in 1900. Belasco had the play *The Auctioneer* written for and around Warfield in a comedy role, but it won Warfield acclaim as a character actor.

For a quarter of a century Warfield's reputation rested chiefly on roles in four plays, *The Auctioneer*, *The Music Master*, *A Grand Army Man* and *The Return of Peter Grimm.* He played a great variety of other roles, however, from time to time, including Shylock in Belasco's production of William Shakespeare's *The Merchant of Venice.*

Warfield joined with Marcus Loew in many successful ventures in the development of the Loew theatrical enterprises, and retired, wealthy, in 1924. He refused to take roles in motion pictures, though he admitted that he had once been offered $1,000,000 to do so.

Watson, Elmo Scott, U.S. educator and journalist (b. Colfax, Ill., April 2, 1892—d. Denver, Colo, May 5, 1951).

Weaver, Powell, U.S. composer (b. Clearfield, Pa., June 10, 1890—d. Kansas City, Mo., Dec. 22, 1951).

Wendt, Theophil, English-born conductor and composer (b. London, Eng., 1874—d. Johannesburg, U. of S. Af., Feb. 6, 1951).

Werner, Max, Ukrainian-born author and military analyst (b. Krakov, Ukraine, Aug. 11, 1901—d. New York, N.Y., Jan. 8, 1951).

Wherry, Kenneth Spicer, U.S. senator (b. Liberty, Neb., Feb. 28, 1892—d. Washington, D.C., Nov. 29, 1951), received his bachelor's degree from the University of Nebraska, Lincoln, in 1914 and studied at Harvard university in 1915–16. During World War I he served in the U.S. naval flying corps. From 1929 to 1932 he was a member of regular and special sessions of the Nebraska state legislature; he was mayor of Pawnee City, Neb., from 1929 to 1931 and again from 1938 to 1943. In 1939 he was elected Republican state chairman for Nebraska. Three years later he defeated Sen. George W. Norris, veteran independent, in the Nebraska senatorial election. He was re-elected in 1948 for the term beginning in 1949. From 1944 to 1946 he was senate minority whip, and from 1944 to 1948 Republican whip; in 1949 he was elected Republican floor leader and on Jan. 3, 1951, was re-elected to that post.

As Republican leader, Wherry repeatedly denounced the Truman administration's domestic and foreign policies. On Aug. 16, 1950, he said that "the blood of our boys in Korea" was "squarely on the shoulders" of Secretary of State Dean Acheson. Wherry endorsed former Pres. Herbert Hoover's proposal to limit the U.S. defense perimeter and in Jan. 1951 introduced a senate resolution barring use of U.S. troops abroad without the approval and control of congress. The Wherry resolution precipitated a three-month debate in the senate which ended April 4 with passage of a resolution approving four additional U.S. divisions for Europe but advising President Truman to consult with congress before sending more.

Whitworth, Geoffrey Arundel, founder of the British Drama league (b. London, Eng., April 7, 1883—d. Oxford, Eng., Sept. 9, 1951).

Wiggin, Albert Henry, U.S. banker (b. Medfield, Mass., Feb. 21, 1868—d. Greenwich, Conn., May 21, 1951).

Wilhelm (Friedrich Wilhelm Victor August Ernest) **Von Hohenzollern,** former crown prince of Germany (b. Potsdam, Ger., May 6, 1882—d. Hechingen, Württemberg, Ger., July 20, 1951), was the eldest son of the former Kaiser Wilhelm II. At 14 he entered the Plön Cadet school and in 1900 became an officer in the 1st Foot guards. The next year he entered Bonn university and studied law until 1903. On June 6, 1905, he married Cecilia, duchess of Mecklenburg-Schwerin, and soon afterwards was appointed commander of the "Death's Head" hussar regiment stationed at Danzig. In 1913 he was seconded to the general staff in Berlin. He made himself famous by a telegram he sent in that year to a German officer bullying the Alsatians of Saverne in which he used the phrase "Hit hard, always hard." He was given command on the outbreak of World War I of the 5th army and in 1915 of the army group which in 1916 tried to take Verdun. On Nov 10, 1918, following his father, he fled to Holland and on Dec. 1, 1918, he formally renounced his rights of succession to the crowns of Prussia and the German Empire. In Nov. 1923 Gustav Stresemann, then the chancellor, authorized him to return to Germany on condition that he would take no part in politics. In 1932, however, "Little Willie" urged Berliners to vote for Hitler and in 1933 he joined the N.S.K.K. (Nazi motorized corps). During World War II he stayed on his estate at Oleśno (Oels), Silesia; in 1944 he moved to his Potsdam palace, the Cecilienhof, and in 1945 he fled to Lindau, Bavaria. He was later captured by the French.

Wilks, Mrs. Hetty Sylvia Ann Howland Green, U.S. heiress (b. London, Eng., Jan. 7, 1871—d. New York, N.Y., Feb. 5, 1951).

Wilson, George Grafton, U.S. authority on international law (b. Plainfield, Conn., March 29, 1863—d. Cambridge, Mass., April 30, 1951).

Wilson, Leroy A(ugust), U.S. industrialist (b. Terre Haute, Ind., Feb. 21, 1901—d. New York, N.Y., June 28, 1951), rose from part-time telephone worker to president of the American Telephone and Telegraph company, the parent company of the $12,000,000,000 Bell system. He was graduated from the Rose Polytechnic institute in Terre Haute in 1922, and went to work as a traffic student with the Indiana Bell Telephone company. He continued with this company until 1929 when he moved to the operation and engineering department of A.T. & T. in New York city. He headed this department by 1942, and in 1944 was promoted to vice-president, to study revenue needs and develop a program of internal and external public relations. In June 1946 he was elected financial vice-president of A.T. & T., and in Feb. 1948, shortly after his 47th birthday, president of the company.

Wiman, Dwight Deere, U.S. theatrical producer (b. Moline, Ill., Aug. 8, 1895—d. Hudson, N.Y., Jan. 20, 1951).

Wittgenstein, Ludwig, Austrian-born philosopher (b. Vienna, Aus., 1889—d. Cambridge, Eng., April 29, 1951).

Wood, Francis Carter, U.S. cancer research specialist (b. Columbus, O., Dec. 30, 1869—d. Englewood, N.J., Jan. 5, 1951).

Woods, Albert H(erman), U.S. theatrical producer (b. New York, N.Y., Jan. 3, 1870—d. New York, N.Y., April 24, 1951), was the producer of more than 400 plays and claimed credit for having helped the careers of John Barrymore, Mary Pickford, Douglas Fairbanks, Claudette Colbert, Katharine Cornell, Clark Gable, Joan Blondell, Kay Francis, Ann Harding, Sylvia Sidney and Leslie Howard. One of his early successes, *The Fatal Wedding*, ran for three years largely because of the presence in the cast of a child actress, Gladys Mary Smith, who later changed her name to Mary Pickford.

Among his productions were *Within the Law, Getting Gertie's Garter, Up in Mabel's Room, Potash and Perlmutter, The Shanghai Gesture, The Trial of Mary Dugan, Ladies' Night, Parlor, Bedroom and Bath, East of Suez, The Whole Town's Talking, The Green Hat, A Farewell to Arms*, and his last play, produced in 1943, *Try and Get It.*

Woods, Walter O., former treasurer of U.S. (b. Carlinville, Ill., Oct. 31, 1873—d. Washington, D.C., June 7, 1951).

Wright, William Henry, Canadian industrialist and publisher (b. Sleaford, Lincs., Eng., April 21, 1876—d. Barrie, Ont., Sept. 20, 1951), served in the British army in South Africa during the Boer war. He returned to England after the war, but in 1907 went to Canada, and in 1911 discovered a rich vein of gold in northern Ontario. With a capital of $10 each he and a brother-in-law staked claims on which were founded the Lake Shore mines that by mid-century had paid $98,000,000 in dividends. Wright enlisted in the army in World War I. In the 1930s he bought the *Toronto Globe* and the *Mail and Empire*, merging the papers into the *Toronto Globe and Mail.* He was reputedly one of the wealthiest men in the British Commonwealth.

Xenopoulos, Grigorios, Greek dramatist (b. Constantinople, Turk., Dec. 9, 1867—d. Athens, Gr., Jan. 15, 1951).

Yahuda, Abraham Shalom E., orientalist and biblical scholar (b. Jerusalem, Palestine, June 18, 1877—d. Saratoga Springs, N.Y., Aug. 13, 1951).

Yancey, Jimmy, U.S. pianist (d. Chicago, Ill., Sept. 17, 1951), was believed to be in his sixties, since he had appeared in 1910 as an eccentric dancer in a command performance before King Edward VII of England. He quit the entertainment field to play baseball while continuing to play piano in bars at night. He evolved the boogie-woogie bass, the rumbling continuous style that formed one of the bases of modern jazz. His fortunes alternately soared and fell, and almost simultaneously his music was being played by big-name bands while he was working as a groundkeeper in a Chicago baseball park. He appeared in a comeback performance at Carnegie Hall in New York city as late as 1948.

Yarborough, Barton, U.S. actor, radio and television star (b. Goldthwaite, Tex., Oct. 2, 1900—d. Burbank, Calif., Dec. 19, 1951).

Yefremov, Alexander Ilarionovich, Soviet politician of Russian nationality (b. Moscow, Russia, April 23, 1904—d. Moscow, U.S.S.R., Nov. 23, 1951).

Zeder, Fred Morrell, U.S. industrialist (b. Bay City, Mich., March 19, 1886—d. Miami, Fla., Feb. 24, 1951).

Zeleny, John, U.S. physicist (b. Racine, Wis., March 26, 1872—d. New Haven, Conn., June 19, 1951).

Zook, George Frederick, U.S. educator (b. Ft. Scott, Kan., April 22, 1885—d. Arlington, Va., Aug. 17, 1951).

Obstetrics: *see* Gynaecology and Obstetrics.
Occupational Diseases: *see* Industrial Health.
Occupational Therapy: *see* Medical Rehabilitation of the Disabled.

Oceanography.

A study of all available temperature data from the Gulf Stream area between Cape Hatteras and the Grand Banks had indicated that the main current is usually bordered by weak countercurrents and that from Georges Bank eastward a second warm easterly current forms near the continental slope so that there are at least two warm currents passing the southern extremity of the Grand Banks. During the summer of 1951, this was confirmed by a five-month survey of the research vessel "Albatross III," and it was shown that east of the Grand Banks additional new bands of swift and relatively warm currents form inshore, parallel with the older ones. In all, four and possibly five distinct warm currents, separated by countercurrents, were located as the Gulf Stream system was followed eastward across the North Atlantic as far as longitude 23° W. To this point at least, the narrow bands of current were found to follow meandering courses, as had previously been shown to be the case in the sector south of Nova Scotia. This entirely new picture of the character of the upper layer of the Gulf Stream system was as yet unexplained; however, it was evident that the broad pattern of water motions resembled the so-called jet streams of the upper atmosphere.

Marked seasonal fluctuations in the surface current speeds of the Gulf Stream system were noted. Maximum speeds were found in the southern sectors during the summer and in the northern ones during the winter. In autumn minimum speeds exist throughout the entire system.

A number of deep-sea expeditions continued to stress geological investigations. The modern, closely spaced soundings showed many areas of bold relief rising above practically level planes. Off the west coast of Florida, a steep escarpment, dropping 4,000 ft. at a 35° angle along a distance of about 200 mi., was charted by ships of the U.S. coast and geodetic survey and the Woods Hole Oceanographic institution. It was suggested that Florida is structurally a part of the Caribbean area. Other major features were found in the Pacific ocean by vessels of the U.S. navy electronics laboratory and the Scripps Institution of Oceanography. The broad, level planes in some ocean basins were thought to be produced by turbidity currents, originating on the continental slopes and flowing close to the bottom with sufficient velocity so as to carry large quantities of material, even sand, hundreds of miles out into the deepest areas which are thus being gradually filled in. Only by some such periodic and violent phenomenon can the layers of sand found in many deep-sea sediment cores be adequately explained. As a result of recent sediment coring and seismic investigations, it was evident that the generally accepted theories of sedimentation and submarine geology required extensive revision.

A growing awareness that science in general has much to gain from oceanographic explorations was indicated by many papers in meteorology, fisheries biology and marine engineering, and by the large sale in the United States of a popular book entitled *The Sea Around Us.*

At the end of 1951 the British R.R.S. "Discovery II" and the Danish vessel "Galathea" were still at sea on extensive voyages. The "Discovery," besides continuing the prewar investigation of antarctic waters, had been studying the Benguela current and the whale distribution off South Africa, while the "Galathea" was on a world-wide cruise to obtain ocean life from the greatest depths. The continuing growth of the science was indicated by the establishment of a National Institute of Oceanography in Great Britain and of new oceanographic departments at universities in Egypt and the United States. (*See* also Coast and Geodetic Survey, U.S.; Marine Biology.)

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(C. O'D. I.)

Odría, Manuel A.

(1897–), president of Peru, was born in Tarma, state of Junín, Nov. 26, and was graduated from the School of Officers at Chorrillos in 1919, remaining there on the teaching staff until he reached the rank of captain. He next studied at the War college and at the Advanced Naval school, and in 1936 was promoted to lieutenant colonel. He saw action in the conflict with Ecuador over the boundary between the two countries, and was promoted to the rank of full colonel. He served as director of the War college, and visited the U.S. at the invitation of that country. In 1946 he was made brigadier general and appointed chief of staff of the army, and in 1947 was appointed minister of government and police, but resigned from that post in disagreement with the policies of the president. The republic next was confronted with internal troubles, including a leftist rebellion. In late Oct. 1948, Gen. Odría became head of the restoration, assuming the presidency of the military government, with the objectives of re-establishing order, reorganizing economy and finance, re-establishing freedom of commerce, improving social welfare and promoting public education. He resigned to enter his candidacy for the constitutional election, and on July 2, 1950, was elected president of Peru for the 1950–56 term.

Office of Defense Mobilization: *see* Defense Mobilization Agencies, U.S.

Office of Education, U.S.: *see* Education; Federal Security Agency.

Ohio. A north central state of the United States, popularly known as the "Buckeye state," Ohio officially became a state of the union on Feb. 19, 1803. Area: 41,222 sq.mi., including 222 sq.mi. of water; pop. (1950 census): 7,946,627, including 5,578,274 urban and 2,368,353 rural. The principal cities and their 1950 population figures are: Cleveland 914,808, Cincinnati 503,998, Columbus 375,901, Toledo 303,616, Akron 274,605, Dayton 243,872, Youngstown 168,330, Canton 116,912.

History.—When the Republican-controlled 99th Ohio general assembly met in Jan. 1951, Gov. Frank J. Lausche (Dem.) presented 33 suggestions in a 9,000-word condition of the state message. Subsequently 670 bills were introduced in the house of representatives for an all-time record. The general assembly before it adjourned *sine die* June 20: passed the first congressional redistricting act in 38 years; passed a bill making an estimated increase of $25,700,000 in the school subsidy; overrode a veto on a bill giving local governments $3,100,000 to compensate for deficiencies in the state's matching of poor relief funds; passed an antipollution bill setting up a board with broad powers to control dumping of sewage and industrial wastes into Ohio streams; passed a bill strengthening the sales tax law; killed in committee a bill to permit construction across the state of a belt to convey iron ore and coal; passed a motorists' financial responsibility act.

A special session of the general assembly in December revised the turnpike law to remove objections of investors because the law formerly would have caused long delays in the acquisition of condemned right-of-way property. The Ohio supreme court had upheld the constitutionality of the Ohio Turnpike commission in March.

State officers in 1951 were: governor, Frank J. Lausche (Dem.); lieutenant governor, George D. Nye (Dem.); secretary of state, Ted W. Brown (Rep.); auditor, Joseph T. Ferguson (Dem.); treasurer, Roger W. Tracy (Rep.); attorney general, C. William O'Neill (Rep.).

Education.—In 1951 the state had 3,029 elementary schools with a total enrolment of 781,883 and a teaching staff of 24,985, and 1,196 secondary schools with an enrolment of 410,177 and a teaching staff of 18,816. State expenditures on education in 1951 were $244,628,652. In the 1951 elections voters approved 146 out of 170 school bond proposals in the state for a total of $89,196,000. The state director of education in 1951 was Clyde Hissong.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average number of recipients of general relief in Ohio in 1951 was 24,964 and the total assistance extended (December estimated in each case) was $15,291,203. The average number receiving aid for the disabled, a relief program that was begun in Oct. 1951, was 2,722 and they received $1,418,156; aid for the aged, 119,955 cases, received a total of $66,349,716; aid to dependent children, 14,412 cases, received a total of $12,613,650; aid to the blind, 3,832 cases, received a total of $2,096,929. Benefits paid by the Ohio bureau of unemployment compensation in 1951 totalled $28,418,000 (December data estimated) in compensation for 1,378,000 weeks of unemployment. The state had a labour force of about 3,200,000 and the bureau estimated that in Nov. 1951 3,100,000 of them had jobs.

Table I.—*Leading Agricultural Products of Ohio*

Crop	1951	1950	Average 1940–49
Corn, bu..	169,536,000	174,928,000	169,584,000
Wheat, bu..	34,308,000	46,596,000	46,592,000
Oats, bu.	49,979,000	40,248,000	43,748,000
Barley, bu.	494,000	728,000	769,000
Rye, bu.	288,000	528,000	800,000
Buckwheat, bu.	209,000	270,000	316,000
Popcorn, lb.	22,680,000	24,000,000	24,036,000
Hay, tons	3,916,000	3,701,000	3,722,000
Soybeans, bu..	21,356,000	24,525,000	18,552,000
Tobacco, lb.	24,555,000	24,610,000	24,361,000
Sugar beets, tons	126,000	277,000	258,000
Maple syrup, gal.	130,000	149,000	180,000
Apples, bu..	4,400,000	3,534,000	3,598,000
Peaches, bu.	1,044,000	927,000	878,000
Pears, bu.	234,000	205,000	274,000
Grapes, tons	19,400	22,400	14,900
Potatoes, bu.	5,750,000	7,650,000	7,731,000
Truck crops, commercial, for fresh market, tons.	81,000	92,600	104,300
Truck crops, commercial, for processing, tons	245,200	217,800	259,100

Ohio's four established penal institutions had an average daily population of 9,107 for the fiscal year ended June 30, 1951. Two industrial schools had an average daily population of 984. The Marion training school was opened in Nov. 1950 to train and rehabilitate younger, more promising men who had been found guilty of violating criminal laws. Its average daily population for the fiscal year was 65. Two new receiving hospitals for mentally ill children were opened, one at Dayton and the other at Cincinnati. The total operating costs of all welfare department institutions in the fiscal year 1951 were $29,840,747.

Communications.—Ohio had 86,286 mi. of highways in 1951, outside of municipalities. Of this total, 16,076 mi. were classified as rural, 29,093 mi. as county and 41,116 mi. as township. Total state expenditures on highways in the 1951 fiscal year were $85,923,817. The state had 8,424 mi. of railroads in 1951.

Banking and Finance.—There were 420 state and private banks in Ohio with deposits (June 30, 1951) of $4,221,371,999 and resources of $4,607,649,299. There were 239 national banks in the state with deposits (Oct. 10, 1951) of $3,839,526,000 and resources of $4,127,393,000. State chartered savings and loan institutions numbered 476 with total resources (June 30, 1951) of $1,428,694,325. There were 132 federal savings and loan associations with total assets (estimated as of Dec. 31, 1951) of $774,626,095.

The state budget for the 1952–53 biennium was $729,000,000. There was a net cash balance of $55,670,928 in the state treasury on Sept. 30, 1951. It is unconstitutional for the state to have a debt except for $200,000,000 for a soldiers' bonus for which special provision was made by a constitutional amendment.

Agriculture.—In spite of some damage from late summer drought and an unexpectedly early winter, Ohio agriculture in 1951 experienced one of its most productive and profitable years. Total harvested acreage of principal crops was 10,611,000 ac., compared with 10,534,000 ac. in 1950

Table II.—*Principal Industries of Ohio*

	Valued added by manufacture 1950	Valued added by manufacture 1949
Food and kindred products.	$476,568,000	$509,037,000
Tobacco manufactures.	11,334,000	9,790,000
Textile mill products	62,956,000	48,948,000
Apparel and related products	128,892,000	131,568,000
Furniture and fixtures	141,523,000	154,421,000
Paper and allied products	262,990,000	195,378,000
Printing and publishing industries	361,088,000	344,833,000
Chemicals and allied products	416,558,000	348,211,000
Petroleum and coal products	152,941,000	109,935,000
Rubber products	498,501,000	353,453,000
Leather and leather products	58,968,000	60,119,000
Stone, clay and glass products	402,121,000	338,910,000
Primary metal industries	1,263,579,000	874,928,000
Fabricated metal products	787,286,000	609,473,000
Machinery (except electrical)	1,360,683,000	1,097,656,000
Electrical machinery.	541,373,000	428,825,000
Transportation equipment	779,810,000	585,329,000
Miscellaneous manufactures	184,368,000	152,740,000

Table III.—*Mineral Production of Ohio*

(Short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Cement (bbl.)	10,512,004	$24,012,983	10,157,001	$22,388,726
Clays.	4,497,550	8,695,537	4,043,999	7,447,829
Coal	37,761,091	143,852,921	30,960,537	123,053,152
Coke*	10,313,767	130,016,706	8,911,140	111,443,394
Ferroalloys*	284,229	28,631,657	195,905	18,725,301
Iron, pig*	12,521,354	530,707,544	10,524,132	430,627,906
Lime	2,142,344	26,273,098	1,712,248	20,321,387
Natural gas (thousand cu.ft.).	46,000,000	8,878,000	46,512,000	8,991,000
Natural gasoline (gal.).	4,326,000	344,000	5,160,000	432,000
Peat	22,145	245,379	20,372	181,117
Petroleum (bbl.)	3,333,000	10,100,000	3,483,000	10,200,000
Salt	2,515,205	5,491,553	2,195,778	5,134,923
Sand and gravel	15,664,175	16,209,267	14,955,657	14,428,820
Stone.	20,466,350	28,628,678	19,364,230	27,419,158
Other minerals		?		2,081,719
Total		?		$242,079,831

*Values for processed materials are not included in the totals.

and an average for 1940–49 of 10,410,000 ac. Livestock accounted for $652,689,000; crops for $231,686,000 of the total receipts of $884,375,000 from farm marketings through Oct. 1951; the 1950 total for the same months was $743,575,000. Farm land dollar value increased 19% between Nov. 1950 and Nov. 1951.

Manufacturing.—The total value added by manufacture in Ohio in 1950 was $7,967,482,000, compared with $6,412,895,000 in 1949, according to the census of manufactures made by the bureau of the census of the United States department of commerce. The average number of production workers in 1950 was 1,167,117, compared with 1,078,746 in 1949, and they were paid wages totalling $4,166,850,000 in 1950, compared with $3,585,634,000 in 1949. (P. By.; X.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Oil: *see* Petroleum.

Oils and Fats, Vegetable and Animal: *see* Vegetable Oils and Animal Fats.

Oklahoma.

A west south central state of the United States, Oklahoma was admitted as the 46th state on Nov. 16, 1907. The name "Oklahoma" is from the Choctaw Indian words meaning "red people," and was first applied to the Indian territory in 1866. The popular name "Sooner state" was from the term "sooner" used in referring to a person who entered and staked a claim sooner than the law stipulated when the first public lands in the Indian territory were opened to white settlement by the run for homesteads, April 22, 1889. Area: 69,919 sq.mi., including 888 sq.mi. of water surface. Pop. (1950 census): 2,233,351, a loss of 103,083 or 4.4% since the 1940 census. The two largest cities, with 1950 census, are Oklahoma City, the capital, 243,504; and Tulsa, 182,740. Other cities are Muskogee, 37,289; Enid, 36,017; Lawton, 34,757; Norman, 27,006; Shawnee, 22,948; Stillwater, 20,238; Ponca City, 20,180; Bartlesville, 19,228; Okmulgee, 18,317; Ardmore, 17,890; McAlester, 17,878; Ada, 15,995; Chickasha, 15,842.

History.—The chief state officers during 1951, all Democrats, were: Johnston Murray, governor; James E. Berry, lieutenant governor; John D. Connor, secretary of state; Wilburn Cartwright, state auditor; Mac Q. Williamson, attorney general; A. S. J. Shaw, state treasurer; Oliver Hodge, superintendent of public instruction; Charles G. Morris, state examiner and inspector; Jim Hughes, commissioner of labour; Buck Cook, commissioner of charities; Donald F. Dickery, commissioner of insurance; Andy Payne, clerk of supreme court; John M. Malloy, chief mine inspector. The 23rd state legislature convened in Jan. 1951, with 118 members: 99 Democrats and 19 Republicans. Important legislation included the congressional redistricting act necessitated by loss in the state's population from 1940 to 1950, in which Oklahoma lost two U.S. congressional seats.

Education.—The total enrolment in Oklahoma public schools for the term 1950–51 was 509,088 (elementary and high school), with 19,244 teachers. The total cost of maintaining the elementary and high schools in the state was $76,177,017. State institutions of higher learning included the University of Oklahoma (Norman) and the Oklahoma Agricultural and Mechanical college (Stillwater), both graduate schools; and Oklahoma College for Women (Chickasha), Panhandle Agricultural and Mechanical college (Goodwell), Langston university (Negro, at Langston), and six colleges primarily for teacher training (Ada, Alva, Durant, Edmond, Tahlequah, Weatherford), all state-owned senior colleges. There were 16 two-year junior colleges, of which 7 were state-owned (including the Oklahoma Military academy at Claremore), 3 were independent with church affiliations and 6 were municipal. There were also 6 independent senior colleges with church affiliations. Negroes were admitted for graduate study in the state institutions of higher learning.

Social Insurance and Assistance, Public Welfare and Related Programs.—On Dec. 1, 1951, the Oklahoma department of public welfare reported 96,364 persons receiving old-age assistance, at an average of $48.99 per month each (a total of $4,720,644); 20,205 dependent children families (16,499 adult caretakers), each family receiving an average of $72.13 per month in the care of 50,827 children (a total of $1,457,326); and 2,563 blind cases, each receiving an average of $51.77 per month (a total of $132,685). On Dec. 28, 1951, the state department of health reported that 47 counties in Oklahoma, representing 79.3% of the state's population, were covered by full-time local health departments, all of which (26 units) were under full-time medical directors. State-supported institutions included two tuberculosis sanatoriums, eight hospitals (six mental hospitals, one school for mental defectives and one hospital for epileptics), two orphanages, three schools for deaf and blind, four schools of correction, one reformatory and one penitentiary.

Table I.—*Principal Crops of Oklahoma*

	1951	1950	Average 1940–49
Wheat, bu.	38,902,000	42,363,000	73,998,000
Corn, bu.	21,156,000	24,346,000	28,461,000
Oats, bu.	4,768,000	8,778,000	25,284,000
Peanuts, lb.	111,000,000	125,080,000	98,328,000
Grain sorghums (forage), tons	988,000	1,010,000	1,445,000
Grain sorghums, bu..	16,768,000	17,520,000	9,068,000
All hay, tons	1,799,000	1,840,000	1,677,000
Cotton, bales	450,000	242,000	511,000
Cottonseed, tons	185,000	98,000	214,000
Broomcorn, tons	13,100	9,400	12,370
Potatoes, bu..	526,000	774,000	1,540,000
Sweet potatoes, bu.	225,000	415,000	589,000
Pecans, lb.	27,000,000	7,000,000	21,760,000
Peaches, bu.	507,000	378,000	471,000

Source: U.S. Department of Agriculture.

Communications.—The summary of disbursements by the state highway department for construction and maintenance was $36,678,205.22 for the period Jan. 1, 1951, to Nov. 1, 1951. The highway department was responsible for a highway system of 10,145 mi. in the state, as of Jan. 1, 1951. The total public open road mileage in Oklahoma was approximately 93,000 mi. Railroad and electric mileage approximated 6,000 mi., not including sidings.

Banking and Finance.—The Oklahoma banking department reported 199 national banks in the state, with a total deposit of $1,370,000,000 on June 30, 1951; and 185 state banks, with a total deposit of $287,460,000. In addition to the banks, the savings and loan associations had approximately $100,000,000 in their savings and loans accounts.

Agriculture.—Despite the decline in the production of most crops from hardships and damage resulting from the lack of moisture during the winter and early spring and from excessive rains in late spring and early summer, the aggregate value of the 26 principal Oklahoma crops was nearly one-fourth larger in 1951 than in 1950, mainly because of higher prices. The aggregate value of the 26 crops in the preliminary report was $341,441,000 in 1951, and $275,186,000 in 1950.

Manufacturing.—The Oklahoma employment security commission reported that the total nonagricultural employment in the state averaged 491,000 persons, with 70,300 engaged in manufacturing activities, for the period Jan. 1 to June 30, 1951. During this same period the average employment covered by the Oklahoma Employment Security act was 289,000 with total wages of $452,000,000. Of these employees, 66,000 were employed in manufacturing, earning $110,000,000. (M. H. W.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000 and corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of Oklahoma*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays.	315,512	$ 313,360	244,104	$ 222,256
Coal	2,678,571	14,567,225	3,021,859	15,242,403
Lead	20,724	5,595,480	19,858	6,275,128
Natural gas (thousand cu.ft.)	457,100,000	22,855,000	435,262,000	20,327,000
Natural gasoline (gal.).	333,464,000	22,470,000	287,926,000	20,360,000
Petroleum (bbl.)	164,899,000	423,790,000	151,660,000	388,250,000
Petroleum gases (gal.)	283,359,000	7,990,000	236,472,000	8,408,000
Sand and gravel	3,286,834	2,356,853	2,921,157	1,525,415
Stone.	5,021,660	4,848,223	4,341,930	4,027,409
Zinc	46,739	13,273,876	44,033	10,920,184
Other minerals	—	?	—	8,706,045
Total		?		$484,263,840

Old-Age Insurance: *see* Social Security.

Old-Age Pensions: *see* Social Security. *See* also under various states.

Oleomargarine: *see* Vegetable Oils and Animal Fats.

Olives: *see* Fruit.

Olympic Games.

Teams from the U.S.S.R., western Germany, Korea and Japan were among the representatives of 70 nations expected to compete in the summer games at Helsinki, Fin., July 19–Aug. 3, 1952. More than 2,000 male and about 200 feminine athletes had filed entries.

The Finns, whose plans to play host for the 1940 Olympiad were blasted by World War II, had worked years in preparation for the classic. A new Olympic stadium seating more than 70,000 was built and new housing accommodations for competitors and visitors were erected. French was designated as the official scoring language for the games.

Amateur athletes in the armed forces of the United States became eligible to compete when, on Aug. 7, 1951, the house of representatives armed services committee approved legislation giving fighting men permanent permission to take part in Olympic games. (T. V. H.)

O'Mahoney, Joseph Christopher (1884–), U.S. senator, was born on Nov. 5 at Chelsea, Mass. He was a student at Columbia university in 1905–07 and in 1908 went to Boulder, Colo., where he was a reporter on the *Boulder Herald;* in 1916 he was made city editor of the *Cheyenne* (Wyo.) *State Leader*. The next year he moved to Washington, D.C., as secretary to a U.S. senator; while there he completed his law studies at Georgetown university in 1920 and began practice in Washington and at Cheyenne. He was a member of the Democratic national committee in 1929–34 and vice-chairman of the party's national campaign committee in 1932. From March 6 to Dec. 31, 1933, he was first assistant postmaster general. Appointed U.S. senator from Wyoming to fill a vacancy, he took office Jan. 1, 1934; in Nov. 1934 he was elected for the full term 1935–41. He was re-elected in 1940, and again in 1946 for the term ending in 1953. From 1938 to 1941 he was chairman of the temporary national economic committee investigating monopoly in U.S. business. In the senate he was appointed chairman of the interior and insular affairs committee which during 1950–51 considered admission of Alaska and Hawaii to the union. On Jan. 2, 1951, he was defeated by Sen. Ernest W. McFarland for the post of senate majority floor leader. During the year he continued in support of most administration measures in congress.

Oman and Muscat (Masqat): *see* ARABIA.

Ontario. Second largest province of Canada, Ontario joined the confederation in 1867. Area: 412,582 sq.mi.; pop.: (1941) 3,787,655; (1951 prelim. census) 4,562,354; capital: Toronto (1951 prelim. census) 670,945.

History.—At the regular session of the legislature in 1951 a total of 127 bills became law. Former federal rental controls were taken over by the province on May 1. For the first time in the history of the legislature, one day per week was devoted to private members' bills, but private bills to extend paid holidays, establish a 40-hr. work week and require campaign fund statements for municipal elections were among such bills that were killed. At a special autumn session of the legislature, enabling laws were passed to permit Ontario to participate in the new federal old-age pensions. Progressive-Conservative premier Leslie Frost called an election for Nov. 22 and was swept back into power, as follows (with previous standing in parentheses): Progressive-Conservatives 78 (53), Liberals 8 (13), Co-operative Commonwealth Federation 2 (21), Liberal-Labour 1 (1), Labour-Progressive (Communist) 1 (2).

STILL from a Canadian documentary film recording religious rituals of the Longhouse people (Iroquois), most of whom live on a reservation near Brantford, Ont. A masked medicine man is shown performing a healing ceremony

Education.—Estimates for 1951–52 set aside $63,271,000 for education. The latest revised statistics for provincially controlled schools were for 1948: total enrolment 690,612; average daily attendance 613,627; teachers 23,578; total revenues $90,526,400.

Public Welfare.—In addition to the old-age pension enactments, the legislature passed laws to prevent employment discrimination on the grounds of race and creed (first of its kind in Canada), to provide for equal pay to men and women for equal work and to enable women to sit on juries. Mothers' allowances, workmen's compensation and relief allowances were extended.

Finance.—Public accounts for the 1950–51 fiscal year ending March 31 showed revenues of $260,457,000 and expenditures of $259,181,000. Total sinking funds (for the retirement of public debt) were $90,850,000 on March 31, 1951. The government announced an estimated $598,000 surplus for 1951–52, with no new or increased taxes.

Agriculture.—In 1951 grain crops hit a new high of 219,085,000 bu. The estimated return for all 1951 crops was set at $1,350,000,000 (1950, $1,150,000,000).

Industry.—During the first nine months of 1951 more than 240 new plants costing in excess of $325,000,000 were in the course of construction or came into production. The labour force went up 2.6%, or 47,000 persons, between June 1950 and June 1951.

Minerals.—Total 1951 production was estimated at $400,000,000 (1950: $362,954,000), with only gold showing reduced output. New sources of iron ore (at Nemegos) and silica sand (near Ottawa) were reported.

(C. CY.)

Opera: *see* MUSIC.

Ophthalmology: *see* EYE, DISEASES OF.

Opium: *see* NARCOTICS AND NARCOTIC TRAFFIC.

Oranges: *see* FRUIT.

Oregon. A state of the United States, located in the Pacific northwest, Oregon was admitted Feb. 14, 1859, as the 33rd state. Area: 96,981 sq.mi., including 666 sq.mi. of water. Pop. (1950 census) 1,521,341, an increase of 39.6% from 1940. Capital: Salem (43,140); chief city: Portland (373,628).

History.—The session of the 46th legislative assembly held in 1951 was the longest in the history of the state—116 days. Important enactments were: authorization of a $40,000,000 bond issue for highway construction; legislation to sell bonds and pay a bonus to Oregon veterans of World War II, previously authorized by vote of the people; creation of a state department of finance and administration; repeal of a 40-year prohibition on sale of coloured margarine. Other measures were passed which were suspended through operation of the referendum: a tax of three cents a pack on cigarettes; creation of unified school districts; an increase in the weight-mile fee charged commercial trucks; a ban on the sale of fireworks. Payment of the veterans' bonus was delayed because of the credit restraint imposed by federal defense authorities on the sale of bonds for such purposes.

Elective state officials (administrative) in 1951 included: governor, Douglas McKay; secretary of state, Earl T. Newbry; treasurer, Walter J. Pearson; attorney general, George Neuner; labour commissioner, W. E. Kimsey; superintendent of public instruction, Rex Putnam.

Education.—Enrolment in public schools during the school year 1950–51 was 294,329, including 68,794 in high schools. For the school year 1949–50 professional personnel employed in public schools numbered 11,409 and the average salary received was $3,278. The total operating cost of the schools for the year was $60,501,734.

Enrolment at eight state institutions of higher learning was 15,144 in the year 1950–51, with 14,618 additional enrolled in extension courses. Total operating expenditures of the state system of higher education in 1950–51 amounted to $16,806,350.

Social Insurance and Assistance, Public Welfare and Related Programs.—

Table I.—*Principal Crops of Oregon*

Crop	1951	1950	Average 1940–49
All wheat, bu.	28,999,000	23,693,000	22,666,000
Oats, bu.	7,395,000	8,608,000	9,778,000
Barley, bu.	10,110,000	10,784,000	9,254,000
Corn, bu.	1,092,000	975,000	1,404,000
Potatoes, bu.	11,220,000	12,920,000	10,736,000
Hay, tons	1,551,000	1,681,000	1,927,000
Apples, bu.	2,242,000	2,940,000	2,788,000
Pears, bu.	5,020,000	5,767,000	4,789,000
All prunes, tons	60,000	22,300	73,040
All cherries, tons	20,200	19,800	23,455
Peaches, bu.	528,000	325,000	657,000
Hops 1,000 lb.	18,774	16,279	16,775

Source: U.S. Department of Agriculture.

Expenditures of the public welfare program (general assistance, old-age assistance, aid to the blind, to dependent children and to the disabled) amounted to $29,021,829 for the year ending June 30, 1951.

Payments for unemployment compensation for the year ending June 30, 1951, were $10,602,575.

The number of inmates in state health, corrective and eleemosynary institutions on June 30, 1951, was 8,149. Operating costs for the year were: two mental hospitals $3,446,075; two tuberculosis hospitals $963,652; Fairview home for feeble-minded $1,242,274; state penitentiary $914,766; MacLaren school for boys (Woodburn) $442,833; Hillcrest school for girls $218,130; deaf school $303,989; blind school $145,925. Expenditures of commission for the blind $160,636.

Communications.—Steam railway mileage on Dec. 31, 1950, not including second main track and sidings, was 3,528. Electric railway mileage was 37.4.

As of Dec. 31, 1950, there were 7,313 mi. of state highways of which 6,866 were surfaced. Total mileage in the county road system was 32,566 of which 16,889 mi. were surfaced. Expenditures of the state highway department for the fiscal year ending June 30, 1951, were $37,254,348.

The number of motor vehicles registered in the state during the fiscal year ending June 30, 1951, was: 268,426 passenger cars and 119,197 trucks, pickups and buses. The number of telephones installed as of Dec. 31, 1950, was 438,260.

Finance.—The state bonded debt as of July 1, 1951, was $35,225,430; net $2,570,207. The gross debt of municipal subdivisions on July 1, 1950, was $152,318,995; net $149,425,326. Total state revenues for the fiscal year ending June 30, 1951, were $319,030,072. The assessed valuation in 1951 for the state was $1,694,296,874.

Total bank deposits on Oct. 10, 1951, were $1,551,279,756. On that date there were 21 national banks in the state which operated 87 branches, and 52 state banks operating 16 branches.

Agriculture.—Estimated cash receipts from marketings for the year 1950 amounted to $392,756,000, including $3,411,000 in government payments. Receipts from livestock and livestock products totalled $173,865,000 and from all crops $215,480,000.

Manufacturing.—Lumbering is the principal manufacturing activity in Oregon. This state ranks first in the volume of lumber production, which in 1950 amounted to 12,223,092 bd.ft. Plywood production in 1949 was 709,148,000 sq.ft., three-eighths inch basis. (C. A. Sp.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Table II.—*Mineral Production of Oregon*

(Short tons, except as noted)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Gold (oz.)	11,058	$ 387,030	16,226	$ 567,910
Pumice	79,653	320,530	104,475	273,427
Sand and gravel	8,199,900	8,168,293	7,134,751	7,682,272
Stone	3,836,550	5,559,010	4,397,390	6,479,164
Other minerals		?		6,847,274
Total		?		$21,850,047

Organization for European Economic Cooperation:

see European Recovery Program; International Trade.

Organization of American States.

On Dec. 13, 1951, Colombia deposited its ratification of the charter of the Organization of American States, signed at Bogotá in 1948, bringing the number of ratifications to 14—the necessary two-thirds of the 21 signatory states to bring the charter into legal force. After 1948 the charter was in provisional effect, under the terms of a resolution adopted at the Bogotá (ninth) International Conference of American States. Later in the month the government of Venezuela also ratified the charter. Ratifications by Argentina, Chile, Cuba, Guatemala, Peru and Uruguay were still pending.

The charter established these agencies to accomplish the organization's purposes: the Inter-American conference; the Meeting of Consultation of Ministers of Foreign Affairs; the Council of the Organization; the Pan American Union; the specialized conferences; and the specialized organizations. No meeting of the Inter-American conference was held during 1951, but the Council of the Organization began preliminary preparations for the tenth conference, scheduled to meet in Caracas, Venez., in 1953.

The fourth Meeting of Consultation of Ministers of Foreign Affairs was an outstanding event of 1951. It met at the Pan American Union in Washington, D.C., from March 26 to April 7, following a request of the United States for a meeting to consider the aggressive policy of international communism and the measures that should be taken to meet it. All 21 of the American republics were represented at the meeting, 20 of them by their foreign ministers. The three topics of the agenda dealt with political and military co-operation, internal security and emergency economic co-operation.

On the subject of political and military co-operation the conference adopted the "declaration of Washington" in which the foreign ministers declared the firm determination of the American republics to remain united in the existing emergency, or in the face of any aggression or threat against any one of them. Measures of inter-American military co-operation were agreed upon, and the Inter-American Defense board was charged with the preparation of military plans for common defense of the hemisphere.

The meeting emphasized the need for each country to review its laws and regulations to assure its internal security against the encroachments of international communism, and to prevent and punish subversive activities. The Pan American Union was requested to undertake technical studies for the purpose of facilitating the execution of this resolution.

Major consideration was directed to questions of an economic character, and resolutions of a two-fold character were adopted: the production and distribution of products in short supply and utilization of necessary services to meet the requirements of the economies of the American republics; and measures to facilitate the carrying out of programs of economic development.

By the terms of the charter, the Council of the Organization, with one representative from each member state, became, in effect, the permanent executive organ of the organization. It established its headquarters at the Pan American Union in Washington. In 1951 the council, in addition to exercising general supervision over the other agencies of the organization and making the necessary arrangements for the fourth Meeting of Consultation of Ministers of Foreign Affairs, continued its study of the structural development of the inter-American system. Following a study of existing agencies for the codification of international law, the council reached the conclusion that a number of them could be abolished, in view of the establishment of the Inter-American Council of Jurists and the Inter-American Juridical committee.

The council also made a study of the Inter-American Peace committee and the Inter-American Defense board, and concluded agreements of co-operation with a number of international organizations, among them U.N.E.S.C.O. and F.A.O.

At the meeting of the council held Nov. 21, Ambassador John C. Dreier of the United States was elected chairman for the following year, succeeding Ambassador Hildebrando Accioly of Brazil. At the same time Ambassador Rafael Heliodoro Valle of Honduras was elected vice-chairman, succeeding Ambassador René Lepervanche Parparcén of Venezuela.

The Council of the Organization was assisted by three subsidiary technical agencies, the Inter-American Economic and Social council, the Inter-American Council of Jurists and the Inter-American Cultural council.

The Inter-American Economic and Social council held a special session at Panamá from Aug. 20 to 30, 1951, to give further consideration to the economic resolutions adopted at the fourth Meeting of Consultation of Ministers of Foreign Affairs. During 1951 the council also initiated a program of technical co-operation of the Organization of American States, being carried out in collaboration with the Pan American Union and the specialized agencies of the organization.

The Inter-American Cultural council held its first meeting at Mexico City from Sept. 10 to 25, 1951. At that time a comprehensive program of inter-American cultural co-operation was adopted, and the Permanent Committee for Cultural Action was appointed, composed of representatives of the United States, Mexico, Brazil, Haiti and Uruguay. The provisional seat of the committee was to be in Mexico City.

The Inter-American Council of Jurists did not hold a meeting during 1951, but its Permanent committee, the Inter-American Juridical committee, with its seat in Rio de Janeiro, Braz., continued its study of the program for the development and codification of international law drawn up by the Council of Jurists at its first meeting in 1950. On April 18, 1951, the Council of the Organization approved the definitive statutes of the Council of Jurists.

The Pan American Union, by the terms of the charter, became the general secretariat and the central and permanent organ of the organization, with headquarters in Washington. The Pan American Union also served as the secretariat of the three technical organs of the council.

The Inter-American specialized organizations became, under the terms of the charter, the intergovernmental organizations established by multilateral agreements and having specific functions with respect to technical matters of common interest to the American states. As a result of action taken by the Council of the Organization the following agencies were declared specialized organizations: the American International Institute for the Protection of Childhood; the Pan American Institute of Geography and History; the Pan American Sanitary Bureau; the Inter-American Indian Institute; the Inter-American Institute of Agricultural Sciences; and the Inter-American Commission of Women.

During 1951 inter-American conferences and meetings were held in the fields of agriculture, public health and sanitation, statistics, social security, highways and transportation. The seventh assembly of the Inter-American Commission of Women was held at Santiago, Chile, from May 30 to June 16, 1951.

(W. MR.)

Osteopathy: *see* MEDICINE.

Ottawa. The capital of Canada, at the confluence of the Ottawa-Gatineau-Rideau rivers, in the province of Ontario, covers 28,134 ac.; pop.: (1941) 154,951; (1951 prelim. census) 198,773.

The city council unanimously agreed to reduce the number of wards from 14 to 9, thus cutting from 28 to 18 the number of aldermen and the total council membership from 33 to 23. The change-over was slated for the Dec. 1952 election, to affect the 1953 council. The total taxable assessment as the basis for 1951 taxation rose to $226,097,315 from $211,217,501 the year before. The 1951 estimated expenditures were $14,729,972 compared with actual expenditures of $12,886,614 in 1950. In the Jan. 1950–Aug. 1951 period the city council spent $13,766,557 in municipal capital expansions (streets, waterworks, schools, hospitals, bridges, etc.). The federal government in its 1951–52 estimates voted Ottawa $762,392 in lieu of taxes on federal buildings; planned to spend nearly $23,000,000 for new, and on existing, federal buildings in the capital; and authorized the federal district commission to construct district railways under the national capital plan. By mid-1951 the commission already had acquired 4,000 ac. of land along the proposed new railway lines for industrial use.

(C. CY.)

Outdoor Advertising: *see* ADVERTISING.

Outer Mongolia: *see* MONGOLIAN PEOPLE'S REPUBLIC.

Pace, Frank, Jr. (1912–), U.S. government official, was born in Little Rock, Ark., on July 5. He received a bachelor's degree from Princeton university in 1933 and a law degree from Harvard university in 1936. In that year he became assistant district attorney in the 12th judicial district in Arkansas. From 1938 to 1940 he was general counsel of the Arkansas state department of revenue. During World War II he served for four years in the air transport command, reaching the rank of major.

In 1946 he was made a special assistant in the U.S. department of justice, dealing with tax matters; in May 1946, executive assistant to the postmaster general; in Jan. 1948, assistant director of the bureau of the budget, and in Jan. 1949, director of that bureau. Late in March 1950 he was nominated secretary of the army. Secretary Pace, in Korea at the time Gen. Douglas MacArthur was relieved of his command, was revealed to have been charged with the responsibility of telling General MacArthur in advance, but was said in subsequent congressional testimony not to have received the information in time to do so before the public announcement. It was Pace who announced Aug. 3 the news of the ouster of 90 West Point cadets, including several athletes, for cheating in examinations.

Pacific Islands, British. Under this heading are grouped the colony of Fiji (7,040 sq. mi.; pop., 1948 est., 284,955) and the territories administered by the high commissioner for the western Pacific. Included are the Gilbert and Ellice Islands (colony; 375 sq.mi.; pop., 1950 est., 36,000); Solomon Islands (protectorate; 11,500 sq.mi.; pop., 1950 est., 98,581); Tonga (protectorate; 250 sq.mi.; pop., Dec. 1950 est., 45,000); New Hebrides (*q.v.*). Populations: Micronesian, Polynesian, Melanesian. Religion: Fijians mainly Christian. Capital of Fiji: Suva (pop., 1946, Europeans only, 2,266). Governor of Fiji and high commissioner: Sir Leslie Brian Freeston; ruler of Tonga, Queen Salote Tupou.

History.—John Dugdal, minister of state for the colonies, visited Fiji and the western Pacific during Aug. 1951. While he was there it was announced that the arrangement by which the governorship of Fiji and the high commissionership of the western Pacific had generally been held by one individual would not be continued after the next change of governor. The headquarters of the high commission were expected to move, when that change took place, from Suva to Honiara, in the Solomon Islands. Later it was announced that Sir Brian Freeston, the governor, was to be appointed secretary-general of the South Pacific commission.

In October it was announced that the 1st battalion, the Fiji infantry regiment, would go to Malaya early in 1952 to help with the war against the Communist terrorists. The colony's development plan and a community development project progressed well, and high prices for raw materials ensured continued prosperity.

On Feb. 16 Tonga celebrated the 50th anniversary of its treaty with Great Britain and Queen Salote received a special message from King George VI.

Education.—*Solomon Islands:* 1 government school at Auki; several missionary schools. *Gilbert and Ellice Islands:* free and compulsory education to 16; 233 primary schools (2 government, remainder mission), 8,000 pupils; many pupils sent to Fiji and New Zealand for further education. *Tonga:* free and compulsory education to 14; 129 primary, 9 secondary schools; 1 teacher training college; pupils sent to New Zealand and Fiji for higher education. *Fiji:* 427 primary (48,000 pupils), 2 secondary, 2 technical schools (2,000 pupils); teacher training college and central medical school.

Finance and Trade.—Currency: Australian pound (£A1 = U.S. $2.24); Fijian pound (£F1 = U.S. $2.52); sterling; Tonga issues its own notes, the Tonga pound being valued at U.S. $2.24 in Oct. 1951. Principal ex-

	Revenue*	Expenditure*	Imports 1950	Exports 1950
Fiji	£F3,250,000	£F3,400,000	£F6,300,000	£F7,700,000
Solomon Islands	£A619,000	£A619,000†	£A618,882	£A857,980
Gilbert and Ellice Islands	£A491,205	£A491,205‡	£A251,000	£A255,000
Tonga.	£A373,149	£A391,668	£A581,000	£A862,000

*1951 est. †Includes grants-in-aid £A215,656. ‡Includes grants-in-aid and surplus balance £A193,074.

ports: phosphates (Ocean Island), copra, gold and silver (Fiji).

Bibliography.—J. N. Hall, *The Far Lands* (London, 1951); "The Friendly Islands," *Corona*, vol. 3, no. 5 (London, May 1951); G. L. Barrow, "The Story of Jonfrum," *ibid.*, vol. 3, no. 10 (London, Oct. 1951); C. H. Allan, "Marching Rule," *ibid.*, vol. 3, no. 3 (London, March 1951).

Films of 1951.—*South Pacific Island Children* (Encyclopædia Britannica Films Inc.). (K. G. B.)

Pacific Islands, French.

Under this heading are grouped two French overseas territories and the Anglo-French condominium of New Hebrides (*q.v.*). New Caledonia and dependencies have an area of 7,654 sq.mi. of which New Caledonia is 6,533 sq.mi.; pop. (1950 est.) 50,000. The native population is Melanesian with Polynesian admixtures; Europeans (1946) 18,737, mostly French; 8,600 Javanese; 4,100 Annamese immigrants. Nouméa (pop., 1946, 10,466) is the seat of the commissioner general for the Pacific ocean, Raoul Angammare.

The French Settlements in Oceania consist of the Society Islands (the largest of which is Tahiti), the Marquesas, Tuamotu and other smaller islands, with a total area of 1,545 sq.mi.; pop. (1950 est.) 60,000. The native population is Polynesian, majority Christian; Europeans (1946) 1,700 including 900 French and 500 British; also 6,390 Chinese immigrants. Papeete, on Tahiti (pop., 1946, 12,428), is the seat of the governor.

History.—Demographic statistics showed considerable increases in New Caledonia: in 20 years Europeans had increased by 33%, natives by 18%. Expansion of the areas under cultivation (only 6,500 ha. out of 318,000 taken over) became imperative. Livestock (90,000 head) could also be increased.

An Institut Français d'Océanie has its seat at Nouméa. A geological map was in preparation during 1951, and prospecting revealed new deposits of chrome. The South Pacific commission, likewise with its seat at Nouméa, undertook an extensive survey with a view to improving economic and social conditions throughout the isles.

New Caledonia's air-line communications were improved: two flights a month between Saigon and Nouméa put the town within two days' reach of Paris. Pan American World Airways and an Australian company provided a weekly link with Sidney, Austr., and San Francisco, Calif.

In Oceania new vistas were opened by the survey of the wealth of the seas, especially when the presence of tunny was revealed. Work was in progress to develop communications.

Deputies elected on July 1 (New Caledonia) and Sept. 2 (Oceania) to the national assembly in Paris were: an Independent in New Caledonia and an Autonomist (Pouvanoa Ooba) in Oceania. (*See* also French Union.)

Education.—*New Caledonia* (1950): pupils, primary 9,522, secondary 508, technical 132; bursaries in France 35. *Oceania* (1950): pupils, primary 11,408, secondary 285, technical 96; bursaries in France 23.

Finance.—Budget: *New Caledonia* (1951 est.), balanced at 387,000,000 fr. C. F. P.; *Oceania* (1951 est.), balanced at 238,000,000 fr. C. F. P. Monetary unit: franc C. F. P. (Colonies Françaises du Pacifique) = 5.50 metropolitan francs. Exchange rate (Sept. 1950): U.S. $1 = 350 metropolitan francs.

Foreign Trade.—(1950) *New Caledonia:* imports 732,000,000 fr. C. F. P., including 297,000,000 fr. C. F. P. from France and 200,000,000 fr. C. F. P. from Australia; exports 522,000,000 fr. C. F. P., including 382,000,000 fr. C. F. P. to France. The principal exports were nickel, chrome and coffee. *Oceania:* imports 535,000,000 fr. C. F. P. including 272,000,000 fr. C. F. P. from the U.S. and 116,000,000 fr. C. F. P. from the French union; exports 478,000,000 fr. C. F. P. including 264,000,000 fr. C. F. P. to France and 91,000,000 fr. C. F. P. to New Zealand. The principal exports were copra, 258,000,000 fr. C. F. P.; phosphates, 146,000,000 fr. C. F. P.; vanilla, 44,000,000 fr. C. F. P.

Transport and Communications.—Cargo handled in ports (1950): Nouméa, 480,000 metric tons; Papeete, 250,000 metric tons. (Hu. De.)

Pacific Islands under Trusteeship: *see* Marshall, Caroline and Mariana Islands; Trust Territories.

Padilla Nervo, Luis

(1898–), Mexican statesman, was born on Aug. 19 at Zamora, state of Michoacán, Mex. He graduated from the law schools of the National University of Mexico, Mexico City, and George Washington university, Washington, D.C., and studied also at the University of Buenos Aires and at London university. He entered the Mexican diplomatic service after World War I, serving as chargé d'affaires at several embassies until 1933. He was also undersecretary of public education and fine arts and assistant secretary of labour and social welfare in Mexico City. His advance in the diplomatic service was rapid. After various posts in Buenos Aires, Washington, London and Madrid, he was named envoy extraordinary and minister plenipotentiary in 1933, representing Mexico successively in nine nations of Europe and North and South America. In May 1943 he was Mexican delegate at the United Nations Conference on Food and Agriculture at Hot Springs, Va., and in 1945 adviser to the Mexican delegations of both the U.N. Conference on International Organization at San Francisco, Calif., and the U.N. Preparatory commission at London. In 1946 he was appointed permanent Mexican delegate, with the rank of ambassador, to the U.N. Security Council and to the U.N. general assembly.

On Nov. 6, 1951, Padilla Nervo was elected president of the U.N. general assembly on the first ballot. He was chairman of a special sub-committee appointed to conduct disarmament negotiations among Great Britain, France, the U.S. and the U.S.S.R. in December at Paris. These talks proved fruitless, however, and ended without agreement on Dec. 10.

Painting.

The trend of recent years toward abstraction continued during 1951, both in western Europe and the United States. Geometric, biomorphic and amorphous abstractions and nonobjective paintings not only increased in number in proportion to representational work, but often dominated exhibitions. Expressionism and surrealism seemed to decline, and in the United States local scene or regionalist painting all but disappeared. The same tendencies were reflected in the art schools.

During the course of the year both national and regional exhibitions in the United States illustrated this nationwide trend. For example, in Minneapolis, Minn., the Walker Art Centre's third Biennial of Paintings and Prints from the Upper Midwest was described as "showing a strong trend toward abstraction." The Northwest Artists annual at Seattle, Wash., in October had "a greater proportion of non-objective and highly abstracted works than ever before." The Los Angeles, Calif., national exhibition, "Contemporary Painting in America," was described as a "flight from Renaissance tradition" and estimated to be "two-thirds semi-abstract or non-objective."

In a number of cases critics objected to the trend on the grounds that the young artists regurgitated the concepts of the older generation of abstract painters and that there appeared to be no real masters among the younger group.

The Los Angeles exhibit of local artists was stigmatized as "ultramodern," and a public row ensued in which hypothetical Communist political affiliations of modern art styles and artists were carelessly introduced by antagonists of recent trends, who were ignorant of the fact that the U.S.S.R. and other "iron curtain" countries countenance in painting only an optimistic social realism which is relatively photographic in form—the very thing which the American opponents of modern art themselves favour.

Many critics, however, remained sympathetic to the mush-

Five of 20 portraits by Marcel Vertès in which he painted famous persons as he imagined they must have looked in childhood. The series was exhibited at the Kleemann galleries, New York city, in 1951

Above, left: ELEANOR ROOSEVELT was pictured as a sad little girl because Vertès read her autobiography and said she described herself that way

Above, right: OF WINSTON CHURCHILL, Vertès recalled, "He said himself that every baby in the United Kingdom looked like him"

Right: THE DUKE AND DUCHESS OF WINDSOR Vertès placed "on the same canvas with a rock and a fog as separation. The two people already there waiting for each other"

Below left: GRETA GARBO was painted at a window, not looking out of it "but into it, turning her back on the world"

Below, right: GEORGE BERNARD SHAW was drawn as Vertès imagined him at the age of 12, "beardless, but as much on the offensive as he was as a man"

room growth of abstraction in the United States, and followed the lead of the Museum of Modern Art, N.Y., in supporting experimentalism and the compulsion for originality, and in looking with special favour upon a group of painters, some of whom spoke of themselves as the "New York school." This loosely defined group, which might be said to include such artists as Robert Motherwell, William De Kooning, Jackson Pollock, William Baziotes, Adolph Gottlieb, Bradley Tomlin, Mark Rothko, Theodoros Stamos and Hans Hofmann, painted nongeometric and informal abstractions, emphasizing the symbolic import of nonrepresentational shapes and signs to the "unconscious" of the spectator. In their work, the decorative potential of nonobjective form was ordinarily a secondary aim, and may or may not have been deliberately intended by the artist. This group had been developing its special emphasis during the past five years.

In western Europe, where a minority of artists had come under Communist influence, paintings were hopeful, propagandistic and realistic. A majority, which probably increased during the year 1951, were near-abstract and in varying degrees indebted to Pablo Picasso, Henri Matisse, Paul Klee, Wassily Kandinsky, Piet Mondrian, Joan Miro and a few other old masters of modern art. This was true of painting in France, Italy, England and western Germany, as well as in the U.S.

The stylistic differences of the older generation of masters were being levelled off to produce a melting pot of common aims and of near-abstract forms, motifs and ideographs. Their work seemed very similar to all but the most discriminating specialists. National stylistic differences were probably less marked than at any time in history, so that the painting of the middle of the 20th century seemed likely to be described as an international style in the texts of future art historians. It was treated currently as a single phenomenon by the Russians, who called it "the formalist heresy" when it appeared among artists under their control or influence.

The use of modern religious art for devotional purposes was given a boost in 1951, as, during the summer, Matisse completed the murals, stained glass design and other ornament for the Dominican chapel, Vence, Fr., and Motherwell, Gottlieb and the sculptor Herbert Ferber finished the *décor* of the synagogue at Millburn, N.J.

The major gift of paintings during the year 1951 was the Walter and Louise Arensberg collection of 20th century art, which went to the Philadelphia museum. This, added to the Albert E. Gallatin collection, made the Philadelphia museum one of the several most important in the world in the field of modern art. In October the Boston Museum of Fine Arts announced a valuable gift of 230 American paintings of 1815–1865 from Maxim Karolik. In July the Philadelphia collector Albert C. Barnes died in an automobile accident, leaving one of the finest collections of modern painting in the world, worth an estimated $20,000,000 to $25,000,000, in the care of the trustees of the Barnes foundation, Philadelphia, Pa. (*See* also ART EXHIBITIONS; ART SALES; MUSEUMS; SCULPTURE.)

FILMS OF 1951.—*Birth of a Painting* (Thomas Bouchard); *Color Keying in Art and Living* (Encyclopædia Britannica Films Inc.); *John Marin, The French School of Painting* (A. F. Films, Inc.); *Let's Paint with Water Color* (Coronet Films); *Toulouse-Lautrec* (Riethof Productions, Inc.); *World of the Artist Series* (3 films) (Brandon Films, Inc.).

(L. D. L.)

Paints and Varnishes. Paint production in the United States in 1951 was estimated to reach a value of $1,250,000,000, thereby exceeding the dollar value of all previous years' sales. Production remained high in all areas of paint manufacture and use except for a moderate slump in industrial finishes during the last quarter, attributed to a temporary readjustment of industrial production to meet military requirements. Raw material shortages persisted throughout the year, particularly in the ever-increasing demands for lead and phthalic anhydride. Tung oil was high in price as was also dehydrated castor oil, which was further limited severely because of military demands for raw castor oil for purposes other than paint. Many paint materials were allocated by the government. Phenolic resin shortages eased somewhat as a result of the greatly expanded production of phenol by the established processes and the promise of further quantities of phenol by a new process involving the direct oxidation of cumene, followed by decomposition of the resulting cumene hydroperoxide into phenol and acetone.

The uses of styrenated alkyds expanded considerably, one important use being the coating of artillery shells.

The two principal producers of water-thinned paints based on styrene-butadiene latices were joined in competition by many other paint companies. Some of these made new claims of durability on exterior surfaces for water-thinned paints.

Silicone solutions as waterproofers of exterior masonry were offered by several firms, while one major firm announced a production finishing enamel based on silicones with claims of resistance both to high temperatures and to various reagents. In the trade sales field there was an increased popularity of roller coaters, including both rollers with a paint vessel within the roller and rollers fed by a hose from a paint pressure tank.

Paint manufacturers, like other industries, were confronted with higher civic standards on air pollution and sought new devices for better suppression of varnish and oil fumes. To the ancient technique of grinding or dispersing paint pigments in ball or pebble mills came an offering of porcelain ovals as superior to porcelain spheres.

An important addition was made in the search for a general theory on the mechanism of atmospheric destruction of paint films. The necessity of both moisture and solar radiation and of the interrelation between the two was shown. More quantitative observations of these factors were necessary to correlate studies on exposure value of paints. The surprising improvement in durability through the addition of small amounts of dichromate salts to nitrocellulose lacquer implied that oxidation-reduction phenomena play an important role in the degradation of paint films.

(Jo. C. W.)

Pakistan. A self-governing member of the Commonwealth of Nations, Pakistan is a federation of 5 provinces, 12 states and tribal areas. Areas and populations are:

Provinces and states*	Area (in sq.mi.)	Population (1951 census)	Population (1941 census)
Sind	50,443	4,619,000	4,175,500
Khairpur state	6,050	320,000	
West Punjab	62,987	18,814,000	15,800,000
Bahawalpur state	15,918	1,820,000	
North-West Frontier Province:			
(a) Settled districts	13,815	3,239,000	3,038,100
(b) Tribal areas	27,242	2,460,000	2,500,000
Baluchistan	52,900	622,000	857,800
Baluchistan states	81,239	556,000	
Karachi, federal capital	812	1,118,000	359,500
Total, West Pakistan	311,406	33,568,000	26,730,900
East Pakistan (East Bengal)	54,501	42,119,000	41,880,000
Total	365,907	75,687,000	68,610,900

*Excluding Jammu and Kashmir (*q.v.*).

Languages: Urdu, Punjabi, Baluchi and Pashtu in West Pakistan and Bengali in East Pakistan; English used as a medium of instruction in higher education. Religion: Moslem (72.9%); Sikh, Hindu, Christian, Parsee and other minorities. Chief towns (pop. 1951 census): Karachi (cap., 1,005,000); Lahore (849,000); Dacca (401,000); Chittagong (269,000); Rawalpindi (243,000); Hyderabad, Sind (229,000); Multan (190,000); Lyallpur (180,000); Peshawar (114,000). Governor general of Pakistan in 1951: Khwaja Nazimuddin and (from Oct. 17) Ghulam Mohammed; prime ministers: Liaquat Ali Khan and Khwaja Nazimuddin (*q.v.*).

PAKISTANI MOSLEMS playing martial music on their native drums and flutes as tensions rose in 1951 over the disposition of Kashmir

History.—*The New Constitution.*—The leading event of 1951 was the promulgation of the new constitution. The constitution was to be basically in accordance with Islamic principles but would embody features borrowed from the Government of India act, Oct. 1935, and the governments of Great Britain and the United States. The supreme executive power would vest in the head of the state, who would be elected by a joint session of both houses for a term of five years and would act on the advice of his ministers. The danger of a dictatorship was ruled out by a provision that he could not hold office for more than two consecutive terms. Parliamentary government was to be conducted by the central and provincial legislatures, the former being bicameral and the latter unicameral. In the event of a conflict of opinion between the two houses of the federal legislature or in the election or removal of the head of the state, the matter should be decided at a joint session. Residuary powers would rest with the federal legislature, and the interpretation of the constitution would rest with the judiciary. Amendments of the constitution would have to obtain a two-thirds majority in both houses of the central legislature and a majority in the provinces. The question whether Pakistan was to remain a member of the Commonwealth of Nations was left open. Urdu was to be the official language of the state, but the constitution was to be drawn up in Urdu and English.

The Military Conspiracy.—In March the country was startled by the arrest of a number of prominent persons, including Maj. Gen. Akbar Khan, chief of general staff, Brig. M. A. Latif, brigade commander at Quetta, and Faiz Ahmad Faiz, editor of the *Pakistan Times,* for conspiracy. Nine more army officers and Air Commodore Mohammed Khan Janjua were arrested in May. The trials were held *in camera* at Hyderabad, Sind. The defense minister announced that the object of the conspiracy, of which the ringleader was Maj. Gen. Akbar Khan, was, by the use of violence and the subversion of the armed forces supported by revolutionary Communist elements, to remove high civil and military officers and, when the existing authorities, civil and military, had been eliminated, to bring the country under dictatorship. The government was then to be formed on the Communist model, and for this purpose economic and constitution-making missions were to be invited from the Soviet Union.

Relations with India.—Apart from the dispute over Kashmir, relations between Pakistan and India had considerably improved by the early part of 1951. In Feb. 1951 a six months' agreement for the exchange of commodities was signed. Imports from India were to include coal, iron, steel, timber, cement, cotton yarn, jute manufactures, paper, rubber tires and mustard oil; India would receive in return raw jute, cotton, cowhides and sheepskins. Pakistan would sell to India 70,000 tons of food grains and India informed the Pakistan government that it was prepared to conduct exchange transactions on the basis of the existing par value of Pakistan currency. But these promising signs were marred by the intense feeling aroused when it became known that Sheikh Abdullah was about to summon a constituent assembly for the purpose of drawing up a constitution for Kashmir, with the approval of India but against the advice of Frank Graham, the United Nations mediator (*see* KASHMIR). It was felt that this would prejudge the whole question of accession, at present before the Security council. Attempts to bring about a meeting between the premiers of the two countries ended in failure.

Murder of the Prime Minister.—The murder of the Pakistani prime minister, Liaquat Ali Khan, by a fanatic during a political meeting at Rawalpindi on Oct. 16, brought both Pakistan and India to a more realistic frame of mind. Messages of sympathy for the people of Pakistan poured in from all sides, including moving tributes from the Indian president and Jawaharlal Nehru. Liaquat Ali Khan's death necessitated administrative changes. The governor general, Khwaja Nazimuddin, took over his portfolio, and was succeeded in office by the finance minister, Ghulam Mohammed. Ismail Chandrigar, governor of the North-West Frontier Province, took over the governorship of West Punjab from Abdurrab Nishtar who was made minister of industries. (*See* also UNITED NATIONS.)

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Education.—*Baluchistan:* Schools (Oct. 1949): primary 186, secondary 23, private 4, European 2, institutions of higher education 1; total pupils 18,500. *North-West Frontier Province:* Recognized educational institutions (1947–48): for males 1,059, students 101,377; for females 156, pupils 11,035. *Sind:* Schools (March 1946): primary, for boys, 2,327, pupils 165,653; for girls, 398, pupils 40,257; secondary, for boys, 206, pupils 34,810; for girls, 37, pupils 9,262. Colleges 9, students 3,700.

Finance and Banking.—Budget: (1950–51 actual) ordinary revenue Rs. 1,237,000,000, ordinary expenditure Rs. 947,000,000; (1951–52 est.) ordinary revenue Rs. 1,163,000,000, ordinary expenditure Rs. 955,000,000. Internal debt (March 1951): Rs. 952,000,000. Currency circulation (July 1951): Rs. 1,960,000,000. Bank deposits (July 1951): Rs. 1,258,000,000. Gold and foreign exchange (July 1951): U.S. $597,000,000. Monetary unit: Pakistan rupee, with an exchange rate of Rs. 3.31 to the U.S. dollar.

Foreign Trade.—(1950): Imports Rs. 1,482,000,000; exports Rs. 2,230,000,000. Main sources of imports (1950): U.K. 26.4%; Japan 14.9%; India 12.6%; U.S. 9.4%. Main destinations of exports: U.K. 17.1%; Japan 11.0%; U.S. 10.9%; France 8.6%. Main imports (1949–50): cotton piece goods 22.6%; cotton yarn and twist 14.7%; machinery and millwork 7.4%; vehicles (excluding locomotives, etc.) 5.6%. Main exports: raw cotton 46%; raw jute 32.5%; black tea 6.4%; raw wool 4.1%.

Transport and Communications.—Roads (1949): 55,913 mi. Licensed motor vehicles (Dec. 1950): cars 17,000, commercial 12,000. Railways (1950): 6,994 mi.; passenger-miles 5,456,000,000; freight net ton-miles 2,500,000,000. Shipping (1949): merchant fleet 120,000 gross tons. Air transport (1949–50): miles scheduled per week 136,030. Telephones (Jan. 1949): 16,454. Radio receiving sets (1949): 75,000.

Agriculture.—Main crops (metric tons, 1950): rice 12,500,000; wheat (1951) 3,741,000; barley 157,000; maize (1949) 430,000; sugar, raw value, excluding palm sugar production, 570,000; jute 910,000; cotton, ginned, 253,000; linseed 11,000; rapeseed and mustard seed 282,000; sesame 34,000; chick-peas (1949) 798,000; tea 23,800; tobacco (1949) 66,800. Livestock (1947–48): cattle 24,296,000; buffaloes 5,600,000; goats 10,067,000; sheep 6,145,000; camels 454,000; horses 470,000; mules 41,000; geese 61,000; chickens 22,248,000; ducks (1949) 5,063,000. Wool production, greasy basis (1950) 11,000 metric tons. Meat production (1949) 308,000 metric tons. Milk production (1949) 5,917,000 metric tons. Fisheries (1949–50): total catch 250,000 metric tons.

Industry.—Employment (1949): all industries 662,000; manufacturing 200,000. Fuel and power (1950): coal and lignite 444,000 metric tons; crude oil 165,600 metric tons; electricity 164,400,000 kw.hr. Raw materials: chromite (1950) 18,700 metric tons; salt (1948) 339,000 metric tons. Manufactured goods (metric tons, 1950): cement 412,000; cotton yarn 19,700; cotton cloth 836,000,000 m.

Palaeontology.

Vertebrate.—In 1951, the study of fossil backboned animals continued to be pursued with vigour throughout the world. Published results of research, although relatively few in numbers, reflected well-planned field exploration and critical laboratory analysis. The highlight of general interest for the year was the appearance of a monumental work entitled *Evolution Emerging,* by W. K. Gregory, which summarized the evidences of the changing organization of life during 500,000,000 years. The annual bibliography also included many important articles of broad professional use. The varied subject matter of the latter was illustrated by a compilation of papers on the stratigraphic correlation of continental vertebrate-bearing beds in many parts of the world reported to the 18th session (Great Britain) of the International Geological congress; a good elementary history of vertebrate animals by E. Kuhn; and an expression of the constant need by all workers to review the objective principles of palaeontology by E. C. Case.

Fishes.—Extending detailed studies on the primitive fish groups, R. H. Denison investigated the evolutionary changes of a number of selected morphologic characters possessed by members of early agnathous order Osteostraci. The proposal of an appropriately revised classification resulted. This author also made a histological examination of the exoskeleton of the same order. The endoskeleton of the placoderms and fossil elasmobranchs (with general remarks on the hard tissues of lower vertebrates) was the subject of an important histological paper by T. Ørvig. Among other significant advances in knowledge were descriptions of the skulls of some Mississippian and Pennsylvanian ray-finned fishes by D. H. Rayner, and the reconstruction of the head of the Permian lungfish *Gnathorhiza* by E. C. Olson. In exhibiting the oldest known pelvic clasping spines, a small shark from the Devonian shales of Ohio reported by J. E. Harris was perhaps the most interesting new form described.

Amphibians.—Employing a statistical method for the detection and evaluation of growth in fossil samples developed in collaboration with R. L. Miller, E. C. Olson analyzed a series of skulls of the horned Permian amphibian, *Diplocaulus.*

Reptiles.—A. Bellairs and G. Underwood, with abundant reference to palaeontological information, reviewed and interpreted all evidences relative to the origin of snakes. Description and discussion of the relationships and stratigraphic occurrence of the primitive Triassic crocodile *Protosuchus* was presented by E. H. Colbert and C. C. Mook. Additional fossil reptile studies were several short notes (F. von Huene) on various Triassic and Jurassic materials; description (C. M. Sternberg) of a complete skeleton of the horned dinosaur *Leptoceratops* from the upper Cretaceous of Alberta, Can.; and report (M. K. Hecht) on fossil Gekkos from the West Indies. New materials described include a diadectid and a captorhinid from the Permian of Texas by E. C. Olson; a variety of Oligocene amphisbaenid lizards of the genus *Rhineura* by E. H. Taylor; and several additions to the mammal-like reptile fauna of the Karroo system of South Africa by A. S. Brink.

Birds.—T. Edinger made a palaeoneurological study of the ancient toothed birds of the Cretaceous epoch known as the Odontognathae. The facts were demonstrated that the brains of both the flying *Ichthyornis* and the flightless *Hesperornis* were not intermediate between reptilian and avian types but were typically birdlike in proportion and position of parts. L. Miller reported the first fossil occurrence of a storm petrel from marine Miocene deposits in California.

Mammals.—The early Tertiary history of the Rodentia was summarized by R. W. Wilson who interpreted the available facts as indicative of differentiation of the parent stock during Palaeocene times and of development of the modern divisions of the order during the Eocene. G. G. Simpson wrote an excellent popular account of horses—their structure, relationships, classification and fossil history. W. O. Dietrich discussed the origin of the recent and fossil African elephants; a new jumping mouse from the Pliocene of Kansas and a new antilocaprid from the Pliocene of Oklahoma were described by C. W. Hibbard; new discoveries of Pleistocene jaguar skeletons from Tennessee caves were reported by E. McCrady, H. T. Kirby-Smith and H. Templeton; and C. B. Schultz and associates presented a graphic résumé of the Ice Age deposits of Nebraska with notes on their contained fossil mammalian remains.

(D. H. D.)

Palaeobotany.—In June 1950 the National Research council issued, under the editorship of Theodor Just (Chicago Natural History museum, Ill.) and several others, the report of the committee on palaeobotany, bringing this source of fossil plant literature up to date and including the work of all palaeobotanists in North and South America. Similar reports were being issued by Britain, Sweden (covering continental Europe) and India (including much of south Asia).

One of the most unique modes of plant preservation is found in the petrifactions known as coal balls. Although studies of coal-ball plants were initiated in England nearly 90 years before, specimens were not located in America until the early 1920s, and only in recent years had intensive research programs been undertaken. During 1951 large collections were made by palaeobotanists from several American universities. Robert W. Baxter (University of Kansas, Lawrence) described a new species of *Ankyropteris,* a member of the primitive Coenopterid ferns. A new *Botryopteris,* also a member of this group, was described from southern Illinois. Baxter also described a new sphenopsid cone (a plant related to the modern horsetail rushes) from an Indiana coal ball.

A comprehensive review of American coal-ball floras was given by Henry Andrews in the June issue of the *Botanical Review.* This dealt with the earliest discoveries of these petrifactions in the United States, their geographical and stratigraphical origin, and included a bibliography and a list of the plants found with comments on the more significant species.

One of the most rapidly advancing phases of palaeobotanical research was the study of fossil pollen grains and spores. Most of the studies in this field had dealt with the spores of the Carboniferous Age coal and the pollens of the much more recent Pleistocene (Glacial) Age. In the case of the latter the fossils represented species which for the most part are still living and these studies had contributed largely to knowledge of floristic changes during the past few millenniums; studies of the Carboniferous spores and pollens were concerned chiefly with stratigraphical problems, that is, they were being used as an aid in correlating rock formations which are exposed at various geographical points. A particularly significant contribution in this field was Robert Kosanke's monograph of the Illinois coal spores. Several contributions were made in this field by the German geologist Robert Potonie and his associates. This group of workers dealt largely with Tertiary pollens. A review of their work with a comprehensive bibliography was published in *Palaeontographica* (April 1951).

Chester Arnold (University of Michigan, Ann Arbor) presented a comprehensive account of the fossil plants in the Michigan coal basin, an area occupying the central part of the lower peninsula of that state. This is a flora rich in arborescent lycopods (related to the modern club mosses), the horsetail and conifer ancestors and some seed ferns.

An extensive petrified forest in South Africa which dates from the Permian period was described by Robert Rodin. Unlike the Yellowstone park fossil forest where numerous species of fossils are represented, or the Arizona one where several are found, this African forest was reported to be composed solely of *Dadoxylon,* an early ancestor of the conifers. T. M. Harris (University of Reading, Eng.) described the seed-bearing organ of *Czekanowskia,* a Jurassic plant believed to be related to the modern ginkgo, although in the clustered arrangement of its numerous slender leaves the plant superficially resembles a pine. Harris showed that the seed organ is a curious two-valved capsule actually so unlike that of a ginkgo that it cannot be placed in that family, or indeed, any other existing family of plants. Apparently this represented a line of plants that failed to survive and its closely related contemporaries had not yet been excavated by the palaeobotanist's pick.

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Palestine: *see* ISRAEL; JERUSALEM; JORDAN.

Panamá.

A republic on the isthmus joining the continents of North and South America, Panamá is bounded on the north by Costa Rica and on the south by Colombia, and is bisected by the Panama Canal Zone, which is leased to the United States. Area: 28,575 sq.mi.; pop. (preliminary figures, 1950 census of the Americas): 801,982, both exclusive of the Canal Zone. The capital is Panamá city (146,117 in 1949); other principal cities are Colón (54,334), David (13,656) and Santiago (6,944). Language: Spanish; religion: predominantly Roman Catholic. Presidents in 1951: Arnulfo Arias Madrid, until May 10; thereafter, Alcibiades Arosemena.

History.—For Panamanians, 1951 was marked by chaotic political instability. The tension was heightened early in January with the return from exile of former President (1941–1945) Ricardo de la Guardia, with the politically strategic national police chief, José Remón, appearing to hold the balance of power between the followers of the mutually hostile De la Guardia and President Arias. The cabinet was reorganized on Feb. 22 to strengthen Arias' hand for the crisis. Early in March the government closed down the Federal Trust company, Panamá's only privately owned bank. Opposition party leaders on March 8 called for a general strike in protest against that measure, and De la Guardia announced his support of the strike. He was arrested the following day. On March 10 De la Guardia was sentenced to 15 days' imprisonment on charges of publicly expressing contempt of President Arias; De la Guardia was released on the same day when a higher court ruled that his arrest had been illegal. Arias' position in the struggle was further weakened on April 10, when the Panamanian supreme court declared that his 1950 order removing all Communists from public office was unconstitutional.

PRESIDENT and Mrs. Arnulfo Arias Madrid leaving the presidential palace in Panamá city in May 1951, after a popular revolt which unseated him from office. He was later tried and convicted of abusing the 1946 constitution of Panamá and was barred from public office for life

Early in May, a large-scale run on the government-supported savings bank deepened the crisis. Sixteen persons, including former President de la Guardia and Roberto Arias, the president's nephew, were jailed on May 6, charged with inciting the bank run with subversive purposes. The next day, President Arias suspended the constitution of 1946, declaring that the 1941 constitution, authoritarian in pattern, would again be in force. This action touched off the long-brewing climax: national police chief Remón on May 10 turned against Arias, who was overthrown amid disorders in which 16 were killed. Arias was at length captured by the rebels led by Remón; and on May 11 Vice-Pres. Alcibiades Arosemena assumed the presidency.

Arosemena proceeded to form a cabinet representing all Panamanian political groups except the Communists and to pledge full co-operation with the United States. On May 25 former President Arias was declared guilty of abusing his constitutional powers while in office. (G. I. B.)

Education.—In the school year 1951–52 there were 904 public primary schools with 3,153 teachers and 110,038 pupils, 20 secondary schools with 718 teachers and 15,963 students and 7 vocational schools with 253 teachers and 5,552 students. In addition, there were 70 private primary schools with 200 teachers and 5,544 students and 57 secondary schools with 292 teachers and 5,474 students. The national university had 1,805 students.

Finance.—The monetary unit is the balboa, at par with the U.S. dollar. The national budget for 1951 estimated expenditure at $33,464,433 and revenue at $33,464,354. The national debt on Aug. 31, 1951, totalled $32,849,508, of which $11,134,487 was external and $21,715,021 internal. Currency in circulation on June 30, 1950, amounted to $1,500,000. Demand deposits were $22,800,000 on June 30, 1951, and time deposits $17,000,000.

Trade and Communications.—Domestic exports in 1950 totalled $10,140,912; imports $67,055,745 and re-exports $4,966,778. Chief domestic exports were bananas (57%), abacá (15%) and cacao (12%). The leading customers were the U.S. (91%), Colombia (3%) and the Netherlands (2%); leading suppliers were the U.S. including the Canal Zone (71%), Chile (7%), the United Kingdom (3%) and Canada (3%). The traditionally adverse balance of trade is generally offset by invisible exports to the Canal Zone in the form of tourist expenditures, sales to ships and wages of Panamanians employed there.

Railroad mileage is 223. Highways in 1949 totalled 1,071 mi., of which 348 mi. were paved. According to *Lloyd's Register of Shipping*, the merchant marine consisted of 573 vessels (100 tons and over) aggregating 3,361,339 gross tons on June 30, 1950.

Agriculture.—Exports of bananas in 1950 were 5,008,776 bunches, all of which went to the U.S. Exports of other export crops included abacá 3,390 short tons; cacao 2,095 tons; and coconuts 6,051,900 nuts. Production of rice (milled) was about 60,000 tons and sugar, 14,346 tons. The 1950 census showed 576,488 cattle and 198,511 pigs.

Manufactures.—Production figures in 1950 included cement 56,186 short tons; beer 3,459,000 gal.; and soap about 4,500,000 lb. In 1950, 70,831,000 kw.hr. of electric energy were generated in Panamá city and 14,005,000 kw.hr. in Colón. (J. W. Mw.)

Panama Canal Zone. A United States military reservation embracing a ten-mile strip across the Isthmus of Panama, leased for the protection and administration of the Panama canal. the Panama Canal Zone has an area of 553 sq.mi., including 191 sq.mi. of fresh water. Population, exclusive of uniformed military personnel (1950 census): 52,822. Administrative centre: Balboa Heights (pop., 1946: 12,623). Governor in 1951: Brig. Gen. Francis K. Newcomer.

History.—Controversy over the defensibility of the Panama canal was aired in the U.S. press during 1951. In its issue for Jan. 20, the weekly *Collier's* magazine carried an article declaring that the canal was not properly defended. Pentagon officials responded by pointing out that military planes from U.S. bases could reach the canal within six hours; that the canal was beyond the range of any soviet-based plane large enough to carry an atomic bomb; and that the canal was equally unprotected at the start of World War II, but was swarming with men and equipment within a week. (G. I. B.)

Education.—In Feb. 1950 there were for white students 14 schools with enrolment of 4,511 students and a junior college with enrolment of 206 daytime students. For nonwhite students there were 14 schools with enrolment of 3,412 and a normal training school.

Finance.—Total canal revenues for the fiscal year 1949–50 were $24,810,323.78; net expenses, $22,557,703.54; and net capital investment as of June 30, 1950, $672,962,142.67. During the year 5,448 ships (300 net tons and over) aggregating 28,013,236 canal net tons passing through the canal carried cargo of 28,872,293 long tons and paid tolls of $24,430,206. Of the cargo carried, 9,483,863 tons were east to west and 19,388,430 tons west to east. Canal net tonnage of vessels by nationality included U.S. 19,526,719; British 5,154,273; Norwegian 2,085,425; Panamanian 901,570; and Honduran 881,708. Employees of the canal and the railroad on June 30, 1950, included 4,322 paid at U.S. rates and 14,470 paid at local rates. (J. W. Mw.)

Pan American Union: *see* ORGANIZATION OF AMERICAN STATES.

Paper and Pulp Industry. The estimated production of paper and paperboard in the United States for 1951 was about 26,500,000 tons as contrasted with 24,300,178 tons in 1950.

Table I.—*U.S. Production and Consumption of Paper, Wood Pulp and Pulpwood*

Year	Paper and Paperboard (short tons)		Wood Pulp (short tons)		Receipts of Pulpwood (cords)		
	Production	Consumption	Production	Consumption	Domestic	Imported	Total
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821
1931	9,381,840	11,403,850	4,409,344	6,005,718	5,896,446	826,320	6,722,766
1935	10,506,195	12,490,886	4,925,669	6,877,869	6,590,942	1,037,332	7,628,274
1940	14,483,709	16,620,632	8,959,559	9,781,739	12,307,138	1,435,820	13,742,958
1945	17,370,965	19,665,487	10,167,200	10,825,412	15,254,000	1,729,000	16,983,000
1949	20,304,243	24,680,867	12,156,897	13,616,093	17,547,000	1,706,000	19,253,000
1950	24,300,178	28,939,589	14,827,152	16,487,110	20,701,000	2,955,109	23,656,109

Table II.—*U.S. Paper Production*

(In short tons)

	1940	1945	1950
Newsprint	1,056,304	725,475	1,017,322
Book	1,655,423	1,501,015	3,286,047
Groundwood	550,453	636,026	804,810*
Fine	735,753	1,000,794	1,222,637
Wrapping (coarse)	2,500,818	2,403,182	3,383,400
Tissue	733,894	157,083	240,604
Sanitary		823,705	1,108,021
Absorbent	129,410	88,643	105,393
Building papers	682,460	883,259	1,414,370
Other paper	60,120	238,047	315,905
Container board	3,434,834	4,131,107	5,646,433
Folding boxboard	1,416,452	2,092,344	2,368,010
Setup boxboard	898,549	721,087	641,345
Building boards	179,443	894,830	1,258,620
Other boards	449,796	1,074,368	2,292,071
Total	14,483,709	17,370,965	24,300,178

*1949

Table III.—*U.S. Wood Pulp Production*

(In short tons)

Year	Unbleached Sulphite	Bleached Sulphite	Total Sulphate	Groundwood	Soda	All Others	Total
1935	634,947	944,620	1,467,749	1,355,819	485,162	144,002	5,032,299
1940	995,700	1,612,089	3,747,992	1,632,727	532,387	438,664	8,959,559
1945	815,909	1,543,762	4,471,875	2,386,859	429,757	518,978	10,167,200
1948	901,814	1,909,402	6,013,696	2,175,107	509,864	1,362,409	12,872,292
1949	710,486	1,826,598	5,968,557	1,962,141	491,822	1,177,584	12,137,188
1950	744,493	2,111,332	7,508,376	2,220,795	522,990	1,719,166	14,827,152

In production and consumption, both on a tonnage and a per capita basis, all previous records were broken. In all production aspects the volume of the United States industry exceeded that of 1939 by more than 100%.

Canada.—The demand for all pulp and paper products pressed the output capacity of Canadian mills to the limit in 1951. The production of papers of all kinds was about 6,000,000 tons. Canada exported about 4,775,000 tons of newsprint to the United States.

Table IV.—*Canadian Paper and Paperboard Production*

Kind	1948	1949	1950
Newsprint	4,640,000	5,187,206	5,318,988
Book and fine paper	231,000	199,317	214,097
Wrapping	207,000	195,585	222,840
Paperboard	708,000	797,023	876,894
Other papers	277,000	160,838	179,216
Total (short tons)	6,063,000	6,539,969	6,812,035

Table V.—*Canadian Wood Pulp Production*

(In short tons)

Year	Bleached Sulphite	Unbleached Sulphite	Sulphate	All Others	Groundwood	Total*
1935	374,157	644,820	236,536	20,887	2,563,711	3,868,341
1940	543,987	936,558	371,569	133,164	3,305,484	5,290,762
1945	603,929	1,035,755	478,740	140,470	3,341,920	5,600,814
1949	639,243	1,316,707	856,464	256,063	4,600,635	7,669,112
1950	760.769	1,450,104	1,053,588	297,750	4,910,803	8,473,014

*Includes all pulp screenings.

United Kingdom.—The paper industry in the United Kingdom was plagued in 1950 with rising costs and raw materials shortages. In the middle of 1950 government controls were removed from all paper and board except newsprint, mechanical printing paper and linerboard. The consumption of paper products in the first 11 months of 1950 was about 2,615,000 short tons. The total paper imports were 736,000 tons and the total paper exports for the year were 298,000 tons. The consumption by the industry in the first 11 months of 1950 in short tons was as follows: pulpwood 300,000; wood pulp 1,368,000; esparto 295,000; rags 135,000; straw 99,000; and waste paper 882,000. (*See* also FORESTS.) (R. G. M.)

Papua: *see* COMMONWEALTH OF NATIONS.

Paraguay. A landlocked republic in central South America, Paraguay is bounded north and east by

Brazil, south by Argentina and west by Bolivia. Area: 157,047 sq.mi., of which 95,338 sq.mi. constitute the sparsely populated Chaco, while 61,709 sq.mi., lying east of the Paraguay river, contain 95% of the population and activity. Pop. (1950 census): 1,406,000. The people are a homogeneous mixture of Spanish and Guaraní stock (with some Portuguese and Italian) which has developed into a racial type. Official language, Spanish. The Guaraní tongue has survived more than the blood, but is secondary and recessive. Capital and chief centre: Asunción, pop. (1948) 130,067. Other cities: Villarica (31,081), Concepción (16,487), Encarnación (16,078). Official religion: Roman Catholic. At the end of 1951 the president was Federico Chaves.

History.—There were no significant political changes in 1951. After the protracted civil wars of 1947 and 1948 a condition of stability gradually supervened in 1949 and 1950; and the Democratico Colorado party had prevented any political activity by the Liberales, the Franquistas and the Communists. Its longtime chief, Federico Chaves, was president, and the unicameral congress was composed wholly of his chosen supporters. The outstanding development of 1951 was the government's strong and extensive effort to build a managed economy, with numerous controls and regulations of the various activities of many classes of the people. It launched a plan for the resettlement in Paraguay, in the border regions, of the estimated 300,000 Paraguayans who had during the past two decades migrated to neighbouring countries; but the economic and political factors involved had not been clarified.

Education.—In 1949, 1,262 primary schools were recorded, with 5,479 primary school teachers and 186,101 pupils. There were 41 secondary schools, including 12 normal schools. There were in 1951 four regional agricultural schools; and at San Lorenzo, near Asunción, the Estigarribia National School of Agronomy. A national junior college at the capital had several hundred students, and the National university at Asunción had in 1950 approximately 1,800 students and 100 professors.

Finance.—The currency unit is the guaraní, devalued March 5, 1951, from 3.09 to 6 per U.S. dollar. For business purposes the governmental bank, which controls all foreign exchange, bought and sold dollars at rates ranging up to 9 guaranies. No budget figures were available after 1948 when the revenues were $15,000,000, with expenditures at $24,000,000. In 1950 new bond issues aggregating $5,000,000 (at parity conversion rates) were authorized. The external debt was reported at the end of 1949 as $14,000,000, with internal funded debt and outstanding obligations at about $34,000,000. The budget for 1951 was unofficially estimated at 40% higher than in 1950, but the uncertainties as to the conversion rates of the guaraní clouded such calculations. In 1950 the currency in circulation rose from about $43,000,000 to about $63,000,000 (conversion at parity). At the end of 1950 the reserves of gold and foreign exchange were about $5,000,000.

Trade.—Exports in 1950 were 366,154 metric tons, valued at $55,800,000 (conversion from guaranies at official parity). Imports in 1950 were valued at $28,280,000. The leading export was timber, followed by cotton, quebracho, meat products and hides. The principal imports were nontropical foodstuffs, textiles, machinery and metal manufactures, vehicles, chemicals, petroleum products and paper. The chief destinations of exports were Argentina, the United States, Uruguay, England and the continent of Europe. The chief sources of imports in 1950 were Argentina 35.8%, the United States 24.2%, the United Kingdom 7.5%, Brazil 4.9% and Uruguay 3.6%.

Communications.—The Paraguay Central railway runs 278 mi. S.E. from Asunción through the best farm and forest areas, to Encarnación on the upper Paraná, where it connects by car ferries with the Argentine railways at Posadas. Traffic in late years averaged about 2,000,000 passengers and 227,000 metric tons of freight annually. There were more than 500 mi. of modern gravel-crowned highways, plus 80 mi. of asphalt, with about 4,000 mi. of primitive roads for ox-drawn traffic. The number of automotive vehicles at the beginning of 1950 was 3,150, of which 1,800 were passenger cars, 1,000 were trucks and 300 were buses. While river activity is great everywhere in Paraguay, the Argentine Dodero line between Asunción and Buenos Aires carried by far the largest volume, the last estimate (1948) being 440,000 metric tons. There were 5,111 telephones in Paraguay at the beginning of 1951; and the national telegraph system had 3,700 mi. of wire and joined 118 population centres. There were several broadcasting stations at Asunción, and between 25,000 and 30,000 radio receiving sets.

Agriculture.—The production of the leading agricultural crops in 1950, in metric tons, was as follows: mandioca 750,000; maize 115,000; sweet potatoes 77,000; cotton 41,681; beans 20,000; rice 18,000; sugar 16,000; and tobacco 10,000. The 1950 orange crop was 12,125,000 boxes. Cattle declined to 3,400,000 head in 1950 as compared with 5,000,000 head in 1947.

Manufactures.—Aside from meat packing, the only industry of any consequence is textile manufacturing. The three large mills had 30,230 spindles in 1950, with 514 looms; and produced 2,500,000 metres of cotton cloth, as well as 1,600 tons of cotton yarn. Asunción had flour mills, oil-crushing mills, a brewery and plants which produced shoes, furniture, soap, glass, matches, cigarettes and processed foods. A ceramics plant was opened in 1951 to produce dishes.

Mines and Forests.—The production of lime in 1950 was 25.340 metric tons. The production of cobblestones and crushed stone reached about 60,000 cu.m. Exports of hardwood in the first nine months of 1950 amounted to 186,850 metric tons, valued at between $6,000,000 and $8,000,000.

(W. Ft.)

Parents and Teachers, National Congress of: *see* Societies and Associations, U.S.

Paris. Capital and largest city of France, Paris had in 1946 a population of 2,725,374. President of the municipal council in 1951: Pierre de Gaulle and (from Nov. 19) Paul Coirre.

The main tourist attraction of 1951 was a series of festivities of every variety—artistic, historic, academic, diplomatic, commercial—organized in honour of the 2,000th anniversary of the city's founding. This Paris Bimillenary celebration, as it was called, lasted from early spring till mid-December and attracted more than 1,000,000 foreign visitors, in addition to great numbers from other parts of France.

The United Nations sixth general assembly opened in November at the Palais de Chaillot, greatly enlarged for the occasion.

The reopening in December of three subway stations that had been closed during World War II, and the reintroduction of midnight service on certain bus lines, also suspended since 1940, were welcome decisions.

For the most urgent of all the city's problems, housing, no solution was in sight. By the end of the year more than 100,000 unsatisfied priority requests had accumulated, and it was officially recognized that more than 25,000 permanent residents were living in exorbitantly priced furnished rooms. Apartment construction, except in the high rental class underwritten in advance by the future owners, was at a standstill.

An inflationary rise in the cost of living which, on Nov. 30, registered an index figure of 140, as compared with 100 in 1949, was accompanied by manifestations of discontent among the

PRES. VINCENT AURIOL of France escorting Margaret Truman into the Comédie Française theatre in Paris during Miss Truman's tour of Europe in the spring of 1951 workers. A two-week bus and subway strike in the spring, followed by several short stoppages in the metal trades, resulted in a union demand that the basic monthly salary be raised from 18,225 fr. to 20,000 fr. This was granted in September.

The city's original budget for 1951 of 47,050,000,000 fr. was increased in December to 53,127,000,000 fr.

FILMS OF 1951.—*Ageless Paris* (Films of the Nations Distributors, Inc.); *Paris 1900* (Brandon Films, Inc.). (M. JOL.)

Parks and Monuments: *see* NATIONAL PARKS AND MONUMENTS.

Parliament, British.

The 39th parliament of the United Kingdom, elected on Feb. 23, 1950, reassembled on Jan. 23, 1951, after the Christmas recess. Both houses rose for the summer recess on Aug. 2 only to return on Oct. 4 for the act of prorogation. During the recess the prime minister, Clement R. Attlee, announced that a general election would be held Oct. 25.

The narrow Labour majority of the 1950–51 parliament was replaced by a Conservative majority of 17 over all other parties. The Conservatives and their allies obtained 321 seats, Labour 295, Liberal 6, Irish Labour 1 and Irish Nationalists 2. The Conservatives, under Winston Churchill (*q.v.*) (Woodford), formed a government, their first since July 1945. (*See* also GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.)

The 1950–51 parliament divided 234 times, resulting in five government defeats, three of them in 1951.

The 40th parliament met on Oct. 31. Its first act was to elect William S. Morrison (Conservative, Cirencester and Tewkesbury) as speaker. In the first contested election for the speakership since 1895, he received 318 votes to 251 for Maj. James Milner (Labour, South East Leeds). Sir Charles MacAndrew (Conservative, Bute and North Ayrshire) was elected chairman of ways and means and R. Hopkin Morris (Liberal, Carmarthen), deputy chairman. In the house of lords Lord Simonds succeeded Viscount Jowitt as lord chancellor and the Earl of Drogheda was re-elected lord chairman of committees. In the first session of the new parliament until Dec. 7 there were 26 divisions in the house of commons; the government received majorities ranging from 22 to 79. (*See* also CABINET MEMBERS; LAW.)

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Pashtunistan: *see* AFGHANISTAN.

Patents.

During 1951 the United States patent office granted 48,719 patents, including 4,164 for designs, 58 for plants and 134 reissues. This was an increase of 710 over the 48,009 total for 1950.

Applications for patents filed in the patent office for the calendar year 1950 totalled 74,295; for the first 11 months of 1951 the number filed was 59,295. In Dec. 1951, approximately 200,000 applications were pending in the patent office, of which about 105,000 were awaiting action by the office, the remainder being under rejection awaiting response by applicants, or in interference or on appeal.

Trade-marks registered (17,380) and renewed (3,350) during 1951 totalled 20,730. This compared with 20,393 registrations and renewals in 1950. In addition, 1,297 registrations were republished. Applications for registration, republication and renewal for the first 11 months of 1951 totalled 18,192, compared with 23,042 for the entire preceding year. Approximately 35,000 trade-mark applications were pending in the office in Dec. 1951, of which about 16,000 were pending before the examiners.

At the end of 1951, the patent office had granted more than 2,580,000 patents, of which slightly less than 600,000 were unexpired. More than 58,000 unexpired patents were listed on the register of patents available for licensing or sale—the new listings being published in the weekly issues of the *Official Gazette*. During the year ended June 30, 1951, more than 7,500,000 copies of United States patents and trade-marks were distributed, of which more than 1,000,000 were sent to libraries in the United States, and more than 1,500,000 to other countries under exchange agreements.

Major administrative accomplishments and public service improvements during the year included the preparation and printing of a revised edition of the *Roster of Attorneys and Agents Registered to Practice Before the U.S. Patent Office*, which was completed in Sept. 1951 and placed on sale Oct. 1, 1951; completion of a project in the search room to improve reading conditions through modernization of lighting facilities for the benefit of attorneys, inventors, engineers and others; accelerated disposal of the backlog of appeals pending before the patent office board of appeals through the designation of additional temporary examiners-in-chief authorized by a law enacted March 4, 1950; and establishment of a procedure for administration of a temporary act approved June 30, 1950, which provided a one-year period within which veterans could apply for extensions of the terms of their patents. One hundred and fifty-one applications were filed under the act, but the number of patents which might eventually be extended would not be known until final disposition of all applications was made.

Abstracts of abandoned patent applications published in the *Official Gazette* during the year ending June 30, 1951, pursuant to a commissioner's notice dated Jan. 25, 1949, totalled 314.

Net receipts for the fiscal year ended June 30, 1951, were $5,320,224.87. Obligations incurred under all patent office appropriations amounted to $11,248,330, as compared with $11,023,035.67, for the preceding year. (J. A. ML.)

Peaches: *see* FRUIT.

Peanuts.

The U.S. 1951 crop of picked and harvested peanuts amounted to 1,595,025,000 lb., about 21% less than average or the 1950 crop. The 1,990,000 ac. harvested were 12% fewer than in 1950 and far below the 2,923,000-ac. average for 1940–49, but nevertheless in excess of the national allotment of 1,889,000 ac. The yield was 802 lb. per acre as compared with a record 893 lb. in 1950 and an average for 1940–49 of 704 lb.

The Virginia-Carolina area harvested a 10% larger crop than in 1950 from about the same acreage—Virginia set a new record yield of 1,550 lb. per acre.

The announced minimum average support price for peanuts grown on allocated quota acreage was $230.56 per ton (11.5 cents per pound) as compared with $216 per ton (10.8 cents per pound) in 1950, but the price on nonquota units was expected to be lower than in 1950, giving an estimated over-all price to farmers of 10.5 cents per pound for the crop as compared with 10.9 cents in 1950.

Civilian consumption of shelled peanuts was expected to be

Table I.—*U.S. Peanut Production by Leading States*

(In thousands of pounds)

State	1951	1950	Average 1940–49
Georgia	569,320	680,680	690,583
North Carolina	287,500	246,100	311,000
Virginia	226,300	221,920	188,021
Alabama	202,320	324,950	310,160
Oklahoma	111,000	125,080	98,328
Texas	109,890	330,750	303,934
Florida	61,200	59,040	64,736

Table II.—*World Peanut Production for Leading Areas*

(In thousands of short tons)

Country	1951*	1950	Average 1935–39
India	3,500	3,731	3,820
China	—	—	2,917
French West Africa	854	661	876
United States	798	1,011	615
Nigeria and Cameroons	600	400	355
Indonesia	300	283	289

*1951 data are preliminary.

4.4 lb. per capita in 1951. Exports from the U.S. of 48,000,000 lb. of peanuts and 2,000,000 lb. of peanut oil were sharply lower than in any late year and it was anticipated that exports would be still smaller from the 1951 crop.

World peanut or ground nut production, preliminarily estimated at 11,300,000 tons, was a near record, if not a new record, a very good crop in Africa offsetting smaller crops in India and the United States. Larger world exports of peanuts and peanut oil from the 1951 crop were anticipated.

A government bill to write off a loss of £36,500,000 on the Tanganyika peanut project was a major test which the Labour government of Great Britain survived early in the year.

(J. K. R.)

Pears: *see* FRUIT.

Pearson, Lester Bowles

(1897–), Canadian government official, was born April 23 at Toronto, Ont. After serving in World War I he graduated from the University of Toronto, attended Oxford university on a Massey fellowship, and returned in 1923 to Toronto as lecturer in and assistant professor of history. Five years later he entered the Canadian department of external affairs as a first secretary. By 1941 he had become assistant undersecretary of state for external affairs; by 1942 minister-counsellor at the Canadian legation in Washington, D.C.; by 1945 Canadian ambassador to the U.S.; and in 1946 was back in Ottawa as undersecretary of state for external affairs.

In 1948 Pearson entered the political arena, being appointed to the cabinet post of secretary of state for external affairs and winning the Algoma East (Ont.) seat in the house of commons. He led the Canadian delegation to the United Nations general assembly in 1949, and was elected chairman of the U.N. political and security committee.

During 1951 he attended the fifth session of the U.N. general assembly and explained Canada's position respecting Korea; at the sixth U.N. session he outlined Canada's reaction to the disarmament proposals. He signed the Japanese peace treaty, on behalf of Canada, at San Francisco, Calif., and attended two meetings of the North Atlantic treaty council, being chairman at the meeting in Rome. (C. CY.)

Pecans: *see* NUTS.
Penicillin: *see* CHEMOTHERAPY; MEDICINE.

Pennsylvania.

A middle Atlantic state and one of the 13 original states of the union, Pennsylvania is popularly known as the "Keystone state." Area: 45,333 sq.mi., including 288 sq.mi. of inland waters. Pop. (U.S. census, 1950): 10,498,012. Capital: Harrisburg (89,554). Cities with a population greater than 75,000 in 1950: Philadelphia (2,071,605); Pittsburgh (676,806); Erie (130,803); Scranton (125,536); Reading (109,320); Allentown (106,756); Altoona (77,177); Wilkes-Barre (76,826). The urban population in 1950 numbered 7,403,036, and the rural 3,094,976.

History.—The 139th regular session of the general assembly, which convened on Jan. 2, 1951, and adjourned Dec. 22, 1951, proved to be the longest in the state's history, because of the difficulty of providing the additional revenue made necessary by the rising costs of government.

Laws written on the statute books during this session created a Delaware river port authority, authorized the construction of a new bridge to span the Delaware, established a state council of civil defense and provided for the reapportionment of the state's representation in congress.

An amendment to the state constitution adopted at the general election of Nov. 6 authorized the county and the city of Philadelphia to consolidate their separate governments. In December the general assembly enacted a law providing the means for effecting a union of the county and city authority.

The completion, in Dec. 1951, of the western extension of the Pennsylvania turnpike provided an all-weather, limited access highway, 327 mi. in length, between the eastern seaboard and the Ohio valley.

The state's chief officers in 1951 were: John S. Fine, governor; C. Lloyd Wood, lieutenant governor; William S. Livengood, Jr., secretary of internal affairs; Weldon B. Heyburn, auditor-general; Charles R. Barber, treasurer; Robert E. Woodside, attorney general; Francis B. Haas, superintendent of public instruction; and James B. Drew, chief justice. Thomas McK. Chidsey, Charles Margiotti and Robert E. Woodside were, successively, attorneys general during the year.

Education.—Statistics for 1949–50, the latest year for which complete figures were available in 1951, showed a net enrolment of 1,558,602 pupils in the public schools of Pennsylvania, including 58,464 in the kindergartens, 940,538 in the elementary division and 559,600 in the secondary schools. There were 843 kindergarten teachers, 30,339 elementary teachers, 24,242 giving instruction in high schools, 1,364 elementary principals, 873 secondary principals, 1,920 supervising officials and 1,561 other professional employees. The total expenditure, including current expense, capital outlay and debt service, was $364,863,003, of which $293,903,936 was for current expenses. School districts supplied 60.7% of these costs from local taxation, while the state government contributed 37.9% and the federal government 1.4% for current operating expenses.

Social Insurance and Assistance, Public Welfare and Related Programs.—During 1951 expenditures by the department of public assistance totalled $125,000,000, including $71,000,000 state funds and $54,000,000 federal funds. The assistance rolls contained an average of 79,000 old-age assistance cases, 38,000 cases receiving aid to dependent children, 24,000 general assistance cases, 15,000 blind pensioners and 9,000 cases receiving aid to the permanently and totally disabled.

Three institutional systems are maintained and operated for the commonwealth of Pennsylvania by the department of welfare.

Eight institutions comprise the state penal and correctional system, for the support of which a biennial appropriation of $15,773,000 was made for 1951–53. For the operation of the state mental hospital system, comprising 21 institutions, an appropriation of $81,250,000 was made for the biennium. An appropriation of $9,750,000 was made for the biennium for the operation of the ten general hospitals comprising the state general hospital system.

Communications.—Of the approximately 100,000 mi. of highways in Pennsylvania in 1951, 41,000 mi. were on the state highway system under the supervision of the department of highways. Included in this state highway total were 675 mi. in the cities of Pennsylvania and 2,179 mi. in the boroughs. As of Dec. 31, 1951, 39,800 mi. were of improved type, leaving 1,200 mi. unimproved. In addition, there were 327 mi. of superhighway operated by the Pennsylvania Turnpike commission.

Banking and Finance.—As of June 30, 1951, there were 351 state banks, including 8 savings banks, with assets of $5,684,770,830.75. These state banks had total deposits of $5,100,163,261.25. In addition, as of Dec. 30, 1950, there were 778 building and loan associations, with assets of $588,133,540.51. As of June 30, 1951, there were 622 national banks located in Pennsylvania, with assets of $7,507,106,000. The deposits of these national banks totalled $6,736,611,000.

The total of appropriations made by the general assembly from the general fund was $892,264,005.06. This amount, however, was at the close

Table I.—*Principal Crops of Pennsylvania*

Crop	1951	1950	Average 1940–49
Corn, bu.	60,766,000	60,218,000	56,275,000
All wheat, bu.	18,832,000	18,986,000	18,440,000
Oats, bu.	32,340,000	27,854,000	25,331,000
Barley, bu.	5,416,000	6,461,000	3,912,000
Rye, bu.	186,000	202,000	545,000
Buckwheat, bu.	944,000	1,121,000	2,260,000
Potatoes, bu. (white)	16,215,000	19,920,000	19,176,000
Tobacco, lb.	55,127,000	55,960,000	52,486,000
All hay, tons	3,530,000	3,361,000	3,542,000
Apples, bu.	8,200,000	6,930,000	7,168,000
Peaches, bu.	2,352,000	2,194,000	2,029,000
Pears, bu.	358,000	359,000	342,000
Cherries, tons	15,200	11,000	7,380
Grapes, tons	17,700	32,900	16,100

Source: U.S. Department of Agriculture.

Table II.—*Principal Industries of Pennsylvania*

Industry	Value of Products 1950	Value of Products 1940
Metals	$8,737,342,400	$2,944,848,400
Textiles	2,282,637,500	795,457,200
Food	2,175,915,900	740,801,600
Chemicals	1,617,475,400	518,062,300
Paper and printing	1,033,760,400	372,074,400
Clay, glass and stone products	544,940,600	500,244,200
Leather	518,641,100	174,963,900
Tobacco products	140,780,600	92,272,300
Lumber and its remanufacture	323,311,900	79,733,100

of 1951 still subject to reduction by the governor in his approval of appropriation measures. Appropriations and allocations from the motor licence fund for the biennium ending May 31, 1953, were $363,867,314. The estimated receipts from the motor licence fund were $362,643,400. The gross debt Sept. 30, 1951, was $517,000,000, which cash and securities in the sinking fund reduced to a net of $502,454,876.

Agriculture.—The total gross farm income for 1950 was $738,716,000, including $732,434,000 in cash receipts from farm marketing and $6,282,000 in federal government payments.

Manufacturing.—In 1950 there were 20,001 manufacturing establishments in the state, employing 1,222,948 persons to whom $5,142,968,500 was paid in wages and salaries. The capital invested was $6,221,707,200 and the value of the goods produced was $19,484,852,500. Included as part of the latter amount, value added by manufacture was $8,193,667,700. The value of the product of the principal industries for 1940 and 1950 is shown in Table II. (J. S. Fe.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951. Pennsylvania ranks third among the states in value of its mineral production, mainly because of the heavy output of bituminous and anthracite coal.

Table III.—*Mineral Production of Pennsylvania*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Cement (bbl.)	39,450,611	$94,604,230	36,905,254	$84,839,175
Clays	3,300,859	8,478,579	3,154,680	7,527,012
Coal, anthracite	44,076,703	392,398,006	42,701,724	358,008,451
Coal, bituminous	105,870,121	529,461,785	89,214,603	446,774,181
Cobalt (lb.)	660,025	?	673,773	†
Coke*	21,526,189	269,221,851	17,667,492	216,205,896
Ferroalloys*	586,805	128,258,604	464,564	84,952,984
Iron ore	1,250,299	11,626,216	1,067,093	9,324,197
Iron, pig*	18,300,347	788,496,589	14,893,515	641,033,455
Lime	1,086,451	12,663,074	911,065	10,190,679
Naturalgas(thousandcu.ft.)	88,000,000	22,440,000	84,739,000	21,727,000
Natural gasoline (gal.)	9,786,000	696,000	9,561,000	683,000
Petroleum (bbl.)	11,812,000	45,120,000	11,374,000	40,600,000
Sand and gravel	13,858,154	17,172,215	11,698,939	14,398,577
Slate	285,120	5,546,014	228,170	4,578,644
Stone	25,493,230	42,205,691	21,226,480	34,855,664
Sulphuric acid*	308,718	4,471,582	229,819	3,506,308
Other minerals		?		2,463,706
Total		?		$1,035,970,286

*Values for processed materials are not included in the totals.
†Value included with other minerals.

Pension, Old-Age: *see* Social Security. *See* also under various states.

Pensions, Army and Navy: *see* Veterans Administration (U.S.).

Performing Right Societies: *see* Societies and Associations, U.S.: *American Society of Composers, Authors and Publishers.*

Perón, Juan Domingo

(1895–), president of Argentina, was born on Oct. 8 near Lobos, south of Buenos Aires, and was educated in military schools. He became one of the leaders of the G.O.U. (Grupo de Oficiales Unidos), a nationalist clique of young army officers who in 1943 helped overthrow the regime of Pres. Ramón S. Castillo. Perón became war minister and later vice-president under Pres. Edelmiro Farrell, and in 1946 was himself elected president on the Labour party ticket. From 1948 on, progressive political steps were undertaken by Perón's followers to permit him to succeed himself, though this required adoption of a new constitution, since the old specifically forbade it. The constitutional change was accomplished in 1949, and in July of that year Perón was renominated.

A feature of his regime in 1951 was the stifling of the independent newspaper, *La Prensa.* In February, gangs of thugs attacked employees who attempted to enter the plant and police eventually sided with the thugs, forced the employees out of the plant and seized it for the government. U.S. Asst. Secy. of State Edward G. Miller, Jr., told Perón on March 4 that his policies had so antagonized the U.S. public that it was difficult for the U.S. to co-operate with Argentina. On Aug. 22 Perón "agreed" to run for re-election as president. A brief and abortive revolt Sept. 28 was attributed by Perón to disgruntled generals, backed by foreign money. On Nov. 13 Perón was re-elected by a 2-to-1 majority.

(*See* also Argentina.)

Perón, María Eva Duarte de

(1919–), wife of the president of Argentina, was born on May 7 in Los Toldos, Buenos Aires province. After attending high school for two years she went to Buenos Aires, and became a successful actress in radio and motion pictures. She met Juan Domingo Perón, then an undersecretary in the war ministry, in 1943, and helped organize a radio workers' union under his sponsorship. They were married in Oct. 1945 and about four months later Perón was elected president.

Señora Perón thereafter became one of the most powerful figures in Argentina. She founded in 1947 the María Eva Duarte de Perón Welfare foundation, through which was administered a program of social welfare and personal largesse.

On Feb. 23, 1951, she led a delegation that asked Perón to run for re-election, a fact made possible through the revision of the constitution. In April the International Astronomical commission confirmed the naming after her of a small planet, Evita, discovered in Aug. 1948. She told a group of Perón's supporters in May that "He is God for us—our sun, our air, our water, our life."

On Aug. 22 she accepted the nomination to run for vice-president with her husband, but several days later announced her decision to decline the nomination. Opposition was said to have come from the army.

Persia: *see* Iran.

Peru.

A republic situated on the west coast of South America and bounded on the north by Ecuador and Colombia, on the east by Brazil and Bolivia, on the south by Chile and on the west by the Pacific ocean, Peru has an area of 482,258 sq.mi. The population, estimated at 8,405,000 in 1950, is composed approximately of 52% "white" and mestizo and 46% Indian; there are also some Negro and Asiatic elements to the extent of about 2%. Lima, including its suburbs, has a population of about 1,000,000. It is the capital. The population estimates for the other major cities are: Callao 100,000; Arequipa 85,000; Cuzco 45,000; Trujillo 40,000; Iquitos 38,000; Chiclayo 35,000; Huancayo 35,000; Ica 25,000; and Piura 22,000.

History.—The administration of Pres. Manuel Odría, elected July 2, 1950, continued its reform program during 1951 and made progress toward economic and fiscal restoration and development. At the end of 1950, and for the first time since 1946, Peru achieved an active balance of international trade. The 1951 budget made provision for one quarter of the $5,800,000 owing to United States exporters, which was expected to be liquidated entirely by 1954. The national budget was in balance. Exchange stability continued and the net exchange position of the Central Reserve bank improved. Peru became a contracting party to the General Agreement on Tariffs and Trade in October 1951. In November a joint statement by the Foreign Bondholders Protective Council, Inc., of the United States, and the Peruvian government was issued announcing approval by the council of a debt readjustment plan offered by Peru. Upon completion of the offer by necessary legislative and other formal measures the council would undertake to recommend the plan to holders of Peru's outstanding dollar bonds. The Peruvian government was negotiating with the Council of Foreign Bondholders (London) with a view to reaching a similar settlement.

The Government announced a vast new road-building plan and an equally important irrigation plan. The first included a low-altitude highway (7,000 ft.) across the Andes which would open the fertile eastern slopes to development.

(S. de la R.)

Education.—In 1951 there were 9,705 public primary schools with 20,429 teachers and 872,669 pupils and 628 private schools with 2,650 teachers and 85,429 pupils. The 98 public secondary schools had 2,056 teachers and 41,209 students. There were also 148 private secondary schools, some of which were conducted by religious orders, with 1,736 teachers and 21,023 students. University education was available at four public universities—Lima, Arequipa, Trujillo and Cuzco—and the Catholic university of Lima. Appropriations for education in 1951 comprised 15.1% of estimated governmental expenditures.

Finance.—The monetary unit is the sol, valued at 6.45 cents U.S. currency, free rate, on Nov. 17, 1951. The 1951 budget estimated ordinary expenditure at 1,640,943,950 soles and extraordinary expenditure at 297,740,000 soles. Actual revenue in 1950 was 1,728,008,000 soles; expenditure, 1,681,535,000 soles. The direct public debt on Dec. 31, 1950, totalled 1,652,483,311 soles, made up as follows: external dollar and sterling debt (including accrued interest) 402,974,597 soles; internal consolidated debt 546,129,560 soles; internal floating and short-term debt 703,379,154 soles. On Sept. 30, 1951, currency in circulation totalled 1,056,000,000 soles; demand deposits 1,727,000,000 soles; gold reserves $45,700,000; foreign exchange reserves $24,900,000. The cost-of-living index stood at 477 in June 1951 (1937=100).

Trade and Communications.—Exports in 1950 totalled 2,886,761,056 soles; imports, 2,877,286,738 soles. Leading exports in 1950 were cotton (35%), sugar (15%), petroleum and products (13%), lead (7%) and zinc (5%); leading imports, machinery and vehicles (33%), cereals (13%), metals and manufactures (10%), chemicals and products (8%) and textiles (6%). The chief customers were the U.S. (26%), the United Kingdom (17%), Chile (15%), Belgium (8%), and Argentina (4%); leading suppliers, the U.S. (53%), the United Kingdom (17%), Argentina (6%), Australia (3%) and Germany (3%).

Railways (1947) totalled 2,612 mi., of which 511 mi. were state-owned. Roads used by motor traffic on Dec. 31, 1949, totalled 19,468 mi., of which 7,903 mi. were hard-surfaced. Motor vehicles (1949) included 25,148 automobiles, 17,687 trucks and 2,511 buses. According to *Lloyd's Register of Shipping*, the merchant marine had 41 steamers and motorships (100 tons and over) aggregating 86,667 gross tons on June 30, 1950.

Agriculture.—Production figures in 1950 included cotton (ginned) 81,500 short tons; centrifugal sugar 462,000 tons; and rice (milled) 130,000 tons. In 1950, 81,000 short tons of cotton and 320,000 tons of sugar and derivatives were exported. Livestock estimates (1949–50) showed 18,518,000 sheep, 960,000 pigs, 1,092,000 goats, 2,883,000 cattle and (1948) 2,449,746 alpacas and llamas. In 1950, 3,400 short tons of sheep wool and 4,300 tons of alpaca wool were exported.

Mineral Production.—Production of the principal minerals in 1950 was as follows: copper (smelter) 22,409 short tons; gold 125,388 fine oz.; silver 31,469,886 fine oz.; lead (ore) 67,251 tons; zinc (ore) 81,364 tons. Crude petroleum production totalled 15,017,320 bbl.

FILMS OF 1951.—*Lima—Capital of Peru, Peruvian Archeology, Republic of Peru* (Pan American Union, Motion Picture Service).

(J. W. Mw.)

Petroleum.

Nationalization of the Iranian oil industry in 1951 had political overtones of undetermined significance to the peace of the world. After fruitless negotiations, the Anglo-Iranian Oil company ended operations at Abadan in July and thus withdrew from the world market a daily production of 700,000 bbl. of oil and the finished products of about 500,000 bbl. Yet through the co-operation of the oil industries of other countries this deficiency had been made up by the end of 1951.

Total world production of petroleum was estimated at 3,986,500,000 bbl. in 1951, a new high record, compared with the record-breaking total of 3,796,191,000 bbl. in 1950. The United States, with roughly one-third of the world's oil resources, accounted for 56%. Estimated U.S. production of 2,245,000,000 bbl., compared with 1,971,845,000 bbl. in 1950, was the highest in history.

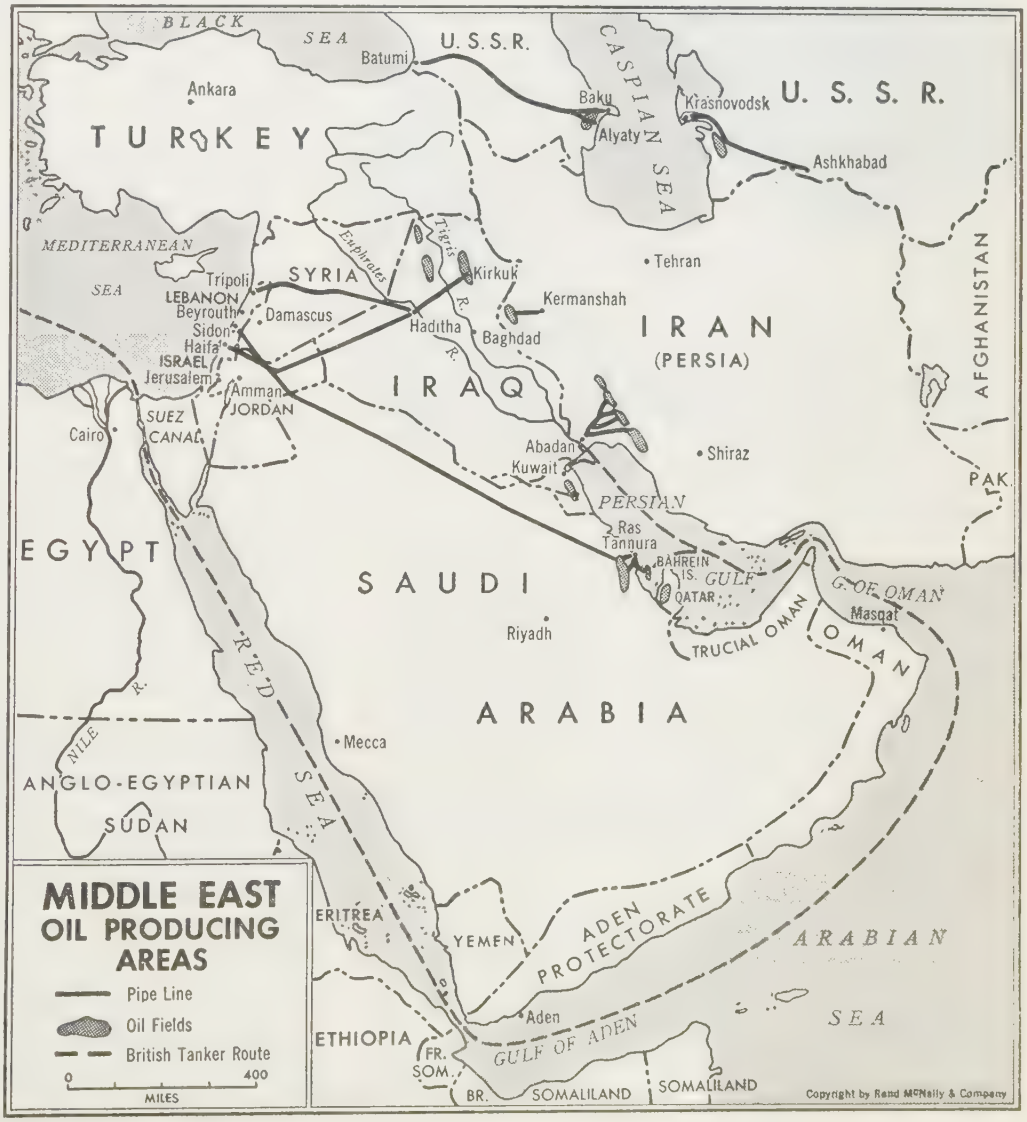
Table I.—*World Production of Crude Oil*

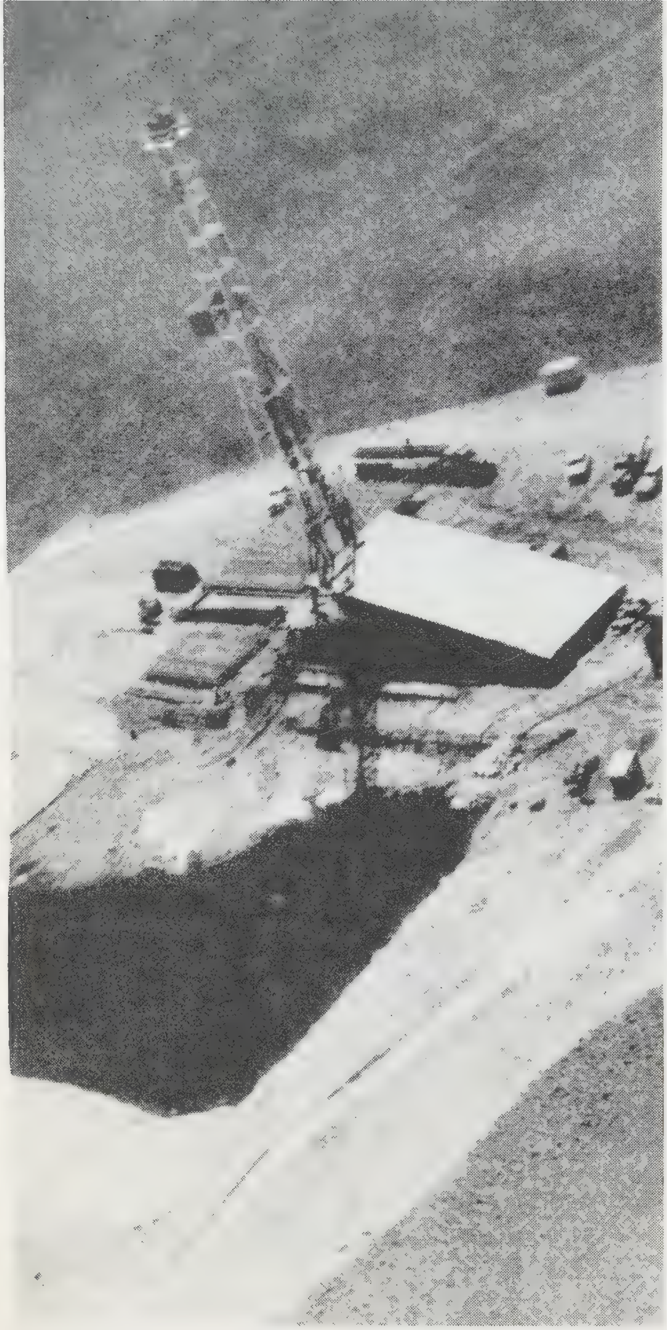
(In thousands of barrels)

Year	United States	Per cent	Rest of world	Per cent	Total world
1939	1,264,962	61	821,198	39	2,086,160
1940	1,353,214	63	796,607	37	2,149,821
1941	1,402,228	63	818,429	37	2,220,657
1942	1,386,645	66	706,455	34	2,093,100
1943	1,505,613	67	751,012	33	2,256,625
1944	1,677,904	65	914,610	35	2,592,514
1945	1,713,655	66	881,304	34	2,594,959
1946	1,733,939	63	1,011,728	37	2,745,667
1947	1,856,987	61	1,164 681	39	3,021,668
1948	2,020,185	59	1,409,001	41	3,429,186
1949	1,841,940	54	1,841,940	46	3,397,691
1950	1,971,845	52	1,824,346	48	3,796,191
1951*	2,245,000	56	1,741,500	44	3,982,500

*Estimated.

Source: U.S. Bureau of Mines; American Petroleum Institute.





NEW OIL WELL in northeastern Montana which indicated the possibility of a rich new oil source in the Williston basin of that state and North Dakota. The first strike in North Dakota was made in April 1951, the one in Montana in July

Virtually every oil-producing nation showed production increases for the year, except Iran. Venezuela, second to the U.S., had an estimated production of 710,000,000 bbl. compared with 546,783,000 bbl. in 1950, and the middle east itself helped make up the Iranian deficit, with large output increases in Saudi Arabia, Kuwait and Iraq. Despite the loss of Iran, the area was producing about 1,950,000 bbl. daily at the end of the year, with Saudi Arabia approaching a peak of 900,000 bbl. and Kuwait 700,000 bbl. The relatively small petroleum output of another international trouble spot, Egypt, was not affected by the Suez canal issue.

The increased production in the United States, Venezuela and the middle east directly reflected the steps taken to fill the gap made by the loss of Iranian oil, for the bulk of the deficit was supplied from these areas. Profiting by the debacle in Iran, foreign owners revised their concessions in Saudi Arabia, Kuwait and Iraq so that the governments of these countries would receive 50–50 participation of the profits. Previously they had received only royalty payments of the amount produced.

Table II.—*U.S. Production of Motor Fuel*

(In thousands of barrels of 42 gal.)

Year	Quantity	Year	Quantity
1939	611,043	1945	798,194
1940	616,695	1946	776,583
1941	701,294	1947	839,998
1942	608,900	1948	921,923
1943	608,180	1949	962,417
1944	739,340	1950	1,024,448
		1951*	1,132,400

*Estimated.
Source: U.S. Bureau of Mines.

Table III.—*U.S. Production of Gas Oil and Fuel Oil*

(In thousands of barrels)

Year	Gas oil and distillates	Residual fuel oil	Total fuel oil
1939	161,746	305,944	467,690
1940	183,304	316,221	499,525
1941	189,177	342,367	531,544
1942	196,714	358,901	555,615
1943	211,516	417,306	628,822
1944	239,152	461,455	700,607
1945	249,224	469,492	718,716
1946	287,896	431,364	719,260
1947	312,173	447,795	759,968
1948	380,700	479,988	860,688
1949	340,825	424,909	765,734
1950	398,912	425,217	824,129
1951*	475,300	468,400	943,700

*Estimated.
Source: U.S. Bureau of Mines.

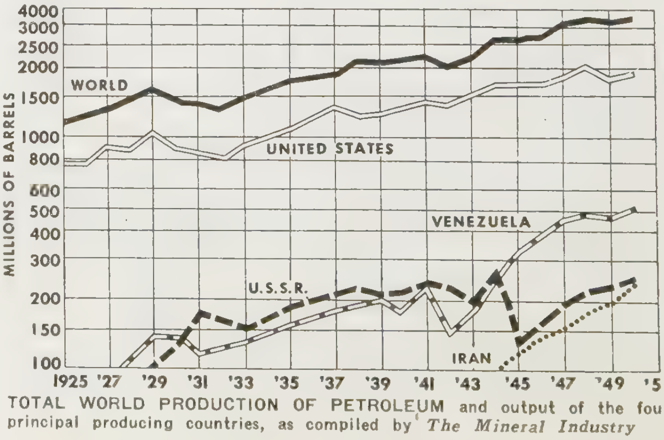
The political unrest in the middle east, however, made uncertain the future availability to the world of what had been determined to be the world's greatest reservoirs of oil. At the end of 1951, middle east reserves were estimated in excess of 50,000,000,000 bbl., almost double those of the United States.

Nor was the ever-present threat to middle east production confined to the countries of oil origin. To secure this oil for oil-starved Europe at reasonable cost, pipe lines had been built to Mediterranean terminals. Lebanon threatened to levy additional taxes against pipe lines from Saudi Arabia and Iraq, terminating at Sidon and Tripoli. And the Suez trouble brought into focus the fact that about 1,400,000 bbl. daily moved through the canal from the Persian gulf.

Although the withdrawal of Iranian oil was a contributory cause to increased U.S. production and refinery operations, the primary reason was enlarged civilian and national defense demands. United States imports from the middle east decreased because Saudi Arabian production was diverted to European markets; nevertheless, there was little change in total imports compared with 1950, these running at 309,000,000 bbl. On the other hand, exports increased, being estimated at 156,000,000 bbl. compared with 110,900,000 bbl. in 1950.

The outstanding discovery of 1951 in the U.S. was the Williston basin in North Dakota following more than 20 years of exploratory effort. Another was the Richey area in Montana.

Frank M. Porter, president of the American Petroleum institute, estimated capital expenditures of the U.S. industry in 1951 at about $3,000,000,000, an increase of nearly 22% over 1950,



TOTAL WORLD PRODUCTION OF PETROLEUM and output of the four principal producing countries, as compiled by *The Mineral Industry* and its total spending since the end of World War II at approximately $15,000,000,000. For the ninth consecutive year, domestic demand for petroleum products increased; total demand in 1951 was estimated at 2,568,000,000 bbl. United States refineries processed 2,372,000,000 bbl. in 1951, a new high record, and refinery capacity reached an all-time high of 7,230,000 bbl. daily, compared with 6,963,000 bbl. at the end of 1950.

Motor fuel production surpassed the 1,000,000,000-bbl. mark for the second time in history. The estimated total of 1,132,400,000 bbl. was an increase of 10.5% over the peak of 1,024,448,000 bbl. in 1950.

Production of gas oil and distillates showed a 19% jump in 1951, rising to an estimated 475,300,000 bbl. Residual fuel oil production went up from 425,217,000 bbl. in 1950 to an estimated 468,400,000 bbl. in 1951. Total production of fuel oil thus exceeded 943,700,000 bbl., a new record. The 1951 total represented an increase of about 119,571,000 bbl. over 1950 and about 83,012,000 bbl. over the previous peak in 1948.

These figures reflected the increase in home heating by oil, the rise in industrial use and the continuing dieselization of the nation's railroads. The number of homes with oil burners rose to an estimated 5,700,000 in 1951. During the first nine months of 1951, all but 16 of the 1,856 new locomotives put into service by U.S. railroads were diesel electrics. (*See* also BACTERIOLOGY; CHEMISTRY.)

FILMS OF 1951.—*Oil Today, Power Tomorrow* (Frith Films); *Struggle for Oil* (British Information Services). (L. M. F.)

Philadelphia. According to the 1950 census, the population of Philadelphia in that year was 2,064,794, while that of its eight-county standard metropolitan area was 3,660,676—representing increases of 6.9% and 14.4% respectively since 1940. The city thus retained its rank as third largest in the United States, while the metropolitan area ranked fourth. Although the number of new dwelling units constructed throughout the metropolitan area during the first five months of 1951 (9,150) was 37% less than for the comparable period of 1950, a total of approximately 43,000 had been made available since the beginning of 1950. About one-third of the single-family structures and a much larger portion of the multifamily structures were built within the city. Commercial construction was characterized by the expansion and modernization of many existing establishments and the introduction of several new ones —particularly a large steel mill in the Moorestown area.

The administration of Philadelphia was Republican; the mayor, Bernard Samuel. A new city charter was adopted, which was to become effective in Jan. 1952.

In 1951 Philadelphia made noteworthy progress on its comprehensive program of public improvements. Projects finished, under construction or started represented expenditures totalling $241,000,000. The $10,000,000 northeast sewage treatment works was placed in service. Improvement of water filtration plants, pumping stations and reservoirs continued. Water mains and sewers were extended and streets paved to serve new homes. The Walnut lane bridge, largest prestressed concrete bridge in the United States, was opened to traffic. Work continued on extension of the Market street subway, including a subway-surface car tunnel, and on equipping the Locust street subway. At the International airport a new terminal building and related construction was about 50% completed. A $7,000,000 pier of the most modern design was added to the port facilities.

The widening of Vine street, a $6,000,000 joint project of the city and the state to provide an adequate approach to the Philadelphia-Camden bridge, was finished. Another joint project, the $13,500,000 Penrose avenue bridge and approaches, was scheduled to open late in the year. Plans for the $80,000,000 Schuylkill expressway were under contract. Nearly all the buildings had been razed to make way for construction of Independence mall.

A new youth study centre for detention and study of juvenile delinquents was scheduled to open before the end of the year. The 720-bed Charles K. Mills neurological building was being equipped for service, and other improvements to hospitals and health centres were under way.

Construction was started in 1951 on two low-rent housing projects and plans for others were in preparation. Philadelphia was the first city in the United States to execute a loan and grant contract for an urban redevelopment project. Redevelopment passed into the construction stage. (B. SA.)

Philanthropy: *see* DONATIONS AND BEQUESTS.

Philately. The long awaited, and often postponed, set of the United Nations stamps finally made its appearance in the final days of 1951. It was valid at only one post office—the United Nations office in the United Nations building. For this limited service there were issued no less than 11 values of ordinary postage and 4 air mail of United Nations stamps—1, 1½, 2, 3, 5, 6, 10, 15, 25, 50 cents and $1 ordinary mail, and 6, 10, 15 and 25 cents air mail. Most official mail, however, was franked.

New Issues.—A change in postal rates was responsible for two new United States stamps—the 2-cent postal card and the 20-cent special delivery stamp. The latter was a reissue of the 20-cent black of 1925, but in a rotary press version (perf. 11 x 10½) instead of a flat-plate type (perf. 11).

The commemorative stamps issued by the U.S. during 1951 were six in number, all three-cent values and all of the special delivery format. They were the Confederate veterans' last encampment issue (grey) on May 31; the centenary of the settlement of Nevada (sage green) on July 14; the 250th anniversary of the landing of Antoine de la Mothe, sieur de Cadillac, at Detroit (blue) on July 24; the 75th anniversary of the statehood of Colorado (violet), Aug. 1; the 75th anniversary of the American Chemical society (violet brown), Sept. 4; and the 175th anniversary of the battle of Brooklyn on Dec. 10.

The Festival of Britain brought two stamps, a two and one-half-penny and a four-pence value. They were withdrawn on the day the exhibition closed. Canada issued a series honouring its premiers. The Windward Islands overprinted their individual stamps for the new constitution. New Zealand issued, as usual, two stamps identical in design but differing in colour, for the health camps. Fiji issued two health stamps. These bore a slight extra charge for the maintenance of the camps.

The Republic of Korea (south Korea) issued a set of 32 stamps honouring the 16 nations that were helping that country. The stamps were all of 500-won value, and showed the flag of the country and Korea (green) or the flag of the country and that of the U.N. (blue).

Sweden issued new stamps for the new king. Finland issued stamps calling attention to the Olympic games, to be held at Helsinki in 1952.

Exhibitions.—The outstanding exhibition for the western hemisphere was held in Toronto, Can. The centenary of the 1851 issue in the United States was marked by a show held at Philadelphia, Pa.

BIBLIOGRAPHY.—The various 1952 editions of the standard catalogues appeared in the fall of 1951. Two German catalogues—Senf and Michel—combined and planned to issue a new catalogue every four years and a supplement each year, to mark the new issues. (M. HA.)

Philippines, Republic of the. This republic, situated in the western Pacific east of Indochina, comprises an archipelago composed of almost

CAPTIVE HUK LEADERS aboard a cruising LCT, where they were kept by the Philippine government in 1951 to block rescue attempts by their followers

7,100 islands, totalling 115,600 sq.mi. Pop.: (1948 census) 19,234,182; (1951 est.) 21,120,000. Manila (pop. [1948] *c.* 1,300,000) is the seat of government, although Quezon City, a suburb of Manila, was designated the official capital in 1948. Other cities are Cebu (167,000) and Iloilo (110,000). About 10,000 U.S. citizens and 12,000 occidentals from other countries live in the islands. The Chinese population exceeds 200,000. Most Filipinos are Catholic in religion (Roman Catholic or native Aglipayan Catholic). In the southern islands live approximately 800,000 Mohammedans, while about 425,000 Protestants and almost 700,000 pagans are widely scattered. President in 1951: Elpidio Quirino.

History.—Changes in financial policy made during 1950 improved the position of the government and the general economy sufficiently that the crisis conditions of 1949 and 1950 receded slightly during 1951 and lessened the economic tensions within the country. Reorganization of executive branches of the government reduced their number and cost. The reforms were not sufficient, in themselves, permanently to stabilize conditions, but were the beginning of a long-range program suggested by the Bell Economic Survey mission of 1950. Careful trade controls, the improved status of export agriculture and continuing reform in government operation all combined during 1951 to promote general economic improvement.

Domestic political problems continued to harass the islands during 1951. The Communist Hukbalahap carried out almost continuous raids on towns and cities in many parts of the main island of Luzon, looting, burning and killing. Continued reorganization of the Philippine army, under a new secretary of defense, Ramón Magsaysay, placed all military forces upon field status. The adoption of aggressive guerrilla tactics and a positive program promising land to dissident elements finally began to reduce the strength and striking power of the Hukbalahap, but by the end of the year only a start had been made in the elimination of the organized rebellious elements. Total Communist forces numbered about 16,000 toward the end of the year.

The year 1951 witnessed an off-year election in which nine senators, all the provincial governors and almost all municipal mayors were elected. In early violent electioneering numerous deaths and personal injuries resulted from fights between opposition groups and the private militant gangs of strong political bosses who attempted to intimidate the populace in an effort to maintain the power of the Liberal party. Prior to the election, President Quirino ordered the Philippine army to maintain the peace and ensure an honest election. The efficient carrying out of this order by Defense Secretary Magsaysay almost split up the Liberal party, but the election was peaceful and relatively honest. The honesty was indicated by the result that all nine senatorial seats, a majority of the governorships and most of the mayoralties were won by Nacionalista party candidates. The election constituted a severe defeat for the Liberal party, and endangered the support of President Quirino in the Philippine congress.

Mount Hibok-Hibok, a 5,620-ft. volcano dominating the 96-sq.mi. island of Camiguin off the north coast of Mindanao in the southern Philippines, without warning erupted repeatedly for several days in early December, killing an estimated 2,000 people, destroying several towns and many farms.

One of the recommendations of the Bell Economic Survey mission of 1950 was that the Philippine government receive financial aid from the United States during a five-year period under an arrangement with the Economic Cooperation administration. This aid was to be conditional upon the passage of a minimum wage law and upon the reorganization of the Philippine tax system to provide a stipulated total revenue. The Philippine congress reluctantly provided final tax legislation during March 1951 which approximately doubled government revenues in the following fiscal year. It also passed a minimum wage law to go into effect in July 1951 which legally guaranteed agricultural labour 87 cents per day and industrial labour $2 per day. The law contained clauses progressively increasing minimum wages during 1952 and 1953.

With the legislative requirements provided, ECA aid began to be made available to the Philippines during the latter half of the year. An Export-Import Bank of Washington technical advisory group began to work with the Philippine government, planning toward important capital investments and productive agricultural and industrial enterprises. The program was to extend over five years, with total aid amounting to $150,000,000.

Production and Trade.—With continued strong emphasis upon agricultural rehabilitation, the over-all acreage of food crops was a little greater and the yield a good deal higher than in any previous postwar year. Of commercial export crops, coconut, sugar cane and manila hemp considerably increased their yields and their export totals, though the yields of tobacco and pineapple dropped slightly. High world market prices for coconut and manila hemp products, and the larger sugar export, were instrumental in promoting an increase in the national income.

An increase in fishing, manufacturing and mining supported the increased productivity of agriculture and, for the first time since the end of World War II, the physical index of production exceeded that of prewar years. The 1951 index stood at approximately 103% of the 1937 base level, though when the added population is taken into account the increase in production still did not equal the prewar per capita level.

The increased volume of agricultural export during the early part of the year gave the Philippines a significantly favourable balance of trade and built up the international dollar reserve balance. With this build-up in prospect the tight import controls established in 1949 were loosened during 1951 and in the latter months of the year an increased inflow of many types of goods took place. By monthly averages this produced an unfavourable balance of trade during the late months of the year, but the annual balance was expected to be close, so that the international economic position of the islands was no longer declining.

The cost-of-living index for Manila rose during the first half of the year to a figure of 367.8 in June, as against a 1941 base of 100. This was the highest point level reached since Sept. 1948, but it declined slightly during the closing months of the year to 358.0 for October, as a result of lightened import controls and the greater availability of essential consumer goods. (J. E. Sp.)

Philosophy.

Philosophy was influenced considerably in 1951 by social circumstances and the course of political events. The world's tensions and anxiety were clearly reflected in philosophy's increased sense of responsibility to both the individual and society. There was a genuine concern for the cultivation and preservation of moral and spiritual values and an interest in contributing to the foundations of a more stable social order. Efforts were directed toward improved intercultural understanding, a more adequate moral and political theory and more meaningful interpretations of personal experience. These practical interests, however, did not lessen the analytical activity of philosophy in highly specialized problems, or prevent the appearance of theoretical and speculative works.

There was in 1951 an increase in the exchange of scholars between western nations and between the orient and occident. Many western philosophers travelled, studied and lectured in the orient, particularly India, southeast Asia and Japan, while a considerable number of oriental philosophers, especially Indian and Chinese, were lecturing before western audiences or studying in western schools. Indicative of the interest in the philosophy of culture and intercultural relations was Ralph Tyler Flewelling's *Conflict and Conciliation of Cultures,* a search for world understanding and unity on the ground of the intrinsic worth of personality. A volume of essays on Indian, Chinese and western philosophy by 21 scholars entitled *Rādhākrishnan: Comparative Studies in Philosophy in Honour of His Sixtieth Birthday* was published in honour of the Hindu philosopher-statesman Sir Sarvepalli Radhakrishnan.

Other important contributions in this field were *The Philosophy of S. Rādhākrishnan* in the "Library of Living Philosophers," edited by P. A. Schilpp, and *Essays in East-West Philosophy,* edited by C. A. Moore, a report of the second East-West Philosophers' conference held at the University of Hawaii, Honolulu, in 1949. *Philosophy East and West,* a new journal of oriental and comparative thought, made its appearance in April at the University of Hawaii.

The most significant work in political philosophy published during 1951 was George Santayana's *Dominations and Powers,* the matured insight and reflection on human affairs of a philosopher who has held himself aloof from the world he appraises. *The Human Community* of Baker Brownell was a study in the structure and values of community living and the problem of its disintegration in modern society. Lewis Mumford's *The Conduct of Life* expressed a philosophy of hope in the midst of cultural crisis. Bertrand Russell's *The Impact of Science on Society* was an entertaining and provocative affirmation of science and its cultural implications.

In a world increasingly oriented in terms of science, the serious age-old question whether a science of values is possible was debated. Stephen E. Toulmin's *Examination of the Place of Reason in Ethics* contributed to the analysis of the moral problem.

During 1951 philosophical scholarship continued its research in the history of ideas. Although published in 1950, of wide influence was *The Problem of Knowledge,* the fourth volume of the monumental history of philosophy by Ernst Cassirer, an impressive study of a century of philosophic thought from the death of Hegel to 1932.

Analytical and scientific philosophy, with attention directed toward language, logic, methodology and meaning, gave evidences of increasing maturity. *Philosophical Analysis,* a volume of essays by British and American writers edited by Max Black, presented significant examples of logical analysis. Rudolf Carnap's important *Logical Foundations of Probability* developed a logical system of probability and a theory of induction. The logical writings of the U.S. philosopher Josiah Royce were published under the title *Logical Essays,* edited by Daniel S. Robinson. Hans Reichenbach presented the case for scientific philosophy as against the traditional speculative philosophy in a historical and analytical work *The Rise of Scientific Philosophy. Structure, Method and Meaning,* a collection of essays in honour of the logician Henry M. Sheffer edited by Paul Henle and others, *Knowledge and Perception* by H. A. Prichard and *The Structure of Appearance* by Nelson Goodman were important contributions to the analysis of knowledge and meaning. The Institute for the Unity of Science, which held its first national conference in 1951, began a series of publications devoted to the problem of knowledge. The first issue was entitled *Contributions to the Analysis and Synthesis of Knowledge.* The sixth edition of the *Vocabulaire technique et critique de la philosophie* was published in France under the editorship of André Lalande.

Positivistic philosophy by 1951 was showing signs of moderation, but there was no decrease in its vigorous opposition to metaphysics. Richard von Mises' *Positivism* and a monograph by J. Jørgensen, *The Development of Logical Empiricism,* were published during the year. Metaphysics, however, enjoyed a minor rebirth and there were many evidences that speculative philosophy was not dead. The Carus lectures of C. J. Ducasse, *Nature, Mind and Death,* was regarded as one of the most important publications of the year. W. D. Oliver's *Theory of Order* contributed to the analysis of knowledge and metaphysics. *Cosmology* by E. Finlay Freundlich indicated the trend of scientifically oriented cosmology.

Existentialism with a concern for the individual, the tragic and the nonrational, continued to express itself primarily in nonacademic philosophy. *Faith and Reality,* volume 2 of *The Mystery of Being,* the Gifford lectures of the French philosopher Gabriel Marcel, was its major literary product. Marcel's problem was whether anything of absolute rather than relative importance is at stake in the life of the individual.

The most significant publication in religious thought for the year was the first volume of Paul Tillich's *Systematic Theology.*

The general vitality of academic philosophy was indicated by an increase in the number of formally organized philosophical associations, some with specialized, others with general, interests. In the colleges and universities, philosophy continued to play an important role as the core of many general education programs that were introduced to ensure a liberal education in the presence of increased academic and technological specialization. Several new philosophical journals were already playing an important role in the dissemination of ideas, including the *Philosophical Quarterly* and the *British Journal for the Philosophy of Science* in England, and *Philosophical Studies* in the United States.

In the summer of 1951 the United Nations Educational, Scientific and Cultural organization addressed an "Enquiry into the Teaching of Philosophy" to the national commissions of its co-operating countries to determine the influence of philosophy on the individual and society. The study was in the interest of world peace and human rights.

FILMS OF 1951.—*Right or Wrong? (Making Moral Decisions)* (Coronet Films). (S. M. Mc.)

Phosphates: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Photography.

The outstanding photographic event of 1951 in Europe was the world's largest photographic exhibition, the Photo-Kina fair at Cologne, Ger. In 500,000 sq.ft. of exhibit space, 340 exhibiting German firms and 14 other countries were represented. More than 100,000 paid for admissions. Some of the new products shown included the Leitz professional 16-mm. projector equipped with a 20-v., 20-amp. projection lamp and mirror optical system for 2 x 2-in. slide projection. The increasing popularity of the 35-mm. camera was emphasized by the many new and improved cameras in this miniature size. The former Kine Exakta was redesigned and shown as the Exakta Varex, with a simplified model called the Exa. The German Ucaflex was a new eye-level reflex camera in the 35-mm. film size. Improved Robot cameras and the new Kodak Retina models were shown. In addition to the Leica, Contax and Agfa Karomat cameras, there were many new inexpensive 35-mm. cameras such as the Radix, Balda, Diax and Perlux. A new company, the L. King company of Bad-Liebenzell, introduced its 35-mm. Regula camera of conservative design and reasonable price.

There were many new lenses, camera accessories and items of darkroom equipment. The Veigel-Exact enlarger, covering all-sized films from 35 mm. to $2\frac{1}{4}$ x $3\frac{1}{4}$, had a novel feature in its coupled range finder used for focusing. Voigtlaender & Son introduced its new Ultron f/2 six-element lens, which used new kinds of glass and was based on an entirely new computation. There was also the new Voigtlaender Ultragon lens for the Prominent camera with a focal length of 24 mm. and an angle of view of 95°.

Flash Photography.—Great strides were made during the year in the use of flash lamps and the electronic repeating flash equipment. This was particularly noticeable in Europe, where the use of flash lamps formerly had been almost unknown in the field of amateur photography. Many of the new cameras shown at the Cologne fair had built-in flash synchronizers. The new Compur-Synchro and Prontor-S shutters had two synchronizer settings for use with the 20-millisecond delay flash lamps and the 5-millisecond delay electronic flash tubes. The new Contax and Leica cameras were equipped with built-in synchronizers. The German Osram company was making flash lamps in various sizes with the bayonet and standard screw bases. This firm also made most of the electronic flash tubes for the new German electronic flash equipment in the portable and studio sizes.

In the United States the most spectacular increase in the use of flash lamps was shown in a survey conducted by Sylvania Electric Products, Inc. In 1937 only 6,568,000 flash lamps were sold. By 1940 this figure rose to 17,963,000. Photographers used 36,447,000 flash lamps in 1945, 78,230,000 in 1947, 155,825,000 in 1949, 232,806,000 in 1950 and more than 400,000,000 in 1951.

An important advance in flash photography was the introduction of the battery-capacitor flash in small compact form by the Kalart company at the beginning of 1951. This firm had originated the B-C system in 1935, but at that time the equipment was too bulky for general use because of the larger batteries. With the invention by the National Carbon company of the tiny Mini-Max batteries for hearing aids and other uses and the miniature capacitor for portable radios, it became possible to produce a miniature power pack for flash-lamp firing.

In the B-C system, energy from the battery is collected and stored by the capacitor until the instant of firing—then is released in a strong rapid surge. The usual battery systems consist of one or more $1\frac{1}{2}$-v. dry cells, while the B-C system uses the miniature $22\frac{1}{2}$-v. battery which builds up a powerful charge in the capacitor before each flash firing. This extra power assures positive firing of all lamps up to the limit of the unit, which is as much as six or seven flash lamps on extensions. The operation is not seriously affected by weak batteries or temperature changes.

The Eastman Kodak company announced the Kodak Ektalux Flasholder and system of flash photography, using the B-C system, in Oct. 1951. This flasholder is a high-energy, battery-capacitor unit with great flexibility and functional design. A single battery is sufficient for use with up to two extensions or three flash lamps, including one on the camera. Two batteries provide 45 v. and the Ektalux condensers can provide positive synchronization of as many as seven flash lamps strung over 120 ft. of two-wire cord, or a total of 240-ft. of wire.

Photographers using the former two-cell flasholder could now convert to the new B-C system by replacing the $1\frac{1}{2}$-v. dry cells with the new Kodak B-C Flashpack, also brought out in October. The unit consists of a 200-microfarad condenser and resistor and uses a $22\frac{1}{2}$-v. miniature battery.

Photographic Papers.—A number of new photographic papers were announced during 1951, including Kodak Medalist paper, Kodak Ektalure paper, Kodak Mural paper and Kodagraph Repro-Negative paper. The Kodak Medalist paper is well suited for use by illustrators, commercial and portrait photographers, salon photographers and photofinishers who wish to offer de luxe prints. The paper has a new-type exposure and development latitude. By varying the ratio of time allotted to exposure and development, the contrast can be sharply changed in the finished print. The speed of all four contrast grades is essentially the same.

Kodak Ektalure paper is intended for use by portrait photographers, and is available in only one surface. This cream white paper has fine grain, lustre and a speed twice as fast as that usually associated with fine projection papers. Kodak Mural paper is a hardy photographic paper that can be folded or creased without damage when large sheets are processed. It has good toning characteristics. Kodagraph Repro-Negative paper produces black-on-white photographic intermediates directly from blue-prints and other negative originals without the need for dark-room handling or special reproduction equipment, in ordinary room light, and processed with standard photographic chemicals.

Ansco Indiatone Brilliant was added to the Ansco line of fine photographic papers. This paper has a high embossed surface sheen that adds sparkle to photographic prints.

The photo products department of E. I. du Pont de Nemours & Co. introduced High Speed Varigam variable-contrast photographic paper—a faster projection paper designed especially for professional photographers. It is two to three times faster than the company's regular Varigam paper. A wide range of contrast is achieved through the use of special filters, the same as those used with the standard Varigam. High Speed Varigam became available in eight different variations of single- and double-weight paper ranging from smooth glossy to textured lustre surfaces.

During the year du Pont also introduced three new surfaces of Warmtone, a fast enlarging paper that gives a warm brown image in standard developers. These new surfaces, all in double-weight paper, were: QL, cream superrough lustre; BT, white semigloss; and B, white semimat. QL is especially suited for strong character portraiture and salon prints. BT and B are suitable for commercial and illustrative photography because of their smooth texture combined with white colour.

Film.—Ansco produced Type 843 Ansco Color Negative Camera film for 35-mm. motion-picture or slide film colour negative originals. The three emulsion layers of this film contain colour couplers which, in development, produce dye image colours complementary to the exposure colours. Other colour films by Ansco were Type 846 Ansco Color Duplicating Negative film for making colour duplicate negatives from Type 843 originals, and Type 848 Ansco Color Positive Printing film used to manufacture release prints.

"THE THREAD MAKER," photographed at Deleitosa, Spain, in 1951 by W. Eugene Smith of *Life* magazine. Shooting pictures for a photographic essay on the tiny village, Smith found that the ways of the community had changed very little since the middle ages

The Polaroid corporation demonstrated a new film with an ASA index of 3,000 compared with the usual high-speed films with a daylight ASA rating of 200 and 250. The exposed image is made on the top layer of the sensitive silver halide grains of the film. The silver deposited to make the finished print in the Land Polaroid process has a much higher covering power than the form of silver that creates the image of the conventional photographic print. The speed of this new emulsion was demonstrated by using a new Model 110 Polaroid camera and photographing the audience at the American Physical society meeting in Chicago. Thirty seconds after the exposure the finished picture was removed from the camera and projected onto a 30-ft. screen.

New Cameras.—The Eastman Kodak company introduced the Kodak Signet 35 with Synchro 300 shutter in the intermediate-price class; the new Kodak Retina IIa with Synchro Compur shutter and speeds to 1/500 sec.; and the Brownie Movie camera in the low-price field. Kodak's Tourist camera line was improved by adding new view finders, and the Kodak Tourist II included a flash synchronized shutter operating up to 1/200 sec.

A modified Kodak High Speed camera was designed to record the mechanical and electrical aspects of a subject simultaneously on the same 16-mm. motion-picture film. A second lens was mounted on the camera to record the images on the tube of a cathode-ray oscillograph through the back of the film, while the main subject is being photographed on the front. This record permitted the photographer to present a complete picture of the behaviour of electro-mechanical devices, and allowed easy correlation with strain, acceleration, vibration and other signals fed to the oscillograph in many nonelectrical problems. A 16-mm. Kodascope Pageant sound projector was also developed by Kodak.

Ansco introduced five new cameras made by the Agfa camera works in the U.S. zone of Germany. These cameras were to be known in the United States as the 35-mm. Ansco Karomat, $2\frac{1}{4}$ x $2\frac{1}{4}$ Ansco Speedex Special, $2\frac{1}{4}$ x $2\frac{1}{4}$ Ansco Speedex, $2\frac{1}{4}$ x $3\frac{1}{4}$ Ansco Viking f/4.5 and $2\frac{1}{4}$ x $3\frac{1}{4}$ Ansco Viking f/6.3, covering a wide price range.

The Perkin-Elmer Corp. installed a 5,000-lb. telescopic camera designed for meteor photography at the Harvard meteor station near Las Cruces, N.M. The unusual optical system permitted the camera to cover a 52° field and to record trails from even the smallest meteors.

An important focusing aid for the Automatic Rolleiflex camera was the new Kalart Focuspot, permitting critical focusing in dim light. When a switch is pressed on the Kalart Focuspot twin circles of light are projected from the attachment onto the subject to be photographed. The camera focusing knob is turned until the circles merge, and at this point the subject is in focus. The focusing beams can be projected more than 30 ft. A Rolleiflex shutter with built-in flash synchronizer permitting speeds from 1/50 to 1/500 sec. was announced.

Graflex, Inc., brought out the Polaroid Land back as an accessory for use with the 4 x 5 Crown or Speed Graphic cameras with Graflok backs. This attachment uses the Polaroid Land camera back in combination with the more versatile features of the Speed Graphic camera. Prints can be finished one minute after exposure.

The Zoomar corporation produced a 40-in. Reflectar lens for use on motion-picture and 35-mm. cameras for telescopic photography. Because of the high resolving power of this lens it is possible to obtain negatives of excellent detail. An 80-in. Reflectar lens was also made to cover a maximum frame of $2\frac{1}{4}$ x $3\frac{1}{4}$ in.

Other Developments.—At the 1951 convention of the Photographic Society of America in Detroit, Mich., in October, the U.S. air force demonstrated a new technique in aerial photography whereby a flash picture was taken in mid-air and transmitted simultaneously to a ground network of tele-photo stations connected by conventional telephone lines. Subjects covered ranged from industrial photography and television camera coverage through crime photography. The technical division scheduled 17 papers on varied topics—high-speed movies, exposure meters and exposure determination, mirror lenses, electronic and battery-capacitor flash circuits, tone reproduction and navy photography.

The Sylvania survey (*see* above) showed that 70% of all households in the U.S. owned a camera, as compared with 75% owning bathtubs, 63% telephones and 70% automobiles. Other figures showed that 61.4% of these households, with annual income under $2,000, either owned or borrowed a camera in 1950. From this survey it was estimated that there were close to 52,000,000 cameras in these homes.

Colour photography was steadily increasing to the point that the camera-owning public was using colour film about 20% of the time. Nearly 33% used flash lamps for every picture. (*See* also MOTION PICTURES; MUNITIONS OF WAR; NEWSPAPERS AND MAGAZINES; TELEVISION; X-RAY AND RADIOLOGY.)

(W. D. MN.)

Physics.

Positronium.—The existence of an atom consisting of a positron nucleus and a single electron was demonstrated by Martin Deutsch of the Massachusetts Institute of Technology, Cambridge. Atoms normally consist of a relatively massive, positively charged nucleus, surrounded by sufficient negatively charged electrons to give an over-all electrically neutral atom. The positron is a light particle, of the same mass as an electron and with a charge equal in magnitude but opposite in sign to that of an electron. Positrons are usually annihilated almost immediately after being formed; the annihilation process consists of combination with one of the electrons that are abundantly present in matter, both electron and positron literally disappearing in a burst of electromagnetic energy. J. Pirenne, A. E. Ruark and J. A. Wheeler had suggested, in 1944, 1945 and 1946 respectively, that the positron and electron might momentarily exist as an "atom" before their combination and annihilation, each circling about the other much as electrons move about the nucleus of a proper atom. Deutsch was able to show that in some instances such a "positronium" atom does exist before annihilation occurs. Further, his electronic counting methods enabled him to measure the lifetime of these atoms. The time that he found, a little over one ten-millionth of a second, agreed with the value that had been calculated in 1949 by A. Ore and J. L. Powell. J. A. Rich, working at Yale university, showed that the positronium atom of this lifetime disintegrates by forming three photons of radiation, in contrast to the two-photon disintegration of electron and positron pairs that have an even briefer conjugate existence. Rich's results were as expected from theoretical considerations.

Cosmic rays; V-particles.—A new, short-lived elementary particle was observed in cosmic rays. On two occasions in 1947, G. D. Rochester and C. C. Butler of the University of Manchester, Eng., had observed forked tracks in cloud chamber cosmic ray photographs which they tentatively ascribed to the disintegration of a kind of particle previously unobserved. During 1951 extensive additional observations of these particles were reported by the Manchester group, and confirming evidence was also published by workers at the California Institute of Technology, Pasadena, at Indiana university, Bloomington, and at the University of Melbourne, Austr. Because of the V-shaped photographic tracks by which these particles were detected, they were commonly referred to as V-particles. Although there was some evidence that indicated the existence of charged V-particles, the photographs suggested that the particle usually exists as a neutral particle. The most striking feature of the V-particle was its mass. It had been believed that the proton and neutron, with masses of about 1,840 electron masses, and the pi meson, with a mass about 275 times that of an electron, were the heaviest elementary particles. But one kind of neurtal V-particle was fairly definitely found to have a mass greater than that of the proton or neutron; specifically, a mass of about 2,200 electron masses was indicated. A second variety of neutral V-particle, with a mass of about 800 electron masses, was clearly distinguished from the first. The lifetime of the particles was estimated to be 10^{-10} sec., and they apparently decay into a proton and a negative meson, or into a pair of oppositely charged mesons. It is these decay products, and not the particle itself, which give the characteristic V-track. Physicists felt that obviously much was yet to be learned about V-particles, but they added two kinds of neutral V-particle, and, somewhat tentatively, the charged V-particle, to their puzzling list of nature's elementary particles.

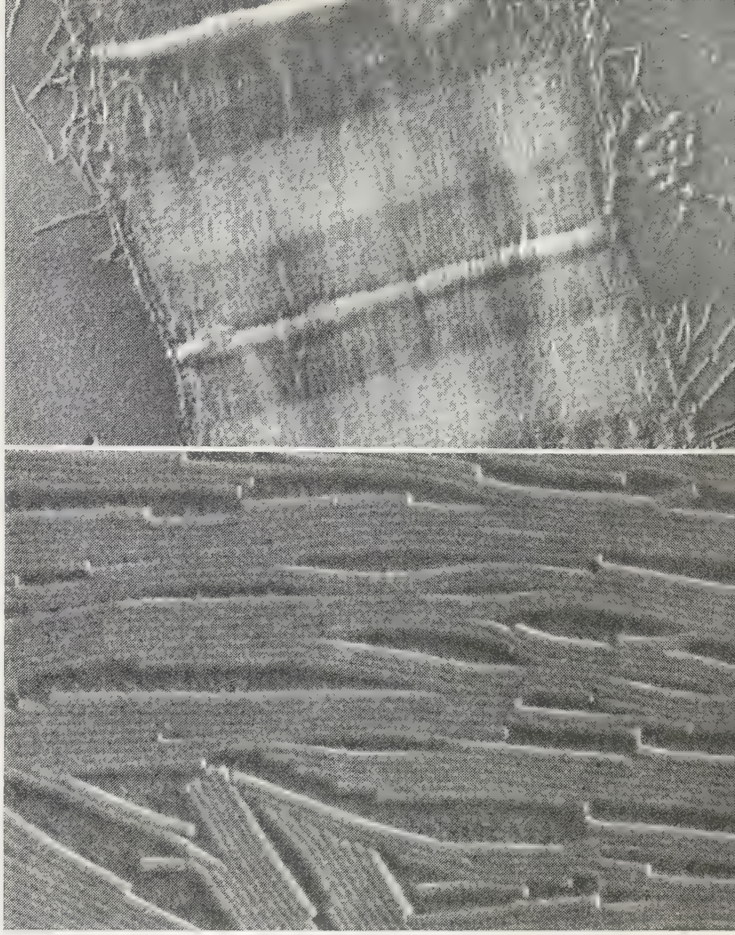
The cosmic ray primary particles are the high-energy particles which strike the earth's atmosphere from outer space and then by interaction with the atmosphere give rise to a variety of other particles and radiations. Scientific opinion formerly held that these primaries were probably protons. Additional and unmistakable evidence of other kinds of primary particles accumulated during 1951. The proton is the atomic nucleus of atomic number 1; nuclei with atomic numbers as high as 50 were found to be present in the primary radiation. In general, however, the quantity of nuclei with a given atomic number was found to decrease with increase in atomic number.

Fundamental Theory.—Theoretical physicists continued in 1951 to search for the physical theory that would explain the existence of the forces which hold protons and neutrons together into atomic nuclei. More generally, they looked for a principle that would explain why we find the elementary particles which we do find, and not those of some different mass or charge, and for the theory that would allow accurate calculation of the interaction effects between all kinds of elementary particles. Some degree of success seemed to have been achieved with respect to calculating interactions with the electromagnetic field on the elementary particle level, particularly by F. J. Dyson in England and R. P. Feynman and J. Schwinger in the U.S. But the opinion grew that quantum theory, which had been so successful and adequate in atomic physics, needed some fundamental revision before it would adequately serve as a theory of elementary particle physics.

At a symposium on "Physics Today" held in October at Chicago, Ill., as part of the 20th anniversary celebration of the American Institute of Physics, Enrico Fermi considered the problem of understanding how elementary particles combine to form nuclei and spoke of the inadequacies in existing theory. He was less optimistic than some about the difficulties being resolved by a brilliant stroke of theory; rather, he said, scientists should be prepared for a "long, hard pull" of patient experimental work before there would be sufficient data to guide an extension of fundamental theory.

Nuclear Physics.—A uranium nuclear pile, utilizing heavy water as a moderator, was put into operation in Norway. The reactor or pile (both terms seemed to be in accepted usage) was constructed jointly by the Norwegian and Netherlands governments, and gave the world another facility for the production of radioactive isotopes and for the investigation of problems in neutron and atomic energy physics. Reactors already in operation were located in the United States, Canada, England, France, and, in all probability, the U.S.S.R.

Measurements of the radioactive decay of the neutron were obtained by J. M. Robson at the Chalk River, Can., atomic energy laboratories. The fact that the free neutron is unstable and decays spontaneously into a proton and an electron had been definitely established by A. H. Snell and co-workers at Oak Ridge, Tenn., and by Robson. The latter's new measurements gave the best value so far available for the time required for the disintegration. He worked with a beam of neutrons that was directed outward from the Chalk River pile. Magnetic fields were arranged such that any positively charged protons that appeared in the beam would be deflected to one side while electrons would be carried in an opposite direction. Appropriate detectors for protons and electrons indicated the quantity of charged particles being deflected out of the neutron beam. With knowledge of the intensity of neutrons in the beam, an estimate of the rate at which neutrons were decaying could then be made. Robson's figure for the half life (the time in which one-half of the neutrons in a given sample would decay) was 12.8 min., with a probable error of plus or minus 2.5 min.


MOLECULES of muscle tissue (top) and a plant virus (bottom), some of the first pictures available in 1951 to show molecular shapes and surface contours. They were taken at the Massachusetts Institute of Technology, Cambridge, Mass., by a technique called "metal shadowing"

There was a continued increase in the use of radioactive materials in a wide variety of scientific, medical and industrial activities. The detection of radioactive atoms had for many years been accomplished chiefly by means of Geiger counters, but a different kind of detector, the so-called scintillation counter, was beginning to be used extensively in 1951. Geiger counters detect an energetic particle, emitted from a radioactive atom, by means of the high electric potential that is maintained across the counter tube; an energetic particle passing through the tube creates a trail of ions which, under the influence of the high potential, form a momentary discharge of current across the tube, thereby giving a signal that indicates the particle to have passed through the tube. The scintillation counter operates in an altogether different manner. The incident rays or particles, on striking a detector material, give rise to photons—that is, to light "scintillations"—which in turn strike a photocell surface and cause electrons to be emitted from the surface. These electrons constitute a small current which can be amplified in the conventional manner and carried to a convenient signal device. Scintillation counters were not expected to supplant generally the traditional Geiger counters, but they were obviously superior to the latter for the detection of the energetic gamma or X-rays emitted by some radioactive materials. A scintillation counter with an anthracene detector crystal, developed for clinical detection of radioactive iodine by its gamma radiation, was reported as detecting 18% of the gamma rays incident upon it, as compared with 2% efficiency with a Geiger counter. R. Hofstadter and his group at Stanford university, Calif., constructed a counter with a sodium iodide crystal detector for which they reported very close to 100% efficiency for the detection of X-ray photons of energies ranging from 5,000 to 80,000 ev.

The small amounts of natural radioactive carbon which are formed as a result of cosmic ray bombardment of the atmosphere had been successfully used in various kinds of archaeological and geological date determinations; a living organism, for example, ceases to maintain a steady equilibrium with the radioactive carbon in atmospheric carbon dioxide after its death, and the amount of radioactive carbon in the organism at a given time after death is a measure of the time elapsed since death. W. F. Libby and E. C. Anderson of the University of Chicago reported on a survey of the amount of radioactive carbon found in recently living biological materials collected from all parts of the world. Since cosmic ray intensities vary over the surface of the earth it might have been expected that radiocarbon concentrations would vary in different areas. Libby and Anderson found, however, that world-wide mixing is sufficiently complete that no significant concentration differences appear. Their results also appeared to give some indication that there had been no significant change in cosmic ray intensity for several thousand years.

Mass and Microwave Spectroscopy.—The accurate determination of the masses of the various atomic species has been a keystone of modern physics. Atomic mass measurements with a new kind of instrument were announced by S. A. Goudsmit, E. E. Hays and P. I. Richards of the Brookhaven National laboratory, Long Island, N.Y. The various mass spectrometers used previously depended on a spatial separation of ions of different masses or charges from a beam of moving ions, the separation resulting from properly applied electrical and magnetic fields. The Goudsmit instrument utilizes the differences in time of flight over a given path which would appear among atomic ions of different masses. The ions travel a set vertical path between source and detector but, also, a uniform magnetic field causes them to move in circles as they descend, so that their actual paths are helical in form. By the well-known cyclotron principle the time per revolution in a magnetic field is independent of the ion velocity. The ion detector, at the end of the path, records the arrival of an ion after it has travelled through a certain number of total revolutions. Because of varying initial velocity directions, a group or "pulse" of ions sent out from the source travel the path to the detector with varying numbers of total revolutions; but for any given number of revolutions, ions of different masses will reach the detector at somewhat different times, since the time for a given number of revolutions does depend on the mass of the ion. The time between impulses given to the detector by different ions may therefore be converted into a determination of mass differences between the ions being received. In contrast with traditional mass spectrometers, this new instrument had the promising feature that its accuracy does not decrease when masses of ions of heavy atoms, high in the periodic table, are being measured.

The study of microwave spectra, which was so fruitfully developed from World War II radar work, continued in many laboratories. Molecular spectra in the region between that of far infra-red and short-wave radio wave lengths could no longer be considered to be altogether unknown. In some instances knowledge of microwave spectra gave new information about the structure of the materials studied. A typical result was that reported by R. Hughes from his study of the microwave spectrum of ozone. The ozone molecule is constituted by three oxygen atoms, arranged in the form of an isosceles triangle. Previous work, by electron diffraction methods, had indicated a distance between the atoms on the two equal sides of 1.28 hundred-millionths of a centimetre. The microwave study confirmed this length, and also led to a value of 117° for the apex angle of the molecule. (*See* also ELECTRONICS; STANDARDS, NATIONAL BUREAU OF.)

BIBLIOGRAPHY.—Authoritative popular accounts of current physics appear in *Endeavour* (London), *Scientific American* and *Physics Today*. The accounts in *Nature* (London) and the *Physical Review* provide a good beginning for reading on current physics research in the technical journals.

FILMS OF 1951.—*College Physics Series* (2 films) (McGraw-Hill Book Co., Text-Film Department); *Current Electricity Series* (6 filmettes) (Encyclopædia Britannica Films Inc.); *Electricity, Light and Heat, Sound* (Gateway Productions, Inc.); *Light* (4 films), *Musical Notes, Sound Waves* (United World Films); *Measuring Temperature, What Makes Things Float?* (Young America Films, Inc.); *The Infinite Universe, Ultra-Sounds* (Almanac Films, Inc.); *The Story of Time* (Cornell Film Co.)

(RI. SL.)

Physiology.

Fibrillation of the Heart.—The ventricles of the heart pump blood by the co-ordinated contraction of their muscle fibres and fill during the period when these fibres relax. In ventricular fibrillation this co-ordinated contraction and relaxation is lost. The ventricles appear as a twitching, writhing mass, producing no useful beats. The pulse disappears, the arterial blood pressure falls abruptly and death occurs in six or eight minutes from lack of blood supply to the brain and spinal cord. Spontaneous recovery is rare in man or larger animals when the condition has persisted for more than a minute or two.

It had been known since 1899 that small amounts of electric current passing through the heart may cause it to fibrillate and that a much stronger current can stop the fibrillatory process. In 1933 a practical apparatus for electrical defibrillation of the hearts of laboratory animals was constructed. In Nov. 1951 W. B. Kouwenhoven and J. H. Kay described such an apparatus for man. Ordinary house current, 60 cycles, 110 or 120 v., can be used. The voltage is ordinarily stepped up by a variable voltage transformer to 130 v. The equipment is simple, rugged, with features for safety in handling and ease of sterilization of the electrodes.

Artificial respiration is given, preferably oxygen supplied by a breathing machine, and the heart is exposed. The surgeon rhythmically squeezes the heart with his hand, thus propelling blood to the brain and to the heart itself through its own arteries. The heart becomes more responsive to the defibrillating current under these conditions. The flat electrodes are placed one on each side of the heart and the shocking current is applied for a fraction of a second, repeating at brief intervals if necessary. Procaine injected into the ventricular cavity has been used to facilitate defibrillation. When the heart resumes beating, its contractions may be strong or weak. In the latter case cardiac massage and epinephrine hydrochloride or calcium chloride solutions may be administered.

Kouwenhoven and Kay reported on two patients who developed ventricular fibrillation during surgery and were successfully defibrillated by the electric current. Both recovered completely although cardiac arrest had been present for 15 min. in one case and 5 min. in the other. A number of patients had been defibrillated previously, including one who had no heart beat for a period of one hour and ten minutes. During this period artificial respiration and cardiac massage were employed, for the brain is severely damaged if deprived of its blood supply for more than a few minutes.

Research in 1951 added to knowledge of the electrical resistance of the heart, the amperages required for fibrillation and defibrillation and the practicality of electrical defibrillation through the intact chest of an anaesthetized animal. For the latter large electrodes and a higher voltage are recommended. One animal was defibrillated 130 times through the intact chest but the therapy was started within a minute after the onset of fibrillation. Prompt recognition of ventricular fibrillation is possible by taking electrocardiograms. When defibrillation is delayed, the heart may fail to start beating spontaneously or contract so feebly that cardiac massage through the opened chest is necessary to maintain an adequate circulation until the heart contracts effectively.

Localization of a "Feeding Centre" in the Brain.—It is possible to place electrodes accurately in a desired portion of the brain of an anaesthetized animal such as the rat. An electric current can be passed between the two closely approximated points of the electrode and produce a limited destructive lesion by heat coagulation. Such a lesion placed in the ventromedial nucleus of the hypothalamus (located just above the floor of the skull) results in the animal becoming obese. After operation the animals show a permanent increase in food intake termed "hyperphagia." Apparently a "centre" has been destroyed which restrains food intake, so that abnormal hunger develops.

In 1951 Bal K. Anand and John R. Brobeck reported that they had produced small electrolytic lesions in the lateral hypothalamus and found that food intake was inhibited to the point of starvation. The lesions producing this effect must be bilateral or the animal will continue to eat normally. If the rat is made hyperphagic and obese by the first described operation, then a small destructive lesion on each side in the lateral hypothalamus at once causes the animal to refuse all food. Thus the hypothalamus seems to contain two centres, one promoting food intake, the other limiting it.

Blood of Cyclotron Workers.—In 1949 M. Ingram and S.

W. Barnes had reported the occurrence in the blood of cyclotron workers of lymphocytes with a double or bilobed nucleus instead of the normal single nucleus. The workers had only been exposed to small amounts of radiation believed to be safely tolerated. In 1951 Ingram and Barnes reported the experimental production of the same phenomena in dogs from relatively slight exposures, probably below the currently accepted tolerance levels. The greatest number of such cells occurred during a two week period following the exposure and thereafter gradually lessened. The number of bilobed lymphocytes was apparently small for most blood smears were negative even in the weeks of maximum response. It was not known what component of the radiation was responsible. The condition seemed to be less prominent in persons working with the 26-in. cyclotron and with radioactive isotopes than it was in personnel associated with the 130-in. cyclotron.

Physiological Adaptation to Cold.—Laurence Irving reported on the physiological mechanisms involved in adaptation to a cold environment. Lower body temperature is not essential; Irving found, for example, that arctic reindeer and dogs near Barrow, Alsk., had a body temperature characteristic of warm-blooded animals although the environmental temperature was below −45° C. (−49° F.) at the time. Nor is their metabolic cost of living increased; it is similar to the basal level of energy expenditure found in warmer climates.

Insulation is a factor of great importance. The animals' fur or feathers or, in the case of seals, a layer of blubber under the skin, may provide effective insulation. The insulative properties of various furs vary with the thickness of the fur, increasing in the winter time.

The fur of a lemming when fluffed up provides twice as much insulation as the fur with the hairs smoothed down. Air is a poor conductor of heat and erect hair or feathers traps more air. Among arctic animals the fur thickness increases with the size of the animal up to that of the arctic white fox. There is no marked increase in larger animals but a decrease in smaller arctic animals. Presumably a thick fur would interfere with the free movements of the small animals. These animals cannot endure the cold weather continuously but in the coldest season seek protection such as well insulated nests.

Larger arctic animals such as white foxes, Eskimo dogs and arctic sea gulls showed no increase in heat production when exposed to temperatures as low as −30° C. (−22° F.). The range to which they could adapt without change in heat production was from 30° C. to −30° C., a total of 60° C. (108° F.). The range for the smaller arctic animals is considerably less and for tropical animals often only 10° C. (18° F.).

Unclothed man reacts like the more temperature-sensitive tropical animals. Eskimos appear to be as temperature sensitive as white men and wear equally warm clothing. By the use of suitable clothing man can span the whole temperature range from the tropics to the arctic. He is a tropical animal carrying his tropical climate with him. A man becomes uncomfortably cold if he tries to spend a night at −40° C. (−40° F.) in one layer of arctic fur clothing or naked in a one-layer arctic fur sleeping bag. He needs more insulation than the animals whose fur he is using. The arctic mammal sleeps in a more curled-up position, exposing less surface for cooling. Arctic animals may tolerate a low leg temperature, thus reducing heat loss from the extremities. Usually the fur clothing and sleeping bags are made from the lighter autumn furs.

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FILMS OF 1951.—*Growing Girls* (Encyclopædia Britannica Films Inc.); *The Heart* (Almanac Films, Inc.); *The Human Skeleton, The Muscular System* (United World Films). (F. E. FE.)

Pig Iron: *see* IRON AND STEEL.
Pigs: *see* LIVESTOCK.
Pineapples: *see* FRUIT.

Pittsburgh. The 1950 U.S. census fixed Pittsburgh's population at 676,806, 12th in the nation, and that of Allegheny county as 1,515,237. The Pittsburgh metropolitan district numbered 2,213,236. Mayor of the city in 1951 was David L. Lawrence.

In 1951 the Pittsburgh district experienced marked commercial and industrial gains. Business activity (production, trade and shipments combined, with December estimated from weekly data) was 194.2% of the 1935–39 average and 6.5% higher than in 1950. Industrial production, similarly calculated, was 198.2% of the 1935–39 average, 7.5% higher than the previous year, according to the University of Pittsburgh's bureau of business research. Average weekly rate of steel operations was 99.1% of capacity as compared with 97.2% in 1950. Bituminous coal production in Pennsylvania for the first 11 months of the year was 6% higher. Department store sales for the year were up 7.3%. Pay rolls of all firms for 11 months were 17.2% higher than in the same period of 1950, while numbers employed increased by 6.7%.

Ground was broken for two multistory garages, first in a comprehensive program of the Pittsburgh Parking authority. Demolition was nearly completed by the Pittsburgh Redevelopment authority on the 13-ac. site for a memorial park and traffic interchange at the confluence of the Monongahela and Allegheny rivers. On an adjoining 26-ac. tract, assembled by the authority, construction was far advanced on three major office buildings. On the south side of the Monongahela river the first heat was tapped from 1 of 11 new open-hearth furnaces, part of a $100,000,000 Jones and Laughlin Steel corporation expansion program on land made available through the authority.

Carnegie Institute of Technology put into operation a $2,500,000 nuclear research centre, the central feature of which was a 400,000,000-ev synchrocyclotron capable of producing mesons.

Under a new redistricting act, voted by the Pennsylvania legislature pursuant to congressional reapportionment, Allegheny county was alloted four seats in the U.S. house of representatives, instead of five as formerly.

Taxable real estate for 1951 in Pittsburgh was $1,028,813,256; in Allegheny county, $2,330,000,000. (C. F. Ls.)

Pius XII (1876–), the 262nd successor of St. Peter in the see of Rome, was elected by the cardinals in conclave on his 63rd birthday, March 2, 1939, and was crowned pope on March 12, 1939. (See *Encyclopædia Britannica.*)

At the traditional New Year's reception for the diplomatic corps in 1951 the pope spoke of the horror of war and the desire of "an equitable, freely stipulated peace, immune from all unjust conditions and from all the intolerable burdens" imposed on the peoples of the world.

World government was to be considered as a means to establish peace according to a speech to delegates from 22 countries attending the fourth annual congress of the World Federal Government movement in Rome. World government was in keeping with the traditional objectives of Roman Catholic doctrine, which strives for peace, the pope said.

In an encyclical letter, *Evangelii Praecones,* his holiness praised missionary progress of the preceding 25 years. He reported that Catholics in mission lands had nearly doubled, the number of Catholic missions had increased from 400 to 600 and the number of native and foreign priests from 14,800 to more than 26,800.

Addressing the international Catholic Congress on Rural Problems, Pope Pius said it must be recognized that industrial capitalism had stimulated agricultural production and had raised the physical and spiritual level of the country people in many parts of the world. Therefore, criticism should not be directed against the capitalist system as such, but against the dangers that would arise if its influence were to alter the specific character of rural life and make the country a mere extension or annex of the city.

The pope's thoughts on socialized medicine were expressed in a letter by Msgr. Giovanni Battista Montini, substitute secretary of state, addressed to Charles Flory, president of the Semaine Sociale, a French Catholic organization. The letter made it clear the Vatican opposed any system of socialized medicine that conflicted with the "moral principles of respect for man and family." With appropriate safeguards against certain medical practices, socialized medicine does not conflict with the principles of the Roman Catholic Church, which welcomes any state initiative in the field.

Pope Pius XII commemorated the 15th centenary of the Council of Chalcedon in the encyclical, *Sempiternus Rex.* As a means of imploring divine intervention for peace the pope, in the encyclical *Ingruentium Malorum,* urged all Catholics to recite the rosary.

In a letter to the archbishops, bishops, clergymen, and laity of Czechoslovakia, Pope Pius denounced the Communist regime of that nation for its religious persecution and accused the Prague government of carrying on a campaign based on falsehoods. In March a decree of excommunication was issued against all Catholics who supported the Czech government's efforts to bring about schism.

(*See* also ROMAN CATHOLIC CHURCH; VATICAN CITY STATE.)
(J. LAF.)

Planned Parenthood: *see* BIRTH CONTROL.
Plant Industry, Soils and Agricultural Engineering, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Plastics Industry.

During 1951 the plastics industry in the U.S. went counter to past seasonal trends in that during the first half of the year a far greater volume was produced than during the last half. Comparative figures for 1950 and 1951 are given in Table I.

Machines for Thermoplastics.—Machinery manufacturers reported the sale and delivery in the U.S. of 568 injection machines in 1951; shipments to other countries totalled 165.

Table I.—*Production and Sales of Synthetic Resins and Cellulosics Used in Plastic*[*]

(In pounds)

	1951	1950
Cellulose plastics (all)[†‡‖]	116,600,000	127,500,000
Phenolic and other tar acid resins[†§‖]	393,000,000	372,200,000
Urea and melamine[§‖]	181,000,000	185,100,000
Styrene and styrene-derivative polymer and copolymer resins[†‖]	305,000,000	332,000,000
Vinyl resins[‖¶]	500,000,000	402,000,000
Miscellaneous[♀]	322,000,000	263,000,000
Total	1,817,600,000	1,681,800,000

[*] Source: U.S. Tariff Commission for all except estimates for last four months of 1951.
[†] Includes fillers, plasticizers and extenders.
[‡] Includes sheets, rods, tubes, moulding and extrusion materials, primarily ethyl cellulose and Valite.
[§] All dry resin except moulding material which includes filler.
[‖] Excludes data on protective coatings.
[¶] Tariff Commission figures included filler for film and sheet every year except 1951. For comparative purposes in this table an estimated figure for filler was added to the 1951 figure for film and sheet in order to show trends.
[♀] Includes acrylic, polyethylene, nylon and other resinous moulding materials; petroleum resins and coumarone indene.

Table II.—*Estimated Number of Machines in the U.S. Thermoplastic Moulding and Extrusion Industry*

	1951	1950	1949	1944
Injection[*]	5,035	4,654	3,966	1,400
Extrusion[†]	2,660	2,205	1,987	—

[*] Exclusive of machines under three-ounce capacity.
[†] Does not include one-inch bench extruders or machines with bore larger than six inches.

There was a trend in the injection moulding field toward the modification of machines to increase their capacity by adding preplasticizing equipment and larger heating chambers. By this means, for example, a machine that could formerly consume 60 lb. of material per hour might be made to consume 90 lb. per hour.

Producers of extrusion machines for plastics delivered approximately 455 machines in 1951 in the U.S.; about 150 machines were exported. Table II gives statistics on machines for processing thermoplastics for 1944, 1949, 1950 and 1951.

Cellulosics.—The monthly production of acetate and butyrate ran at a peak of 8,600,000 lb. in Oct. 1950, but never exceeded 6,700,000 lb. after Jan. 1951. The brightest spot in the cellulosic plastics industry in 1951 was the progress made in the production and sale of dry-extruded thin film less than 3 gauge thick.

Butyrate moved along in just about a parallel line with acetate insofar as sales were concerned. From June 1950 to June 1951 sales were large, but there was a decline in the last half of 1951. The principal finished products were in the following fields, in this order: automotive, communications, pipe, agricultural (irrigation tubing) and hardware.

Phenolics.—During 1951 the National Production authority was almost continuously under pressure to issue certificates of necessity for chemical firms which wanted to expand or build phenol plants. The amount of phenol consumed in 1951 was estimated at from 365,000,000 lb. to 370,000,000 lb. as against 312,000,000 lb. in 1950.

Almost two-thirds of phenol production was used in phenol-formaldehyde resins. It was expected that the percentage used by phenolics would increase as the supply became greater.

In the first six months of 1951, sales of phenolic moulding powder were running from 17,500,000 lb. to more than 19,000,000 lb. monthly, but declined to from 16,000,000 lb. to 17,000,000 lb. in the last six months.

High Pressure Laminates.—Phenolic type resin consumption by high pressure laminates was about the same in both 1950 and 1951. The high month was March 1951, when 8,000,000 lb. were used; in the last six months the figure dropped to about 5,000,000 lb. a month.

In addition to phenolic laminates, about 25,000,000 lb. of melamine laminates were produced in 1951, according to one manufacturer.

The decline during the last half of the year was caused by a drop in the demand for decorative laminates and for industrial laminates for television and radio production, the decline in the latter having started early in 1951.

Polystyrene.—After Feb. 1951, sales of polystyrene varied from 20,000,000 lb. to 24,000,000 lb., with August the highest month. Wall tile consumption increased in 1951 to approximately 25,000,000 lb. in comparison with 10,000,000 lb. in 1950. Easily moulded items, like flower pots, were produced in such quantities that they soon saturated the market.

The high-styrene butadiene compounds, used mostly for shoe soles and in floor coverings, would probably have been produced in much larger quantities in 1951 if more styrene monomer had been available. As it was, leather was reported to have only 42% of the shoe sole market in comparison with 78% in 1942.

Other uses for styrene include the polyester resins. The total production of polyesters during 1951 was between 12,000,000 lb. and 15,000,000 lb.; the expected military orders did not materialize. Leading civilian applications were corrugated structural sheets and pipe.

Urea and Melamine.—Resin sales of urea and melamine exceeded those of 1950 in every category except adhesives. Adhesives production started to decline in May because of the slump in the hardwood plywood furniture fields where urea adhesives are extensively used.

The use of urea and melamine for textile treatment to impart permanent glaze, shrinkproofing, antiwrinkle properties and the like, plus their use in paper treatment for such things as sizing, waterproofing V-board, strengthening wet-strength paper, etc., made good progress in 1951. Their growing use in textile treatment was not as rapid as expected, but was regarded as promising.

Another upward trend was in asbestos-filled melamine, starting about February. Most of it was for government rated orders in such things as aircraft connectors and magnetos.

The melamine and urea moulding powder capacity was estimated at 80,000,000 lb., and it was believed that this might be increased by 20% or 30% with a few alterations and adoption of new techniques. Closures, wiring devices and buttons were still the leading applications for urea.

The Vinyls.—Consumption of vinyl resins of all types was estimated at more than 400,000,000 lb. in 1951. If the plasticizers and fillers were included, the vinyls were unquestionably the largest volume category in plastics. These materials include vinyl chloride and copolymers; butyral; acetate; alcohol; formal; and vinylidene chloride (saran).

Although the industry sold approximately 40,000,000 lb. or 45,000,000 lb. more of resin in 1951 than in 1950, there was little fear that the market had been permanently saturated. In drapes, the biggest outlet, vinyl materials had reached only a part of their potential possibilities. From shower curtains to table covers to drapes, the industry had gone from one big volume outlet to another.

Sales of sheeting or film more than 10 gauge thick were good in 1951 despite the decline in furniture and automobile production. Most of it was in the 12- to 20-gauge range. The effect of the smaller use in furniture and automobile upholstery was somewhat offset by the use of vinyl upholstery on more types of furniture; also, the ratio of vinyl-upholstered cars was reported to have increased. The use of vinyl for luggage was 25% greater than in 1950, 91% of luggage manufacturers using some plastic sheet or coated material in their lines.

Vinyl coated fabric production registered a fair increase over 1950 but the industry was disappointed in the amount of government contract business. Plastisols took over a good portion of the coated fabric and paper field. Vinyl extrusion and moulding material moved ahead of film in volume consumed for the first time since World War II. Wire coating accounted for most of the increase; heavy defense order business was the impelling force behind demand. In moulding material, the chief use was for phonograph records, which took between 20,000,000 lb. and 25,000,000 lb., despite a severe drop in the spring. Slush and dip moulding used from 8,000,000 lb. to 10,000,000 lb.

Polyethylene.—Because polyethylene, acrylic and nylon are listed under miscellaneous by the tariff commission (*see* Table I), it is difficult to separate the figures. However, a good estimate was that the total capacity at the close of 1951 would be around 85,000,000 lb. a year in comparison with approximately 55,000,000 lb. when polyethylene went on allocation in June 1951.

Polyethylene was placed on allocation in 1951 because the signal corps needed great quantities for assault wire. However, there had not been enough for civilian demand even before the start of the Korean war.

Acrylic.—Production of acrylic in 1951 was estimated to be larger than during any year since World War II. Estimates of production of moulding powder alone were as high as 25,000,000 lb., with automotive parts the leading outlet.

Nylon.—Nylon plastics came into surprisingly large production in 1951 and were on allocation practically all year, but the military demand dropped and production became improved after October. The big military demand was for jacketing on assault wire. (*See* also MUNITIONS OF WAR; RAYON AND OTHER SYNTHETIC FIBRES.)

FILMS OF 1951.—*Plastics* (Almanac Films, Inc.). (C. A. BN.)

Platinum: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Pleven, René (1901–), French statesman, was born at Rennes, April 13. After graduating in law at the University of Paris, he chose a business career and at the outbreak of World War II was managing director of an industrial company in Great Britain. He went to the United States as deputy chairman of the French Air mission but was back in France at the time of the capitulation. He joined Gen. Charles de Gaulle in London and was sent to assist in rallying French Equatorial Africa to the Free French cause. After his return to London, he became commissioner for economy, finance and the colonies in the French National committee in Sept. 1941. He was minister of colonies in the French provisional government at Algiers (June 1943) and minister of finance in De Gaulle's first government formed in Paris (Nov. 1944); subsequently he added the portfolio of national economy to that of finance, retaining both until Jan. 1946. Pleven was a member of the first constituent assembly (Oct. 1945–May 1946) and of the national assembly (Nov. 1946–May 1951) in which he led the small group, the Union Démocratique et Socialiste de la Résistance (U.D.S.R.). He held no further ministerial office until Oct. 1949 when he became minister of national defense in the Georges Bidault government. He retained this portfolio in the second Henri Queuille government. On July 12, 1950, Pleven formed a coalition cabinet of Christian Democrats (M.R.P.), U.D.S.R., Radicals and Socialists. As a leader of a "third force" government he was fiercely attacked by the Gaullists. He resigned on Feb. 28, 1951, joined the third Queuille cabinet as vice premier and, after the election, formed on Aug. 11 his second cabinet, this time without Socialist but with some Conservative participation.

Plums: *see* FRUIT.
Plutonium: *see* ATOMIC ENERGY.
Pneumonia: *see* RESPIRATORY DISEASES.
Poetry: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; LATIN-AMERICAN LITERATURE; LITERARY PRIZES; RUSSIAN LITERATURE; SPANISH LITERATURE.

Poland. A people's republic of eastern Europe, Poland is bounded east by the U.S.S.R., south by Czechoslovakia, west by Germany and north by the Baltic sea. Area: (before Sept. 1, 1939) 150,052 sq.mi.; (after Aug. 2, 1945) 120,359 sq.mi. Pop.: (Sept. 1, 1939, est.) 35,339,000; (Dec. 3, 1950, census) 24,976,926. Language: Polish. Religion: Roman Catholic. Chief towns (pop., 1950 census): Warsaw (cap., 650,064); Łódź (619,914); Cracow (330,046); Poznań (320,294); Wrocław (289,734); Gdańsk (193,530); Szczecin (178,210); Katowice (141,277). President of the republic in 1951: Bolesław Bierut; prime minister: Józef Cyrankiewicz.

History.—During 1951 the Communist leaders sought to arouse the nation to alarm by inculcating the idea of the growing danger of an aggressive war threatened by the United States, the rearmament of Germany being the inevitable preliminary to such a war, of which Poland would be the first victim. This was the gist of a speech by Bierut at the sixth plenary session of the central committee of the Polish United Workers' (Communist) party in Warsaw in February. Nevertheless, there was a possibility of preserving peace, Poland's independence and its territorial integrity by maintaining close friendship with the Soviet Union and people's democracies and by forming a large national front and working hard to fulfil the six-year plan.

At the same time, never since 1947 had there been discovered more plots to overthrow the people's democracy, more spies in the pay of warmongers arrested or more saboteurs sentenced to death or long terms of imprisonment. Besides dismissal from the government of the last prominent non-Communists of the Lublin era the year saw also many of the Communist "old guard" awaiting trial for "nationalist deviation."

On Feb. 15 an agreement was signed in Moscow concerning an exchange of territories. The Soviet Union obtained an area of 185 sq.mi. south of Hrubieszów and east of Tomaszów Lubelski through which passed the main Kowel-Lwów railway and a local Krystynopol-Bełz-Rawa Ruska line. Poland was given in exchange an area of similar size about 20 mi. S. of Przemyśl: it included the town of Ustrzyki Dolne and was described as a valuable addition to the national economy because it would add 20% to natural crude oil production.

It was reported that in the spring the supreme headquarters of the soviet and satellite armies had been established at Jablonna, north of the capital. During the year four divisions were added to the army and by the winter it was believed to comprise 12 infantry, 4 motorized, 2 mechanized and 2 armoured divisions.

In August four generals and five other officers of the prewar army, who in 1945 had joined the new army, were tried on charges of espionage and plotting the overthrow of the people's democracy, among them being Maj. Gen. Stefan Mossor, who until 1950 had been in command of the Cracow military area. On Aug. 13 the four generals were sentenced to life imprisonment and the five other officers received sentences of from 10 to 15 years' imprisonment. The trial also aimed at compromising more important personalities. One of the accused charged Gen. Marian Spychalski, former deputy minister of national defense and chief of the political department of the ministry, with bringing prewar Polish officers into the army in order to counteract soviet influence in the forces, and the name of Władyslaw Gomułka, former deputy premier and secretary general of the Communist party, was also mentioned.

In October the *sejm* ordered Gomułka and Spychalski to be deprived of their seats and directed that judicial proceedings should be started against them for their activities against the people's Poland.

During 1950, its first year, the industrialization plan was overfulfilled by 7.4%, and according to Hilary Minc, deputy premier and chief economic planner, production was 124% higher than in 1938, although he was, in fact, comparing the industrial output of two vastly different territories. During the first half of 1951 the plan was just fulfilled, but the third quarter brought a general deficit of 2.6% and in heavy industry a deficit of 54%. Production of coal, steel, zinc, lead, oil, machine tools, railway engines, freight cars, trucks and synthetic fertilizers was lagging behind the plan. The harvest of the four basic grains was at the 1950 level, but the potato crop was bad.

After the summer of 1951 the country had been experiencing an acute food shortage. Minc explained this by the fact that while in 1931 the agricultural population constituted 61.4% of the nation, in 1950 the proportion was only 45.7%. At the same time the number of wage earners outside agriculture had risen from 2,700,000 to 5,200,000. The failure of agriculture to keep pace with the development of industry was another reason for food shortage. If the plan for 1951 were fulfilled, the industrial output would be 168% higher than in 1938, but the agricultural plan provided for only a 6% increase over the prewar figure. The reason for this weakness, according to Minc, was that Polish agriculture was still based on individual holdings. The remedy was collectivization, but the government and party were not prepared to force the pace because artificial intensification of the tempo of change-over to a collective economy would be erroneous and harmful. His conclusion was that disproportion between the rate of industrial and agricultural progress was unavoidable and would accompany economic development for a long time.

In May the *sejm* appointed a commission including the representatives of the Polish Communist party, Polish United Peasant party and Democratic party, as well as of the Catholic Social parliamentary group to prepare a draft constitution. At its first meeting in September under the chairmanship of Bierut the commission set up ten subcommittees with responsibilities for different sections of the draft, which was to be submitted to a nation-wide discussion.

It was announced on March 17 that Stanisław Skrzeszewski had superseded Zygmunt Modzelewski, foreign minister since 1947.

Pressure continued on the Roman Catholic hierarchy to assume responsibility for the appointment of bishops in the recovered territories, and by this means the Warsaw government hoped to create a schism. In January it was announced that the apostolic administrators of Gdańsk, Olsztyn, Wrocław, Opole and Gorzów Wielkopolski (Landsberg), appointed in 1945, had been relieved of their offices. Three days later were published the names of five vicars capitular to succeed them. In February Bierut discussed the stabilization of ecclesiastical authority in the recovered territories with the primate of Poland, Msgr. Stefan Wyszyński. Later in the month the Polish hierarchy notified the clergy that the primate had vested canonical jurisdiction in the priests elected by diocesan councils, who thenceforward were to exercise ecclesiastical authority in the five western provinces in accordance with canon law. By this action the primate saved the unity of the church. During a visit to Rome in April Monsignor Wyszyński saw the pope, but failed to secure endorsement of the situation by the appointment of bishops to administer the five new provinces. In July he was accused by *Pravda* of undermining the vital foundations of the people's Poland. Many Catholic priests were tried for allegedly antistate activities, and it was estimated by the Vatican that about 900 members of the clergy were in prison. (*See* also GERMANY.)

Education.—Schools: (1950–51) kindergartens 7,685, pupils 341,610; (1949–50) primary 22,417, pupils 3,242,000, teachers 76,560; (1948–49) secondary, lower grade 335, pupils 197,110, higher grade 486, pupils 140,893; secondary vocational 1,131, pupils 183,440; (1950–51) teachers' colleges 149, students 32,570; (1951–52) institutions of higher education 83, including 8 universities, students 123,500.

Finance and Banking.—Budget (1951 est.): revenue 55,972,000,000 new zlotys, expenditure 51,891,000,000 zlotys. Official exchange rates: U.S. $1=4 zlotys.

Foreign Trade.—(1949) Imports 2,530,000,000 roubles, exports 2,476,000,000 roubles.

Transport and Communications.—Railways (Jan. 1949): 21,415 km.; freight traffic (1950) 35,060,000,000 ton-km.; passenger traffic (1950) 26,309,000,000 passenger-km. Roads (April 1947) 96,605 km.; licensed motor vehicles (April 1948): cars 24,240, buses and trucks 28,957, motorcycles 24,561. Shipping (May 1949): merchant vessels 46, total tonnage 164,989 gross registered tons. Freight traffic in Polish ports (metric tons, 1950): loaded 12,456,000, unloaded 3,216,000. Sea-borne shipping, ships entered (all ports, 1950) 7,248,000 net registered tons. Air transport (1950) 39,600,000 passenger-km. Telephones (Jan. 1950) 225,000 subscribers. Radio receiving set licences (Jan. 1951) 1,475,000.

Agriculture.—Main crops (metric tons, 1950): wheat 1,990,000; rye 5,880,000; barley (1949) 1,028,000; oats 1,930,000; sugar, raw value (1951) 950,000; potatoes (1949) 30,900,000. Livestock (Dec. 1950): cattle 7,164,000; horses 2,797,000; pigs 9,928,000; sheep 2,194,000.

Industry.—Fuel and power: coal (1950) 78,000,000 metric tons; lignite (1950) 4,836,000 metric tons; electricity (1950) 9,408,000,000 kw.hr.; crude petroleum (1948) 132,000 metric tons; natural gas (1948) 160,000,000 cu.m.; manufactured gas (1948) 289,000,000 cu.m. Raw materials (metric tons): steel ingots and castings (1950) 2,520,000; zinc (1948) 120,000; lead (1948) 18,500. Manufactured goods (metric tons, 1950): cotton yarn 92,200; woven cotton fabrics 69,000; wool yarn 41,900; rayon filament yarn 10,100; cement 2,508,000.

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Pole Vaulting: *see* TRACK AND FIELD SPORTS.

Police.

The Committee on Police Conditions of Service (for England and Wales) appointed by the home secretary in 1948 with Lord Oaksey as chairman, continued to exercise a major influence in 1951. Improved conditions of service resulting from the 1949 and 1950 reports of that committee apparently had increased recruitment throughout Great Britain, with the result that the wide gap between authorized establishment and actual strength was being perceptibly narrowed. In some forces the ratio of police to population now equalled that which prevailed prior to World War II, though increases in the number of offenses and motorized traffic had brought corresponding burdens to police.

In the United States, District Attorney Myles MacDonald of Kings county (borough of Brooklyn, New York city) pressed his criminal charges against scores of police in connection with mounting evidence of criminal alliances between police and gamblers. Testimony of Harry Gross, convicted on gambling charges, was held vital to the successful prosecution of indicted policemen, some of whom were of high rank. Mass trial of the defendants before County Judge Samuel Leibowitz was brought to an abrupt close by the refusal of Gross to testify, although he apparently talked with considerable freedom in his numerous appearances before the Kings county grand jury. Police Commissioner George P. Monaghan thereupon ordered the defendant police to stand administrative trial before a trial (deputy) commissioner especially appointed for the purpose, and upon receiving that official's report, promptly dismissed some for their proved complicity in gambling arrangements, reduced an assistant chief inspector (second highest rank in the force) through four echelons of command to the rank of captain, and ordered drastic changes in the assignments of those whom the trial commissioner either exonerated or found inadequate evidence to establish guilty association. Whether new evidence could be developed to justify further prosecutions without reliance upon Gross seemed at best doubtful.

Emergence of Japan from close post-World War II military control found that country operating under the highly decentralized police system imposed by the military occupation. Purpose was to destroy the close antidemocratic surveillance characterizing the centralized police system of the imperial regime. Whether the advantages of both systems could be secured under the new arrangements presented one of the most interesting questions of the year.

WOMAN TRAFFIC OFFICER, part of a volunteer group of mothers patrolling school crossings in Red Bank, N.J., in 1951. The group had no police power but ensured safety control where local police were unable to guard all important crossings

The strenuous efforts of police forces in England, Wales and Scotland to recruit their numbers up to authorized strength found no counterpart in the United States, where states, provinces, cities and national governments alike found it easy to attract police applicants whenever existing vacancies offered opportunities for early employment. One reason was the continued rise of police salaries, which in general had kept abreast of wages for most skilled employment. Another stimulus to recruiting was the steady enlargement of pension systems to include more and more forces, with more liberal terms covering retirement, disability or death, and an increasing actuarial base.

Percentage of Crimes Cleared by Arrest in U.S. Cities

Uniform Crime Classification	1950	1949	1944	1939
Murder and nonnegligent manslaughter	93.8	93.7	90.8	87.4
Manslaughter by negligence	88.3	85.1	81.5	87.7
Rape	80.3	80.2	74.8	81.8
Aggravated assault	76.6	77.2	75.7	76.5
Robbery	43.5	39.5	38.7	41.9
Burglary	29.0	29.0	31.6	34.0
Larceny	22.1	21.6	23.2	25.1
Auto theft	25.6	27.3	24.4	24.4

Adoption of the 40-hour week by United States police forces also proceeded at an accelerating pace. But those who looked beyond the immediate police horizon doubted whether such multiplying influences could continue unabated, since considerations of mounting public expense might threaten either the increase in police strength, or the new scales of pay and of pensions, or again lengthen the hours of duty beyond limits generally applied by industry, commerce and government.

Also bearing upon the issue was the record of police in performance of their duties. The year 1950 witnessed an almost general improvement in clearing crimes by arrest of the guilty parties, though the level of such achievement was still substantially below pre-World War II levels for the relatively numerous burglaries and larcenies, and also inferior to comparable achievement by British forces.

The International Association of Chiefs of Police met in 58th annual congress at Miami, Fla. early in Nov. 1951, with more than 1,000 delegates and official guests attending. (*See* also CRIME; FEDERAL BUREAU OF INVESTIGATION; SECRET SERVICE, U.S.)

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Poliomyelitis: *see* Infantile Paralysis.

Political Parties: *see* Communism; Democratic Party; Elections, U.S.; Republican Party; Socialism; also under individual countries.

Polo.

The National Inter-Circuit and Twelve Goal tournaments were held in 1951 at the Oak Brook Polo club, Hinsdale, Ill., where Healy Farms, representing the central circuit, defeated the Dallas team of Texas, becoming the National Inter-Circuit champions. However, in the finals of the National Twelve Goal, Dallas defeated Healy Farms in a sudden death period 4 to 3.

The National Twenty Goal championship was awarded to the Arlington Farms club of Libertyville, Ill. This tournament was won by the home team, Arlington Farms, by a score of 8 to 6, defeating the Sun team which represented the Oak Brook club.

A National East-West series was also held at Arlington Farms during August. This was a two-out-of-three series which the West won. These two teams then moved to Meadow Brook on Long Island, N.Y., for another two-out-of-three series which the West won in the first two games, taking the title of national champions.

The National Open championship and Monty Waterbury Memorial tournaments immediately followed the East-West series. The Open was won by the Milwaukee team, which defeated the Meadow Brook quartet 6 to 2. The Waterbury was also won by a western team, the Oak Brook Triple Cs from Evanston, Ill., who defeated the well-known Long Island Hurricane team 9 to 8. (L. M. L.)

Popular Music: *see* Music.

Population, Movements of: *see* Refugees.

Populations of the Countries of the World: *see* Areas and Populations of the Countries of the World.

Population Statistics: *see* Census Data, U.S.

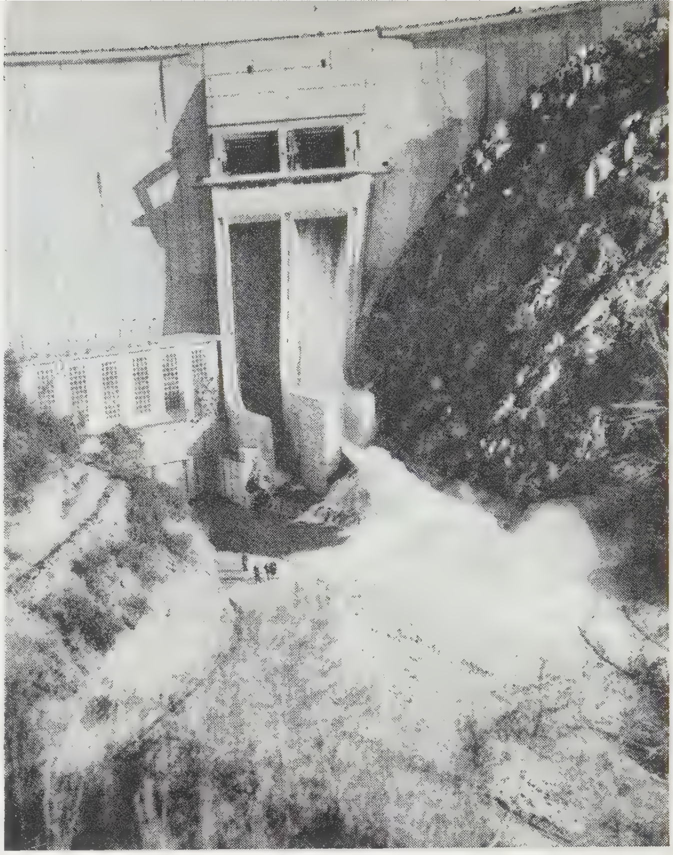
Pork: *see* Meat.

Porto Rico: *see* Puerto Rico.

Portugal.

A republic of southwestern Europe, Portugal forms part of the Iberian peninsula and is bounded east and north by Spain. Area: 35,415 sq.mi., including the Azores (888 sq.mi.) and Madeira (302 sq.mi.). Pop.: (1940 census) 7,722,152; (1950 census, preliminary figures) 8,490,000, including Azores (1940 census, 286,885) and Madeira (250,124). Language: Portuguese. Religion: predominantly Roman Catholic. Chief towns (pop., 1940 census): Lisbon (cap., 709,179); Oporto (262,309); Funchal, Madeira (54,856); Coimbra (35,437). Presidents of the republic in 1951: Marshal Antonio Oscar de Fragoso Carmona and, from July 22, Gen. Francisco Higino Craveiro Lopes (*q.v.*); prime minister, Antonio de Oliveira Salazar.

History.—The death on April 18, 1951, of Marshal Carmona brought the first break in continuity in the supreme direction of the new state since its inception in 1926. One candidate for the succession, Ruy Luis Gomes, was vetoed by the supreme court on refusing to repudiate communism. Another, the 70-year-old Adm. Manuel Carlos de Quintão Meireles, foreign minister under Salazar in 1928–29, withdrew three days before the election on July 22 on the ground that he had been refused "essential conditions." The government nominee, General Lopes, was duly elected on July 22 with 896,397 votes out of a total electoral roll of 1,158,000. The new president stated his belief that no change in the policy of the state was necessary.



ZEZERE DAM, opened 90 mi. N. of Lisbon, Port., early in 1951. Construction of the dam and generating plant was by a British firm

Gen. Dwight D. Eisenhower visited Lisbon for defense discussions in January. On Sept. 6 Portugal signed with the United States an agreement giving the latter "certain new rights" in the Azores; eventually, it was expected, this would enable the North Atlantic treaty powers to use bases there for common defense purposes.

War matériel received from the United States under the Mutual Defense Assistance program included aircraft, projectile-launching platforms, heavy anti-aircraft guns and aeronautic tools and instruments. A bill proposing a three-year military expenditure program of £18,750,000 was announced in November. One thousand additional conscripts, representing about 20% of previous strength, were called up for the navy in January, and 24,000 army reservists for 20 days' instruction in October. The defense minister, Lieut. Col. Fernando dos Santos Costa, visited Spain in May and inspected military establishments in the Pyrenees.

The 1950 financial year ended with a credit balance of 28,000,000 escudos. A one-year trade agreement with Denmark was signed in Lisbon in June, and in September a supplementary trade and navigation agreement with Germany. Fifty cardinals and bishops and almost 1,000,000 pilgrims were present at the Fatima shrine at Cova da Iria in October when Federico Cardinal Tedeschini closed the Holy Year ceremonies. (W. C. An.)

Education.—Schools (1948–49): primary 10,646, pupils 598,190, teachers 14,445; private elementary, pupils 60,158; secondary 42, pupils 19,997, teachers 1,096; private secondary, pupils 25,316; technical 67, pupils 36,533, teachers 1,591; commercial 8, pupils 3,095, teachers 217; colonial high school, students 113, professors 15; universities 3, students 8,883, professors and lecturers 475; institutions of higher education 4, students 5,576, professors and lecturers 278. Illiteracy (1940): 49%.

Finance and Banking.—Budget: (1950 revised est.) revenue 5,009,200,000 escudos, expenditure 5,117,700,000 escudos; (1951 est.) revenue 5,318,200,000 escudos, expenditure 5,315,200,000 escudos. National debt (1949 est.): 12,092,000,000 escudos. Currency circulation (July 1951): 7,930,000,000 escudos. Bank deposits (June 1951): 19,100,000,000 escudos. Monetary unit: escudo, with an exchange rate (Nov. 1951) of 28.75 escudos to the U.S. $1.

Foreign Trade.—(1950) Imports 7,884,000,000 escudos; exports 5,328,000,000 escudos. Main sources of imports (1950): U.K. 17.2%; Portuguese colonies 16.4%; U.S. 15.7%. Main destinations of exports (1950): Portuguese colonies 25.5%; U.K. 17.4%; U.S. 12.7%. Main imports (1950): wheat grain and flour 8.5%; industrial machinery 7.5%; petroleum and products 6.4%; raw cotton 5.8%. Main exports (1950): textiles 18.7%; cork and manufactures 16.8%; sardines and other tinned fish 9.6%; port and other wines 8.6%.

Transport and Communications.—Roads (1949): 16,697 mi. Licensed motor vehicles (Dec. 1950): cars 65,000; commercial 24,000. Railways: (1949) 2,246 mi.; passenger-miles (1949) 917,000,000; freight carried (1950) 3,324,000 metric tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 329; total tonnage 546,544. Telephones (1949): 134,426. Radio receiving set licences (1949): 187,385.

Agriculture.—Main crops (metric tons, 1950): wheat 606,000; barley 142,000; oats 133,000; maize 447,000; rye 208,000; rice, paddy, 135,000; potatoes 971,000; dry beans 47,000; grapes, total (1949) 1,360,000. Production of wine (1950) 7,250,000 hl. Production of olive oil (1950 est.) 38,000 metric tons. Livestock (Dec. 1948): cattle 1,000,000; sheep 4,000,000; pigs 1,200,000. Meat production (1950) 73,200 metric tons. Fisheries, total catch (1949): weight 203,243 metric tons; value 882,000,000 escudos.

Industry.—Fuel and power (1950): coal 426,000 metric tons; lignite 94,800 metric tons; manufactured gas 39,000,000 cu.m.; electricity 937,000,000 kw.hr. Raw materials (metric tons): lead (1950) 2,040; tin ores (1949) 2,654; wolframite (1950) 2,199; pyrites (1950) 613,521; cork (1949) 103,108; kaolin (1949) 21,941. Manufactured goods (metric tons, 1950): cement 572,000; cotton piece goods 28,000; cotton yarn 36,000.

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Portuguese Overseas Territories.

Under this heading are grouped the Portuguese possessions in Africa and Asia. Their total area is approximately 803,835 sq.mi. and the total population (mid-1950 est.) 12,167,000. Areas, populations, capital towns and governors of the territories are given in the accompanying table.

History.—Violent earthquake shocks in the Azores in Jan. 1951 were followed in June and July by others in the Cape Verde Islands where the Ilha do Fogo volcano, inactive after 1857, erupted and the first lava streams in 200 years compelled the evacuation of several villages. Developments in Angola and Mozambique were chiefly in communications. A new bridge over the river Kwanza was among the largest in Angola; more than 23,500,000 escudos were spent on two others spanning the Giraul and the Baro. In Mozambique 14 bridges were completed, the quays at Lourenço Marques were lengthened by more than 300 m. and progress was made with the airfield at Nampula. A new shipping agreement of the Southeast African Outward Freight conference, designed to combat cargo congestion and delays at Beira, came into effect on Jan. 1. Adm. Ortins Bettencourt, general secretary for defense and former navy minister, headed a Portuguese delegation to the conference on African defense held in Nairobi in August.

Among constitutional changes voted by the national assembly in Lisbon, and approved by Antonio de Oliveira Salazar as acting president on Marshal Antonio de Fragoso Carmona's death, was the integration of the Colonial act of 1930, with minor revision, into the constitution. By the revised act the colonies were renamed overseas provinces and the ministry of colonies became ministry of overseas territories (*ministério do ultramar*). Commenting on the proposed changes in Delhi on March 12, and parodying the wording of the Colonial act, Jawaharlal Nehru said: "It is of the organic essence of the Indian nation and of the historic process that brought independence to India to free those parts of India which are still under colonial rule. The government of India will adhere to the policy which has been so frequently reiterated." Eight schools for mixed teaching in Portuguese and Urdu were established in the various territories of Portuguese India.

Macao continued dependent on the mainland for its fresh food supply. Apart from garrison movements—three-fourths of the 4,000 troops were Portuguese—there was very little direct traffic with Portugal. A reconstruction grant of 15,000,000 escudos to repair war damage in Timor dating from the Japanese occupation was voted by the home government in January.

(W. C. AN.)

Angola.—Principal products (exports, 1950, metric tons): maize 189,500, sugar, raw 43,100, coffee 37,600, beans 27,900, sisal 21,300, palm oil 13,800, diamonds (carats) 672,985. Foreign trade (1950): imports 1,665,500,000 escudos, exports 2,169,000,000 escudos. Roads (1949): 21,772 mi. Railways (1949): 1,771 mi. Shipping (1949): vessels entered 3,748, net tonnage 3,638,530. Budget (1950 est.): balanced at 845,246,000 angolars. Monetary unit: angolar at par with escudo. U.S. $1 = 28.75 escudos.

Cape Verde Islands.—Principal products (exports, 1950, metric tons): mineral oil 356,300, coal 36,100, fish 490. Foreign trade (1950): imports 245,700,000 escudos, exports 227,600,000 escudos. Shipping (1949): vessels entered 4,126, net tonnage 2,807,822. Budget (1950 est.): balanced at 33,550,000 escudos.

Guinea.—Principal products (exports, 1949, metric tons): groundnuts 44,300, coconuts 17,300, palm oil 1,190. Foreign trade (1949): imports 142,200,000 escudos, exports 160,800,000 escudos. Shipping (1948): vessels entered 83, net tonnage 103,502. Budget (1950 est.): balanced at 74,650,000 escudos.

São Tomé and Principe Islands.—Principal products (exports, 1950, metric tons): cocoa 8,000, coconuts 7,200, copra 5,100, palm oil 2,800. Foreign trade (1950): imports 109,100,000 escudos, exports 209,500,000 escudos. Shipping (1948): vessels entered 118, net tonnage 451,862. Budget (1950 est.): balanced at 41,996,000 escudos.

Mozambique.—Principal products (exports, 1950, metric tons): sugar, raw 65,000, copra 42,900, cotton 24,400, sisal 17,300. Foreign trade (1950): imports 1,653,900,000 escudos, exports 1,063,800,000 escudos. Roads (1949): 18,078 mi. Railways (1949): 1,652 mi. Shipping (1949): vessels entered 1,988, net tonnage 6,905,468. Budget (1951 est.): balanced at 1,535,650,462 escudos.

India.—Foreign trade (1947): imports 338,900,000 escudos, exports 50,500,000 escudos. Budget (1950 est.): balanced at 86,098,000 escudos.

Macao.—Foreign trade (1948): imports 82,400,000 patacas, exports 16,600,000 patacas. Shipping (1948): vessels entered 12,265, net tonnage 1,897,125. Budget (1950 est.): balanced at 87,301,000 escudos. Monetary unit: pataca = 16.07 escudos.

Timor.—Foreign trade (1949): imports 37,600,000 escudos, exports 13,400,000 escudos. Shipping (1949): vessels entered 115, net tonnage 29,096. Budget (1949 actual): revenue 62,047,000 escudos, expenditure 48,353,000 escudos.

PORTUGUESE OVERSEAS TERRITORIES

Country	Area (sq. mi.)	Population (1950 census)	Capital	Governor
AFRICA				
Angola	481,351	4,111,796 Eur. (1950) 78,903	Luanda (pop. 1950, 137,139)	†Capt. José Agapito da Silva Carvalho
Cape Verde Is.	1,557	147,097 Eur. (1940) 5,580	Praia (pop. 1940, 6,000)	Maj. Carlos Alberto Garcia Alves Roçadas
Portuguese Guinea	13,948	508,970 Eur. (1940) 1,419	Bissau (pop. 1950, 5,700)	Raimundo António Rodrigues Serrão
São Tomé and Principe Is.	372	62,159 Eur. (1950) 1,152	São Tomé (pop. 1950, 2,605)	Lieut. Col. Carlos de Sousa Gorgulho
Mozambique	297,731	5,730,930 Eur. (1950) 48,910	Lourenço Marques (pop. 1940, 48,000)	†Comdr. Gabriel Mauricio Teixeira
ASIA				
Portuguese India	1,538	672,000*	Nova Gôa	†Comdr. Fernando Quintanilha de Mendonça Dias
Macao	6.2	500,000* Port. (1949) 4,626	Macao	Comdr. Joaquim Marques Esparteiro
Timor	7,332	434,000*	Dili (pop. 1940, 7,000)	Capt. Cesar Maria de Serpa Rosa

*1950 estimate. †His title is governor general.

Post Office.

United States.—Revenues of the post office department for the fiscal year 1950–51 amounted to $1,776,816,354.19. Additional postage that would have been collected if the service had been on a regular pay basis in the case of penalty and franked mail, free-in-county mail, differentials in second-class mail matter and free matter for the blind and the cost of aircraft service over the postage revenue derived from air mail was estimated at $104,900,000.

The expenditures of the department for the fiscal year amounted to $2,341,399,065.57, of which amount $115,603,222.21 was on account of prior years. There was $232,131,726.85 unpaid on account of the 1951 fiscal year. This left a total expense of $2,457,927,570.21, resulting in a gross operating deficit on accrual of $681,111,216.02.

During the fiscal year ended June 30, 1951, 1,239,500,000 free pieces weighing 91,000,000 lb. were mailed for other government departments, an increase of 9,000,000 pieces and 3,500,000 lb. over 1950.

On June 30, 1951, war savings stamps were on sale at 41,-

U.S. MAIL TRUCK operating on one of 18 routes established by the post office in 1951 for speeding bulk mail on short-haul runs from railroads and from post office to post office

193 offices. Sales from July 1, 1950, to June 30, 1951, amounted to $14,518,796.30. During the fiscal year savings bonds with a sale value of $267,191,418.75 were sold. At the close of the fiscal year 1951, bonds were on sale at 26,477 post offices.

Through the 41,193 post offices and 4,002 stations being conducted under contract agreement, as well as 2,386 stations and branches, there were received in the domestic mails and from foreign sources, transported and delivered 46,908,000,000 pieces of mail matter during the fiscal year having a weight of 11,909,000,000 lb., an increase of 1,844,000,000 pieces and an increase of 388,000,000 lb. from the previous year.

During 1951 it was impossible to deliver 22,935,365 letters, an increase of 21.21% from the previous year. A total of 3,663,036 letters were returned to senders. Letters containing valuable enclosures numbered 453,128, of which 107,131 contained money amounting to $236,131.62. There were also 851,890 unclaimed parcels and articles found loose in the mails. A total of 132,733 were returned to the senders.

The remaining 719,157 parcels were sold at public auction and $288,069.34 was realized.

On June 30, 1951, there were 163,000 mi. of domestic air mail routes in the United States—an increase of 4,023 mi. over the previous year.

Rural Delivery.—The rural delivery routes in operation on June 30, 1951, required a total daily travel of 1,479,509 mi. by rural carriers in providing service to approximately 33,316,544 patrons. Operation of the service resulted in an expenditure of $168,762,382 for the fiscal year, compared with $162,787,400 for the previous year.

Postal Savings.—Postal savings depositors numbered 3,529,527 for 1951, a decrease of 6.62% from the preceding year. The balance due depositors by outstanding certificates of deposits was $2,787,918,244, a decrease of $309,143,613 or 9.98%. In addition there was held in trust for depositors accrued interest of $109,127,794.29 and unclaimed deposits of $280,766, making a total of $2,897,326,804.29.

Buildings.—During the fiscal year ended June 30, 1951, the post office department operated 3,169 government-owned buildings.

Change in Postage Rates.—During the first session of the 82nd congress the rates on certain classes of mail and special services were increased. Effective on Jan. 1, 1952, the rate on postal cards issued by the post office department was increased from one to two cents each. When sold in quantities of 50 or more there was an additional charge of 10% of the postage value. A rate of two cents for each ounce was fixed on drop letters and other first class matter mailed for local delivery through post office boxes or general delivery windows at post offices where city letter carrier service is not established. On second class mail there was no change in the rate within the county of publication except that each individually addressed copy should be not less than one-eighth of one cent unless free-in-county privilege is applicable. Outside the county of publication the rate of postage was increased by 10% beginning April 1, 1952. Two additional increases of 10% each over postage chargeable at existing rates, were to become effective April 1, 1953, and April 1, 1954, respectively. Such increases would not apply to newspapers or periodicals maintained by and in the interest of nonprofit religious, educational, scientific, philanthropic, agricultural, labour, veterans' or fraternal organizations or associations, or to religious, educational or scientific publications designed specifically for use in school classrooms or in religious instruction classes.

On third class mail the rate on books and catalogs having 24 pages or more, as well as on seeds and bulbs, was fixed at two cents for the first 2 oz. and one and one-half cents for each additional 2 oz. Bulk mailings of circulars and other miscellaneous printed matter took a rate of 14 cents per pound, with a minimum charge of one and one-half cents per piece. The effective date was fixed at July 1, 1952. Special delivery fees were raised to 20 cents, effective Jan. 1, 1952. On June 1, 1951, parcel post rates were increased and became effective Oct. 1, based on zone rates.

On July 1, 1952, sale of postal notes by post offices throughout the country was discontinued. (I. Gg.)

Canada.—The post office reported a deficit for the year 1950–51: total revenue, $105,545,456; total expenditures, $106,872,245. As a result, there was a tightening up of services and increases in rates. Open-faced notes went from one to two cents; printed matter increased from one cent to two cents for the first ounce; book and parcel post rates and registration fees went up; the charges for mailing newspapers to subscribers went from one and one-half to three and one-fourth cents per pound. The two-a-day mail deliveries for urban areas were cut to one. There were about 12,800 post offices in Canada in 1951, 185 more than in 1946.

(*See* also PHILATELY.)

FILMS OF 1951.—*Postal Service: Letters, Postal Service: Parcel Post* (Bailey Films). (C. Cy.)

Potash: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Potatoes. The U.S. 1951 white potato crop of 325,708,000 bu. was 24% less than the 429,896,000 bu. of 1950 and also less than the 1940–49 average of 410,203,000 bu. The 1,353,000 ac. harvested were about 20% less than in 1950 and much below the 2,564,000 ac. average for the decade 1940-49. The 240.7 bu. per acre average yield was about 5% below the 1950 record of 253.4 bu. per acre, but much above the 164 bu.

Table I.—*Potato Production by Leading States*

(In thousands of bushels)

State	1951	1950	Average 1940–49
Late Crop			
Maine	45,835	63,360	59,654
Idaho	37,520	49,200	37,379
New York	27,900	34,390	32,145
Pennsylvania	16,215	19,920	19,176
North Dakota	15,580	21,280	19,589
California	12,800	15,840	12,490
Minnesota	11,900	16,275	18,147
Washington	11,600	11,780	9,254
Colorado	11,475	18,200	17,313
Oregon	11,220	12,920	10,736
Michigan	10,800	15,300	17,775
Wisconsin	9,805	13,400	12,708
Nebraska	6,000	11,180	10,542
Ohio	5,750	7,650	7,731
Intermediate Crop			
New Jersey	7,476	12,502	11,213
Virginia	6,882	7,964	8,998
Kentucky	1,960	2,002	3,546
Missouri	1,456	2,096	3,446
Arizona	1,387	1,764	1,179
Maryland	1,230	1,396	1,906
Early Crop			
California	21,805	31,200	21,549
North Carolina	6,909	10,354	9,295
Florida	6,321	5,582	4,306
Alabama	4,216	3,712	4,186
Texas	2,204	2,403	4,648
South Carolina	1,937	1,590	2,457
Tennessee	1,539	2,300	3,088
Arkansas	1,106	1,740	3,100

Table II.—*Potato Production of the Principal Producing Countries*

(In thousands of bushels)

Country	1951*	1950	Average 1935–39
U.S.S.R.	2,600,000	2,900,000	2,713,054
Poland	975,000	1,140,000	1,397,000
Western Germany	918,600	1,027,000	718,000
France	514,407	530,230	631,052
Eastern Germany	400,000	480,000	501,000
United States	325,708	429,896	355,504
United Kingdom	281,120	354,928	182,859
Czechoslovakia	240,000	275,000	371,415

*Preliminary.

average for the decade. The late potato crop was 255,937,000 bu. (338,659,000 bu. in 1950), with Maine as usual the leading state.

The 1951 crop was the first after 1942 not under mandatory price supports, and the consumer paid rather dearly. Average prices to farmers for the year were estimated at $1.53 per bushel (92 cents in 1950), and the small crop of 1951 was valued at $497,367,000, as compared with $392,526,000 for the previous large crop. Potato price ceilings 5% to 10% below existing prices were ordered effective Jan. 19, 1952, by the Office of Price Stabilization.

Imports in 1950–51 were 191,004,000 lb. of certified seed and 129,947,000 lb. of table stock.

The world potato crop of 1951 was preliminarily estimated at 7,800,000,000 bu., 10% less than 1950 and 6% below the pre-World War II average.

Sweet Potatoes.—The U.S. sweet potato crop of 1951 was the smallest crop since 1881; the 28,278,000 bu. production was 43% below 1950 and comparable with an average of 61,148,000 bu. for 1940–49. Only 308,000 ac. were harvested as compared with 492,000 ac. in 1950 and a decade average of 666,000 ac. The 1951 official guide was 573,000 ac. Louisiana, as in most years, was the leading state with a production of 6,400,000 bu. (10,914,000 bu. in 1950), and North Carolina second with 3,760,000 bu.

An average yield of 91.8 bu. per acre approximated the 1940–49 average, but was less than the 1950 average of 101.2 bu. The recommended goal for 1952 was 54,000,000 bu., which at average yields would require 550,000 ac. The average price to farmers for the 1951 crop was estimated at $2.83 per bushel compared with $1.73 in 1950. (*See* also VEGETABLES.) (J. K. R.)

Poultry: *see* LIVESTOCK; MEAT.
Precious Stones: *see* GEM STONES.

Presbyterian Church.

The churches with the Presbyterian form of representative government, united in the western section of the Alliance of Reformed Churches throughout the world holding the Presbyterian system, and located in the United States, are as follows: Presbyterian Church in the U.S.A. (Northern); Presbyterian Church in the U.S. (Southern); United Presbyterian Church; Evangelical and Reformed Church; Reformed Church in America; Christian Reformed Church; Cumberland Presbyterian Church; Cumberland Presbyterian Church (Colored); Associate Reformed Presbyterian Church, General Synod; Synod of the Reformed Presbyterian Church; Reformed Presbyterian Church, General Synod; Associate Presbyterian Church Synod.

In 1951 this group numbered approximately 18,600 ministers, 18,700 churches, and a communicant membership of 4,675,000. The Presbyterian Church in Canada and the United Church of Canada were also members of the western section. The Orthodox Presbyterian Church and the Bible Presbyterian Church, originating in the 1930s, were not members of the alliance.

In the home mission field during 1951 the rapid growth of industrial areas within the country had led to church establishments by the various Presbyterian groups. The Evangelical and Reformed Church projected a campaign for raising $1,000,000 for financing churches in such areas. In the field of foreign missions the plight of the Koreans resulted in an active relief program. Appeals for clothing, supplies and financial support provided extensive aid to the distressed of Korea. To meet communistic propaganda the Presbyterian Church, U.S.A., adopted a Christian evangelistic approach and used the youth and young churches to spread the Christian message. It called upon the churches to undergird their work with a greater reliance on prayer and to call for a new dedication of their youth to missionary service.

New channels for extending the spiritual message of the church were opened to churches of the alliance. The Department of Radio and Television, in presenting its report to the general assembly of the Presbyterian Church, U.S.A., in 1951 emphasized the extensive use of television and radio. Presbyterian and Reformed Churches were also active participants in the Protestant Broadcasting and Film commission of the National Council of Churches. Preaching services were conducted on the "Columbia Church of the Air" and in the coast-to-coast "National Vespers" program of the American National Broadcasting service. Television programs utilized motion pictures and puppets to bring to children the Christian message through the "Lamp Unto My Feet" and "The Good Samaritan." The audio-visual *Vanguard* was issued to acquaint Presbyterians with what the various boards of the Presbyterian Church were doing with the religious programs on radio and television.

Europe.—The eastern section of the alliance consisted of Reformed and Presbyterian Churches in England, Scotland, Wales, Ireland, France, Belgium, the Netherlands, Switzerland, Hungary, Germany, Spain, Italy, Czechoslovakia, Poland, Lithuania, Yugoslavia, South Africa, Australia and New Zealand. In Aug. 1951 there were 19 members and alternates from 10 countries and 5 continents, at a meeting of the executive committee of the alliance in Basle, Switz. At this meeting it was announced that the Presbyterian Church of the Gold Coast, the United Church of Christ in the Philippines, and the Presbyterian Church of Formosa had become members of the alliance. (*See* also CHURCH MEMBERSHIP.) (G. S. K.)

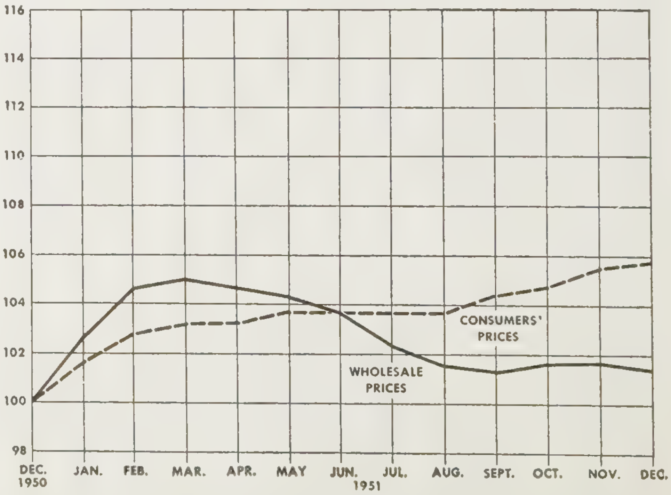
Presidents, Sovereigns and Rulers.

The following list includes the names of those holding chief positions in their countries as of Jan. 1, 1952:

Country	Name and Office	Accession
Afghanistan	Mohammad Zahir Shah, King	1933
	Shah Mahmud Khan, Prime Minister	1946
Albania	Omer Nishani, Chairman of the Praesidium of the People's Assembly	1946
	Gen. Enver Hoxha, Prime Minister	1944
Arabia, Saudi	'Abd-al-'Aziz ibn 'Abd-al-Rahman ibn Faisal ibn Sa'ud, King	1927
Argentina	Gen. Juan Domingo Perón, President	1946
Australia	Sir William John McKell, Governor General	1947
	Robert Gordon Menzies, Prime Minister	1949
Austria	Theodor Koerner, President	1951
	Leopold Figl, Chancellor	1945
Bahrein	Sulayman bin Hamid al-Khalifa, Sheikh	1942
Belgium	Baudouin I, King	1951
	Joseph Pholien, Prime Minister	1950
Bolivia	Gen. Hugo Ballivián, President	1951
Brazil	Getulio Dornelles Vargas, President	1951
Bulgaria	Georgi Damianov, Chairman of the Praesidium	1950
	Vulko Chervenkov, Premier	1950
Burma	Sao Shwe Thaik, President of the Union of Burma	1948
	Thakin Nu, Prime Minister	1948
Canada	Field Marshal Viscount Alexander of Tunis, Governor General	1946
	Louis Stephen St. Laurent, Prime Minister	1948
Ceylon, Dom. of	Lord Soulbury, Governor General	1949
	Don Stephen Senanayake, Prime Minister	1948
Chile	Gabriel González Videla, President	1946
China	Chiang Kai-shek, President of the National Government	1943
	Gen. Chen Cheng, Premier	1950
China, People's Republic of	Mao Tse-tung, Chairman of the Central People's Government of the People's Republic of China	1949
Colombia	Roberto Urdaneta, Acting President	1951
Costa Rica	Otilio Ulate Blanco, President	1949
Cuba	Carlos Prío Socarrás, President	1948
Czechoslovakia	Klement Gottwald, President	1948
	Antonín Zápotocký, Prime Minister	1948
Denmark	Frederick IX, King	1947
	Erik Eriksen, Prime Minister	1950
Dominican Rep.	Gen. Rafael Leónidas Trujillo y Molina, President	1942
Ecuador	Galo Plaza Lasso, President	1948
Egypt	Farouk I, King	1936
	Mustafa el-Nahas Pasha, Prime Minister	1950
Ethiopia	Haile Selassie I, Emperor	1930
	Bitwoded Makonnen Endalkatchou, Prime Minister	1944
Finland	Juho K. Paasikivi, President	1946
	Urho K. Kekkonen, Prime Minister	1950
France	Vincent Auriol, President of the Fourth Republic	1947
	René Pleven, President of the Council of Ministers (Premier)	1950
Germany (East)		
German Democratic Rep.	Wilhelm Pieck, President	1949
	Otto Grotewohl, Minister-President (Premier)	1949
(West) Federal Rep. of Germany	Theodor Heuss, President	1949
	Konrad Adenauer, Chancellor	1949
Great Britain	George VI, King	1936
	Winston Churchill, Prime Minister	1951
Greece	Paul I, King	1947
	Nicholas Plastiras, Prime Minister	1951
Guatemala	Jacobo Arbenz Guzmán, President	1951
Haiti	Paul E. Magloire, President	1950
Honduras	Juan Manuel Gálvez, President	1949
Hungary	Sándor Rónai, Chairman of the Praesidium of the National Assembly	1950
	István Dobi, Prime Minister	1948
Iceland	Sveinn Björnsson, President	1944
	Steingrimur Steinthorsson, Prime Minister	1950
India, Rep. of	Rajendra Prasad, President	1950
	Jawaharlal Nehru, Prime Minister	1947
Indochina		
Cambodia	Norodom Sihanouk, King	1941
Laos	Sisavang Vong, King	1945
Viêt-Nam	Bao Dai, Chief of State	1949
Viêt-Nam, Democratic Rep.	Ho Chi Minh, (Communist) President	1945
Indonesia	Achmed Sukarno, President	1949
	Sukiman Wirjosandjojo, Prime Minister	1951
Iran	Mohammed Riza Pahlavi, Shahanshah	1941
	Mohammed Mossadegh, Prime Minister	1951
Iraq	Feisal II, King	1939
	Abdul-Ilah, Prince Regent	1939
	Nuri Pasha es-Said, Prime Minister	1950
Ireland, Rep. of	Sean T. O'Kelly, President	1945
	Eamon de Valera, Prime Minister	1951
Israel	Chaim Weizmann, President	1948
	David Ben-Gurion, Prime Minister	1948
Italy	Luigi Einaudi, President	1948
	Alcide de Gasperi, Prime Minister	1946
Japan	Hirohito, Emperor	1926
	Shigeru Yoshida, Premier	1948
Jordan	Talal I, King	1951
	Tewfik Pasha Abu-Huda, Prime Minister	1950
Korea (South)		
Rep. of Korea	Syngman Rhee, President	1948
(North) Democratic People's Rep. of Korea	Kim Il Sung, Premier	1948
Kuwait	'Abdullah bin Salim al-Subah, Sheikh	1950
Lebanon	Sheikh Bishara al-Khuri, President	1943
	Abdullah al-Yafi, Prime Minister	1951
Liberia	William V. S. Tubman, President	1944
Libya	Idris I, King	1951
	Mahmud Muntasir, Prime Minister	1951
Liechtenstein	Franz Josef II, Sovereign Prince	1938
	Alexander Frick, Prime Minister	1945
Luxembourg	Charlotte, Grand Duchess	1919
	Pierre Dupong, Premier	1937
Mexico	Miguel Alemán, President	1946
Monaco	Rainier III, Prince	1949
Morocco	Sidi Mohammed ben Youssef, III, Sultan	1927
	Gen. Augustin Guillaume, French Resident General	1951
Nepal	Tribhubana Bir Bikram Shah Deva, King	1911
	Matrika Prasad Koirala, Prime Minister	1951
Netherlands	Juliana, Queen	1948
	Willem Drees, Prime Minister	1948
New Zealand, Dom. of	Lieut. Gen. Sir Bernard Freyberg, Governor General	1946
	Sidney George Holland, Prime Minister	1949
Nicaragua	Anastasio Somoza, President	1950
Norway	Haakon VII, King	1905
	Oscar Torp, Prime Minister	1951
Oman (Muscat)	Sir Sayyid Said bin Taimur, Sultan	1932
Pakistan	Ghulam Muhammed, Governor General	1951
	Khwaja Nazimuddin, Prime Minister	1951
Panamá	Alcibiades Arosemena, President	1951
Paraguay	Federico Chaves, President	1949
Peru	Gen. Manuel A. Odría, President	1950
Philippines, Rep. of the	Elpidio Quirino, President	1948
Poland	Boleslaw Bierut, President	1947
	Jósef Cyrankiewicz, Prime Minister	1947
Portugal	Gen. Francisco Higino Craveiro Lopes, President	1951
	Antonio de Oliveira Salazar, President, Council of Ministers (Prime Minister)	1932
Rumania	Constantin Parhon, Chairman of the State Praesidium	1948
	Petru Groza, Prime Minister	1945
Salvador, El	Lieut. Col. Oscar Osorio, President	1950
South Africa	Ernest George Jansen, Governor General	1951
	Daniel F. Malan, Prime Minister	1948
Spain	Gen. Francisco Franco, Chief of State (President of the Council of Ministers)	1938
Sudan	Sir Robert George Howe, Governor General	1947
Sweden	Gustav VI Adolf, King	1950
	Tage Erlander, Prime Minister	1946
Switzerland	Karl Kobelt, President, Swiss Confederation	1952
Syria	Col. Fawzi Silo, President	1951
Thailand	Phumiphon Adundet, King	1946
	Field Marshal Luang Pibul Songgram, Prime Minister	1948
Tunisia	Sidi Mohammed el-Amin, Bey	1943
	Jean de Hautecloque, French Resident General	1951
Turkey	Celâl Bayar, President	1950
	Adnan Menderes, Prime Minister	1950
Union of Soviet Socialist Republics	Nikolai Mikhailovich Shvernik, Chairman of the Praesidium of the Supreme Soviet	1946
	Generalissimo Joseph V. Stalin, Chairman of the Council of Ministers	1946
United States	Harry S. Truman, President	1945
Uruguay	Andrés Martínez Trueba, President	1951
Vatican City	Pius XII, Pope	1939
Venezuela	Germán Suárez Flámerich, President	1950
Yemen	Sayf al-Islam Ahmad ibn Yahya, King	1948
Yugoslavia	Ivan Ribar, President of the Praesidium of the People's Assembly	1945
	Josip Brozovich or Broz (Tito), Premier	1944
Zanzibar	(Sir) Sayyid Khalifa bin Harub	1911
	Sir Vincent Gonçalves Glenday, British Resident	1946

Prices. In the United States, the inflationary trend which had moved both wholesale and retail price indexes to all-time peaks in Dec. 1950 continued into March 1951 for wholesale prices and throughout the year for retail prices. Wholesale prices fluctuated narrowly during the year and in December were only 1.4% higher than at the close of the previous year. Retail prices, on the other hand, climbed slowly but steadily until May, levelled off during the summer and then advanced each month from September to the end of the year, at which time they were at an all-time high, 5.8% higher than in Dec. 1950.

The increase in prices which had begun several months prior to and which had accelerated following the outbreak of the Korean war led to the adoption of an anti-inflationary program



WHOLESALE AND CONSUMERS' PRICES in the United States, Dec. 1950-Dec. 1951 (Dec. 1950=100) (Source: U.S. Department of Labor, Bureau of Labor Statistics)

Table I.—*Per Cent Increase in Wholesale Prices, by Major Commodity Groups, United States, Prewar Prices to Postwar High Points*

Commodity group	High post-World War II increase from Aug. 1939	High post-World War I increase from July 1914
All commodities	(March 1951) 145	148
Farm products	(March 1951) 234	138
Foods	(Aug. 1948) 182	137
Textile products	(March 1951) 170	252
Fuel and lighting materials	(Dec. 1951) 92	277
Metals and metal products	(Dec. 1951) 106	99
Building materials	(March 1951) 155	218
Hides and leather products	(Feb. 1951) 157	192
Chemicals and allied products	(April 1951) 99	123
Housefurnishings	(April 1951) 110	164
Miscellaneous	(Feb. 1951) 95	102

Source: Computed from data published by the Bureau of Labor Statistics of the U.S. Department of Labor. Except as otherwise indicated, all computations presented in this article are based on such data.

in January. This program aided in preventing a greater increase in prices which would probably have occurred as a consequence of a very high level of personal, business and governmental expenditures. Nevertheless, by December the wholesale price index was 137% and the consumers' price index 92% greater than in Aug. 1939.

Wholesale prices for each major group of commodities shown in Table I, except foods, reached their post-World War II highs in various months during the year, and foods virtually reached the Aug. 1948 level in October. Wholesale prices had advanced nearly as much percentagewise as after World War I, but there had been relatively substantial changes in the commodity groups in which price increases were greatest in the two periods.

All retail prices, as reflected by the cost-of-living index of the bureau of labour statistics, attained a postwar peak in December. The only components which did not reach their highest levels in December were apparel and housefurnishings.

When compared with the post-World War I increase in the cost of living, as shown in Table II, the price rise for all items following World War II was not so severe—92% as compared with 101%. Only in food (which, however, is a sizable item in the budget of a moderate-income family for which the cost-of-living index is computed) and fuels were the price increases in the later period relatively greater; and rents, apparel and miscellaneous items did not increase nearly so much.

Table II.—*Per Cent Increase in Cost of Living (Consumers' Retail Prices), by Major Items, United States, Prewar Prices to Postwar High Points*

Item	High post-World War II increase from Aug. 1939*	High post-World War I increase from July 1914
All items	92	101
Food	148	126
Apparel	108	176
Rent	33	51
Fuel, electricity, etc.	50	49
Housefurnishings	111	†
Miscellaneous	68	82

*The high points for apparel and housefurnishings were attained in September and May 1951, respectively. All other items reached new peaks in Dec. 1951.

†Not available.

Source: Computed from data published by the National Industrial Conference Board for the years 1914–20 and the Bureau of Labor Statistics for the period beginning with 1920.

As shown in Table III, wholesale prices were, at the end of 1951, 137% greater than in Aug. 1939, 90% greater than at the start of U.S. participation in World War II in Dec. 1941, 58% greater than at the termination of price controls in June 1946 and 13% above the level at the outbreak of the Korean war in June 1950. The wholesale price index rose to an all-time peak in March, declined gradually each month through September and remained relatively stable the remainder of the year. Prices in all commodity groups increased at the beginning of the year, and most groups were relatively stable the remainder of the year. The notable exceptions were substantial decreases in the prices of hides and textile products, and decreases in the prices of chemicals, farm products and housefurnishings from their peaks early in the year.

BALLOONS released by housewives of Washington, D.C., on the steps of the capitol in 1951 to dramatize the way they feared prices might go if congress did not continue anti-inflationary controls

Table III.—*Per Cent Change in Wholesale Prices, by Major Commodity Groups, United States, Selected Periods, 1939–51*

	Per cent change Dec. 1951 from							Dec. 1950 from
Commodity	Post-war high	Dec. 1950	June 1950	June 1946	Dec. 1941	Aug. 1939		Dec. 1949
Farm products	—5.0	3.3	16.7	38.2	113.9	217.4		21.0
Foods	—1.2	4.6	15.5	65.9	107.0	178.7		15.0
Textile products	—12.4	—6.4	17.3	47.0	74.8	136.7		23.7
Fuel and lighting materials	0.0	2.6	4.9	58.5	77.6	91.7		4.0
Metals and metal products	0.0	3.7	11.5	70.9	85.6	105.7		10.1
Building materials	—2.0	1.2	10.8	72.4	107.8	150.0		16.3
Hides and leather products	—19.3	—12.1	5.3	57.1	67.5	107.4		21.5
Chemicals and allied products	—6.8	—1.2	20.4	42.9	52.5	85.8		21.2
Housefurnishings	—4.5	1.1	17.1	55.8	70.1	100.9		17.8
Miscellaneous	—0.8	0.8	23.5	43.8	61.6	93.2		26.9
All commodities	—3.4	1.4	13.0	57.5	90.0	137.1		15.9

The steady increase in consumers' prices during the year reflected the greater relative increase in wholesale prices which had occurred after war broke out in Korea and limited increases in wages and other costs. Food prices, the most important item in the consumers' cost-of-living index, and apparel led the index upward throughout the year, although apparel prices fell toward the end of the year. Other items were relatively stable. By December, retail prices were 92% higher than in Aug. 1939, 71% greater than in Dec. 1941, 42% greater than in June 1946 and 11% above the level of June 1950, as shown in Table IV.

Table IV.—*Per Cent Change in Consumers' Prices (Cost of Living) by Major Commodity Groups, United States, Selected Periods, 1939–51*

	Per cent change Dec. 1951 from							Dec. 1950 from
Commodity	Post-war high	Dec. 1950	June 1950	June 1946	Dec. 1941	Aug. 1939		Dec. 1949
Food	0.0	7.4	14.3	59.5	105.3	148.3		9.2
Apparel	—1.1	5.8	12.0	31.6	80.1	106.2		5.7
Rent	0.0	4.7	6.3	28.3	28.7	33.5		2.9
Fuel, electricity and ice	0.0	1.5	4.2	31.1	39.2	49.3		3.1
Housefurnishings	—1.1	3.4	13.7	34.7	80.0	108.9		10.5
Miscellaneous	0.0	5.3	10.9	32.2	57.0	68.4		4.2
All items	0.0	5.8	11.1	41.9	71.1	91.8		6.5

Monthly changes in the various components of the cost-of-living index are indicated in Table V, and monthly changes in the indexes of wholesale and of consumers' prices are shown in Table VI and in the chart.

Table V.—*Consumers' Price Index (Cost of Living), by Major Commodity Groups, United States, Dec. 1950–Dec. 1951*

(Dec. 1950=100)

Year and month	All items	Food	Apparel	Rent	Fuel, electricity and ice	House-furnishings	Miscellaneous
1950							
December	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1951							
January.	101.5	102.6	101.5	100.2	100.4	102.1	100.9
February	102.8	104.5	103.3	100.8	100.8	103.2	101.6
March	103.2	104.6	103.9	101.4	101.0	103.7	102.3
April	103.2	104.3	104.1	101.7	100.8	104.2	102.5
May	103.7	105.1	104.3	101.9	100.6	104.6	102.7
June	103.6	104.9	104.3	102.1	100.6	104.6	102.6
July	103.7	105.3	104.0	102.5	100.8	104.5	102.7
August	103.7	105.0	104.1	102.9	101.0	103.7	103.0
September . . .	104.4	105.1	106.9	103.5	101.1	103.9	103.4
October	104.8	106.0	106.9	104.0	101.3	103.5	103.7
November	105.5	107.0	106.2	104.5	101.4	103.7	104.9
December	105.8	107.4	105.8	104.7	101.5	103.4	105.3

Table VI.—*Index of Wholesale and Consumers' Prices, United States, Dec. 1950–Dec. 1951*

(Dec. 1950=100)

Year and month	Wholesale price	Consumers' price
1950		
December	100.0	100.0
1951		
January	102.7	101.5
February	104.7	102.8
March	105.0	103.2
April.	104.7	103.2
May	104.3	103.7
June	103.7	103.6
July	102.3	103.7
August	101.5	103.7
September	101.3	104.4
October	101.6	104.8
November	101.7	105.5
December	101.4	105.8

"EVERY TIME HE WAKES UP, I GIVE HIM ANOTHER DOSE," a 1951 cartoon by Burck of the *Chicago Sun-Times*

The rapid increase in prices following the outbreak of the Korean war demonstrated the inadequacy of voluntary controls, and the government inaugurated a comprehensive system of anti-inflationary controls during the year. Price controls were instituted on Jan. 25 with the issuance of a general ceiling price regulation by the Office of Price Stabilization. This regulation froze markups of wholesalers and retailers, and provided for discretionary imposition of ceiling prices for farm products only if prices were above parity levels. Wages were frozen by the Wage Stabilization board, but employees could seek increases up to a level approximately 10% above the prevailing wages in June 1950. Further wage adjustments, largely based on changes in the cost of living, were later permitted by the Wage Stabilization board. An amendment to the Defense Production Act of 1950, which had authorized the president to impose controls, permitted producers to raise prices to cover increases in costs from June 27, 1950, through July 26, 1951. Adjustments in wages and prices were made throughout the year to eliminate inequities resulting from the original freeze orders.

Indirectly, price inflation was combated by raising reserve requirements of banks, increasing taxation and restricting the extension of credit for housing and purchase of consumer durable goods. In addition, the specific priorities system of allocating strategic metals was replaced in July by the Controlled Materials plan administered by the National Production authority in order to assure defense production and to ease the competitive upward pressure on prices of metals in short supply. Voluntary credit restraints were imposed by the banks and other lending institutions.

During the year the national output, national income, personal expenditures and personal savings all reached record levels as the nation, engaged in war in Korea, activated a tremendous defense mobilization program and continued its extensive aid program abroad while maintaining the same level of civilian consumption at home as in 1950. The moderate increase in prices under these circumstances reflected both the effectiveness of direct and indirect anti-inflationary measures and the efficiency of production. In particular, the stability of the wholesale price index reflected a balancing of demand and supply at the close of the year. (W. V. Wi.)

Great Britain.—*Commodity Prices.*—Sterling prices of textile materials followed a common pattern. A rise between devaluation and the outbreak of war in Korea was followed by a larger rise in the nine months after June 1950 and then by a general decline, though with many fluctuations, in the last three quarters of 1951. The levels of prices at the end of 1951 were generally well above those before the Korean war. Wool prices showed particularly large fluctuations, with a peak in March 1951 more than double the pre-Korean war level followed by an even more abrupt decline. In the later months of 1951, however, wool prices tended to fluctuate less violently and around the June 1950 level. Much the same general movements were found in prices of rubber and tin. For nonferrous metals (other than tin) prices showed what was generally the most sustained increase from the time of devaluation (Sept. 1949) right through to the end of 1951. These stood in Dec. 1951 at two or three times the level before devaluation and generally 50% or more above those ruling before the Korean war. In general, the prices of sterling commodities such as wool, rubber, tin and cocoa improved relative to the prices of dollar commodities (nonferrous metals, cotton, tobacco, etc.) in the early part of 1951. This change was reversed by a much greater deterioration during the remainder of the year.

Import and Export Prices.—Though world commodity prices (and British wholesale prices of materials) declined after March 1951, the prices of United Kingdom imports showed no fall until after the middle of the year, the lag being accounted for by the interval between purchases at lower prices and the actual import of materials. On the average, import prices were 65% to

70% above the predevaluation level in June 1951 and 60% above at the end of the year.

The rise in British export prices was less rapid but more steady and prolonged than movements of import prices. The terms of trade, relatively favourable in the middle of 1949, became progressively worse following devaluation and the outbreak of war in Korea: the deterioration amounted to 33% by mid-1951. After June the fall in import prices and the continued rise in export prices both served to produce an improvement by about 10% at the end of 1951. The effect of the worsened terms of trade, particularly from mid-1950 to mid-1951, was to reduce the real national expenditure below the level of real national product; production increased but was in part diverted to exports, to pay for dearer imports.

Wholesale Prices.—Changes in prices of basic commodities in 1950–51 spread through the domestic price system, quickly for prices of materials, much more slowly for the prices of the output of industry. Materials prices fell by 18% in the last nine months of 1951, while the prices of industry's products remained firm.

Retail Prices.—The "all-items" index of retail prices moved very little from devaluation until Sept. 1950; it then began to show a steady and sustained rise of about one point a month and this continued throughout 1951. The influences operating varied from one group of prices to another. Food prices rose about as fast as the others since subsidies were not increased. Prices of clothing and household textiles rose sharply at first, since these reflected movements in the prices of raw materials to a greater extent than did some others. The later declines in prices of textile materials had still to show up significantly in retail prices by the end of the year. Household goods, particularly of metal, became much dearer from mid-1950 and prices were still rising late in 1951.

Europe.—Wholesale prices moved similarly in many European countries, a slow rise from mid-1949 to mid-1950 followed by a more rapid increase to a peak about the middle of 1951. The total rise from just before devaluation (Sept. 1949) to mid-1951 was generally 40%, as in the United Kingdom, or more.

Retail prices at mid-1951, as measured by the cost-of-living index numbers of Table VII, were about double the 1938 level in the United Kingdom and about 80% above 1938 in the United States. Germany, Sweden and Switzerland showed retail price rises of the same order, or less, as in the United States; Denmark, Norway and Ireland followed the United Kingdom pattern, with Netherlands prices having a greater rise.

Postwar prices in Belgium were about four times as high as in 1938.

Table VII.—*Cost-of-Living Index Numbers, Certain European and Commonwealth Countries*

(1937=100)

Country	1951 (June)	1950 (June)	1949 (Sept.)	1947 (June)
Belgium	412	365	376	330
Denmark*	203	179	170	166
Western Germany†	167	151	155	—
Ireland‡	205	191	188	179
Netherlands	267	237	216	203
Norway	200	171	165	167
Sweden	187	161	161	149
Switzerland	167	159	162	159
United Kingdom§	201	183	180	161
Australia‖	210	176	164	134
Canada	182	163	160	133
India	318	294	289	262
New Zealand‖	172	151	145	126
South Africa	178	167	159	146
United States	180	166	166	153

*July instead of June, October instead of September.
†1938=100. ‡May instead of June, August instead of September.
§London and Cambridge Economic Service index, 1938=100, with 1937–38 weights.
‖Quarters ending with month shown.
Source: United Nations, *Monthly Bulletin of Statistics.*

Comparisons within the postwar period, however, showed more varied changes; *e.g.*, from Sept. 1949 to mid-1951 retail prices in Switzerland changed little; Denmark, Norway and the Netherlands had larger price rises than the United Kingdom; while in Sweden the jump in prices occurred only in the year from mid-1950. As an example of the factors at work, Norway's index of retail prices began to move upward in March 1950; subsequently, food subsidies were reduced and the price level mounted rapidly. Wage rates being tied by agreement to the cost-of-living index, though with a time lag, the problem of breaking the price-wage spiral became acute in 1951. (*See* also Agriculture; Banking; Building and Construction Industry; Business Review; Consumer Credit; Income and Product, U.S.; Law; Stocks and Bonds; Wages and Hours; and articles on individual commodities.) (R. G. D. A.)

Price Stabilization, Office of: *see* Defense Mobilization Agencies, U.S.

Primary Education: *see* Education.

Prince Edward Island. Smallest province of Canada, 2,184 sq.mi., Prince Edward Island lies in the Gulf of St. Lawrence. Population: (1951 census) 98,429. Capital: Charlottetown (1951 prelim. census) 15,689.

History.—On April 24, 1951, Prince Edward Island celebrated a century of responsible government. On that date, the province was in the throes of a provincial election, which resulted in the return to power for the third time of Liberal premier Walter Jones and the start of the 17th consecutive year of a Liberal regime. The legislature gave municipalities power to impose rental controls, after the federal government vacated the field.

Education.—Latest revised statistics for provincially controlled schools were for 1948: total enrolment 18,051, average daily attendance 14,774, teachers 680, total revenues $915,668.

Finance.—For the fiscal year ending March 31, 1952, total revenue was set at $7,459,818, and total expenditures at $9,324,898.

Transportation.—The provincial hard-surfacing program for highways added only 30 mi. during 1951, part of which was on the province's section of the Trans-Canada highway. The Canadian National railways bought a truck transport company so as to increase its service throughout the island. The Canadian maritime commission refused permission to build a steel year-round ferry to connect Wood Islands, P.E.I., with Caribou, N.S.

Agriculture and Fisheries.—Farm labour shortages and a 1950 glut of potatoes were reflected in a cut in the 1951 seed potato acreage to 21,234 (1950: 35,581 ac.). But the 1951 demand quickened, and the price rose to $1.50 per bushel on the farm. Production figures for 1950 included: potatoes 10,500,000 bu., butter 4,573,000 lb., cheese 712,000 lb., fluid milk 194,000,000 lb.

During the first nine months of 1951 (with similar 1950 figures in parentheses) 23,842,000 lb. (24,597,000 lb.) of fish were landed valued at $2,035,000 ($2,249,000).

Industry.—Canning facilities continued to expand until 52 canneries were packing fish and agricultural products. The establishment of a tourist and information branch brought more tourists in the first 11 months of 1951 than in all of 1950, and additional tourist accommodation was made possible through loans to private operators from the provincial government. (C. Cy.)

Principe: *see* Portuguese Colonial Empire.

Printing. Improvements in printing equipment and processes during 1951 consisted in the refinement of existing methods rather than in revolutionary development. Three of the most important are described. The *Milwaukee Journal* (Wis.) announced the development of a method for printing three-colour process work in newspapers in which a set of three-colour plates can be produced in one-third the time required for a comparable set of four-colour plates. The 20-in. by 24-in. Curtis Color Analyst, made by Curtis laboratories, Los Angeles, Calif., was said to be the largest beam-splitting optical instrument of its kind. Its copyholders accept a full newspaper page and permit simultaneous viewing of black-and-white photographic separation prints, or black-and-white ink proofs of process half tones in full colour. The instrument controls permit optical variations in colour balance to be made to suit the observer.

Thus pellicle mirrors, front-surfaced mirrors, lights and colour filters, balanced to the primary colours of the printing inks, transform the black-and-white prints into a full-colour image superimposing the three images into one full-colour image. A meter for each print indicates the amount of variation from a balanced condition in terms of percentages of exposure time and dot sizes. With this variation as a guide, new prints can be made by the photographer to bring the separations into balance. If the prints are in balance, the Color Analyst image may indicate a need for some local correction. The artist can then retouch any one or all of the separations to obtain the desired result and check the result in the Analyst before sending the prints to the engraver.

A flying printing press was developed for the U.S. armed forces by the Harris-Seybold Company, Cleveland, O. The press prints by offset process and has a capacity of up to a 22½-in. by 30-in. sheet at a maximum speed of 6,500 sheets per hour. The press may be lashed into an aeroplane for fast transportation. It can be unloaded from the aeroplane, set up and ready to deliver printed material within two hours. The press is a self-contained pressroom with all necessary facilities stowed within its enclosing container. The packaged press weighs five tons. The ends of the plywood enclosing case are fitted with drawers for tools, parts, paper and supplies. The sides of the container can be set up like tables. The skid mounting of the press functions as the bottom of the shipping container. A jack is built into each of the four corners of the base. An all-directional bubble level indicates when the press is level. It was suggested that the principle of making heavy machinery mobile, if adopted by manufacturers whenever practicable, would permit the moving of production units after installation to facilitate production. Customarily, heavy equipment when once in place cannot be moved without great expense because of the necessity of making connections to water, gas and air.

Two important developments pertinent to publication printing were announced by the Bishop-Stansell Company, West Carrollton, O. The first of these was an automatic electrotype plate finishing machine which was said to eliminate 95% of the handwork formerly necessary to correct the printing level and imperfections in the face of the plate. The machine carries a travelling bed upon which the plate to be finished is placed face down. As the motor-driven bed motion commences, a series of two-inch knurled-face rollers in staggered formation are lowered upon the back of the plate. Each roller bears down under the force of weights. The pressure is applied through a cantilever-like action. A plate may be finished in 15 sec., more or less, according to the size of the page.

After passing through the finishing machine, the plates are shaved for uniform thickness and are then shaped to proper curvature for the press cylinders.

The other development announced by the Bishop-Stansell Company was a 0.010-in. thick tympan stock for rotary printing presses. The face of the stock is coated with a plastic, while the underside is coated with a graphite impregnated compound. Curved plates may be made with an all-over level surface or they may be relieved according to the printing values in the face of the plate; *i.e.,* the solids in a half-tone illustration require more pressure to print satisfactorily than the high-light areas. Conversely, in a level surface plate, make-ready is applied in the form of patches under the top sheet on the impression cylinder. In either case, the circumference of the relieved plate or the circumference of the impression cylinder cannot rotate in unison with its mate, because of the radial difference from the axis of the plate or from the axis of the impression cylinder. Consequently, there will be a slight slippage between the printing plate and the paper web resulting in two abnormal conditions: (1) rapid wear will take place in the high areas of the plate; and (2) a slurring effect will occur in the print. To correct this slipping condition, the top sheet on the impression cylinder is applied tautly and one or two notches of the reel are slacked off to permit a certain amount of looseness. Thus the top sheet of the packing or impression cylinder is caused to slip slightly (only a few thousandths of an inch) during the time the highest areas in the plate are in contact with the paper web. The slippage is aided by the slick coating on the underside of the top sheet. At these instants, the slacked-off top sheet and the paper web rotate in unison. The top sheet resumes its normal position immediately after pressure of the high areas in the plate on the web has been released. The plastic coating on the tympan permits repeated washing off of offset ink on the rotary press second-impression cylinder.

FILMS OF 1951.—*A New Way of Gravure* (A. F. Films, Inc.); *How to Make a Silk Screen Print* (Almanac Films, Inc.); *Joan Miro Makes a Colored Print* (Thomas Bouchard). (M. SI.)

Prisoners of War.

Repeated appeals throughout the year 1951 by the International Committee of the Red Cross to the North Korean government to permit committee delegates to visit prisoner of war camps in North Korea, under the Geneva Prisoner of War convention, received no response.

The South Korean government and the United Nations command observed all provisions of the convention.

On Aug. 1 the North Korean government had reported the names of only 110 United Nations prisoners while the names of 148,792 North Koreans and 14,347 Chinese prisoners had been

CLEARINGHOUSE for information about the more than 13,000 Alsatians missing since they were conscripted by the Germans during World War II. Many were believed to be in soviet labour camps in 1951. Occasionally returnees identified a man's portrait, giving new hope to his family

registered with the International Committee of the Red Cross by the South Korean government and United Nations command.

Relief dispatched by the I.C.R.C. to civilian victims and prisoners of war in North Korea was turned back by Communist authorities at the frontier.

Through the efforts of the French Red Cross, a certain number of prisoners of war and civilian internees were exchanged between the opposing forces in Viêt-Nam. Later, on July 26, a meeting was held in a neutralized zone between a representative of the International Committee of the Red Cross and the president of the Viêt-Nam Democratic Red Cross in an attempt to enlarge the scope of these exchanges.

The *ad hoc* Prisoner of War commission created by the United Nations general assembly in 1950 addressed a note to all governments calling for the names of World War II prisoners still held by them and the reasons for their detention. Burma, Canada, Norway, the Philippines, the United Kingdom and Yugoslavia transmitted such lists. The soviet bloc declined to reply on the ground that the resolution creating the commission was contrary to article 107 of the United Nations charter. All other countries reported that they held no prisoners of war.

Article 16 of the Japanese peace treaty signed in San Francisco, Calif., provided that the International Committee of the Red Cross take the necessary measures to have Japanese assets available abroad utilized to assist former prisoners of war of the Japanese and to aid the relatives of those who died in captivity or who suffer from the effects of such captivity. (*See* also JAPANESE PEACE CONFERENCE; RED CROSS.) (H. W. DG.)

Prisons.

At the close of 1951 there were in the United States 152 state correctional institutions for adults which included 68 prisons or penitentiaries, 26 reformatories for men, 25 reformatories for women, 22 farm institutions, 11 special institutions including 3 hospitals for the criminal insane and 4 institutions for defective delinquents. This number of state institutions was exclusive of the federal prison system, which comprised six penitentiaries, three reformatories for men and one for women, a medical centre, a detention facility, eight correctional institutions, three camps, a training school and a forestry camp for boys.

The prison population at the end of 1950, according to the information available at the close of 1951, numbered 167,173 in state and federal prisons and reformatories. This represented an increase of 2,046 or 1.2% over the number confined in these institutions at the end of 1949. The number of prisoners committed by the courts during 1950 totalled 71,978 which was an increase of less than 0.5% compared with the total number of 71,703 committed during 1949. As shown in the table, there were 10% fewer persons in prison at the end of 1950 than at the end of 1939 and 7% fewer persons were sent to prison during 1950 than during 1940.

During 1950 more than 75,000 prisoners were released from prison. Less than half, or about 32,500, were released unconditionally; the remainder, about 42,500, were released under various forms of conditional discharge, of which about 80% were paroled.

Prison Population in State and Federal Prisons and Reformatories

(Dec. 31 of each year)

Year	Number	Rate per 100,000*	Year	Number	Rate per 100,000*
1950 . . .	167,173	110.9	1944 . . .	134,069	105.9
1949 . . .	165,127	111.9	1943 . . .	138,498	108.7
1948 . . .	157,154	108.3	1942 . . .	152,703	116.7
1947 . . .	152,295	106.8	1941 . . .	166,655	126.7
1946 . . .	141,242	102.1	1940 . . .	175,231	133.1
1945 . . .	134,669	105.6	1939 . . .	182,330	139.6
Prisoners received from courts					
1950 . . .	71,978	47.8	1944 . . .	51,648	40.8
1949 . . .	71,703	48.6	1943 . . .	51,491	40.4
1948 . . .	65,931	45.4	1942 . . .	62,187	47.5
1947 . . .	66,230	46.4	1941 . . .	73,288	55.7
1946 . . .	62,874	45.4	1940 . . .	77,424	58.8
1945 . . .	54,954	43.1			

*Rate per 100,000 estimated civilian population.

There was little important legislation relating to prisons enacted in 1951 by the various state legislatures. Perhaps the most interesting legislation was the passage of an act by the Maine legislature which would permit an interstate compact affecting Maine, New Hampshire and Vermont for the construction and operation of correctional and other types of institutions through the establishment of a tristate facilities authority. (*See* also CRIME.)

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Prizes of 1951: *see* LITERARY PRIZES; NOBEL PRIZES; PULITZER PRIZES. *See* also AMERICAN LIBRARY ASSOCIATION; ART EXHIBITIONS; MINERALOGY; MOTION PICTURES; ROMAN CATHOLIC CHURCH; SOCIETIES AND ASSOCIATIONS, U.S.; THEATRE; etc.

Production, Industrial: *see* BUSINESS REVIEW.

Profits, Company: *see* BUSINESS REVIEW; TAXATION.

Protestant Episcopal Church.

According to the statistics published in the *Living Church Annual, 1952*, several all-time highs were reported in 1951: 2,643,488 church members (baptized persons); 1,712,070 communicants; 6,805 clergy; 6,447 lay readers; 88,727 confirmations; 62,877 teachers and 543,167 pupils in its church schools; and total receipts of $81,946,472.10, or an increase of $8,100,000 or 10.9% over the preceding year.

The acute shortage of clergy, caused by World War II, was beginning to be made up by record ordinations: deacons, 287; priests, 276; candidates for orders, 566; and 1,210 postulants (those listed by the bishops as desiring ordination). The theological seminaries were unable to accept all applicants. Yet the church was still seriously undermanned, having fewer active clergy in 1950 than it had 25 years before.

Baptisms, totalling 109,289, were 1,329 fewer than during the record year of 1948, but the number of adult baptisms 19,341 of the total, was a record. Marriages 30,426, were 6% greater than during the preceding year but far less than the record year of 1943 when they totalled 41,970. Burials 54,316, were the only item in the list which showed a decrease: 1,038 or 1.9% less than the preceding year.

During the century 1851–1950, the rate of increase in the number of the clergy had lagged far behind the growth in membership: while the latter increased 1,635%, the number of clergy increased only 326.6%. In 1851, each of the 1,595 clergy (active and retired) had on the average only 61 communicants under his pastoral care; in 1951 each of the 6,805 clergy (active and retired) had on the average 251 communicants under his pastoral care. This indicated that several years of record ordinations were necessary to enable the church to undertake a program of expansion and thus be able to meet its responsibilities and to take advantage of its opportunities. (*See* also CHURCH MEMBERSHIP.) (W. H. SE.)

Protons: *see* PHYSICS.

Prunes: *see* FRUIT.

Psychiatry.

Various studies were under way in 1951 on the role of tensions, anxieties and hostilities in the field of labour and industry. Investigations in the field of education continued to deal not only with the mentally retarded child but also with the child who is emotionally disturbed and thereby impaired in his school progress. Another aspect of

GROUP PSYCHIATRY demonstrated by staff members of the Phipps clinic at the Johns Hopkins hospital, Baltimore, Md., where the method was practised in 1951. As a new approach to mental illness, it assumed that patients could help each other in solving emotional problems

interest in 1951 was that of civil defense, with special reference to the avoidance of panic.

In the field of law, progress was made in the study of the so-called psychopathic sexual offender. The number of states with "sexual psychopath" laws was increasing, and it appeared that the public was becoming more aware of the fact that many sexual offenders are abnormal mentally and that their problems and the problems of society which they create are not to be solved by ordinary penal methods. Alcoholism was another field in which the public was coming to realize that the penal methods had failed and that the alcoholic is essentially a sick man. During 1951 the drug "antabuse" was placed on sale (on prescription only). So long as an individual is taking antabuse the use of even a small amount of alcohol will make him extremely ill.

The drug is not a permanent cure, but it does reduce the amount of time devoted to excessive drinking, and is of aid in psychotherapy. It has distinct dangers, however, and should be used only with caution and under the supervision of an experienced physician.

The relation of psychiatry to the other specialties was being more widely recognized. During the year, for example, one book on psychosomatic gynaecology and obstetrics and another on the emotional factors involved in gastrointestinal disorders were published. Pediatrics recognized more and more the importance of the psychiatric approach to the problems of illness in children. A study by A. E. Bennett showed that of nearly 4,800 general hospitals in the United States only about 280 had psychiatric facilities, and that only about 4% of all general hospital beds were for psychiatric cases. The trend was toward the development of psychiatric facilities in general hospitals, however, and represented a closer relationship between psychiatry and the rest of medicine.

Steps were taken by the American Psychiatric association to stimulate the development of higher standards in mental hospitals. Improvement, however, was largely dependent upon legislative appropriations, which in turn were dependent upon public interest and support. Work continued in studies on the genetic factors (that is, the inheritance of mental disorder), particularly with reference to the so-called manic-depressive psychosis. Studies indicated that hereditary factors are involved in this disorder.

The problem of the mental disorders accompanying old age continued to press urgently upon the public and upon mental hospitals. In New York state, for example, whereas in 1920 seven persons per 100,000 were admitted annually to the state hospitals with a diagnosis of senile psychosis, the number had risen 20 years later (1940) to 12, an increase of nearly 60%. There were many fields for research into the prevention of mental breakdown in later life, including physiologic, psychologic and social.

There were a number of developments in treatment of mental disease and deficiency. Follow-up studies were made on the permanency of the effects of glutamic acid on states of mental retardation. Unfortunately, glutamic acid does not offer a panacea, but it does appear that in some cases of prolonged treatment with this drug a substantial and permanent improvement may be observed. Considerable caution must still be advised in evaluating the effects, however.

Studies continued in the physiologic, as opposed to the psychologic, approach to treatment. In addition to insulin and electroconvulsive therapy, there were ACTH, cortisone, the steroids, histamine, carbon dioxide, intravenous ether, methedrine and a drug known as LSD 25. These substances were of varying efficiency and were indicated in only certain types of disorder. None of them is a cure-all, and in some instances the only effect, if any, is to make the patient more amenable to a psychotherapeutic approach. Studies on the effect of what is known as topectomy (that is, the removal of certain selected areas of the cortex of the brain) and upon the controversial subject of prefrontal lobotomy were pursued. Progress continued in the investigation of the effects of various drugs in lowering the intensity and frequency of convulsive seizures, and the possibility of developing further types of medication.

A study of 62 patients with anxiety neurosis, conducted from 2 to 12 years after they had completed a course of intensive individual psychotherapy, showed that nearly 60% had held their improvement, and that there was a close correlation between the evaluation of the patient's condition by the patient and by the doctor. The authors (Henry H. W. Miles, Edna L. Barrabee and Jacob E. Finesinger) stressed the importance of developing a methodology for further study of this important question. One of the most active fields in the therapeutic line during 1951 was that of group psychotherapy, a method started by Joseph H. Pratt in 1905 and developed by Louis Wender, Jacob L. Moreno, Samuel R. Slavson and others. Apparently there are some advantages to group psychotherapy over the individual variety, and its value was being shown not only in mental hospitals but in the treatment of alcoholics and in the re-education of offenders in penal institutions. This method must of course be used with discernment, and its limitations needed further study. (*See* also NERVOUS SYSTEM; PSYCHOLOGY; PSYCHOSOMATIC MEDICINE.)

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(W. OR.)

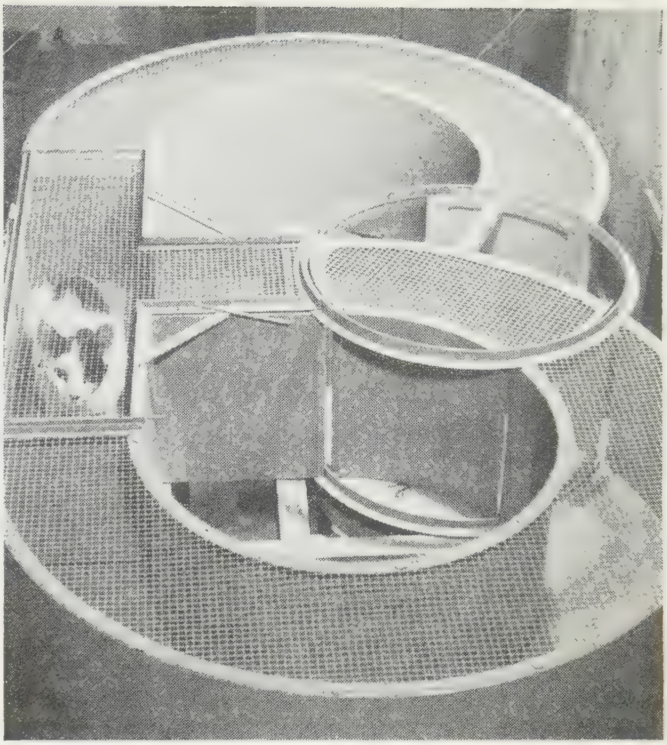
Psychology.

Many psychologists in 1951 continued to be concerned with problems of methodology. However, the emphasis shifted somewhat from the development of new techniques for the measurement and prediction of behaviour to the evaluation and refinement of techniques already in use.

E. Lowell Kelly and Donald W. Fiske published the results of a five-year research program, sponsored by the Veterans administration, on the prediction of performance in clinical psychology. The research was specifically designed to find efficient and accurate procedures for predicting whether a student would succeed as a clinical psychologist; but it had many implications for the selection of personnel in other professions. A large group of subjects was used, including all the students who entered the Veterans administration training program in clinical psychology in 1946 and 1947, and many psychologists with different backgrounds and theoretical orientations served as examiners, interviewers and observers. The study employed an extensive battery of psychological tests, intelligence tests, interest measures and so-called objective personality tests, as well as situation tests and projective tests, like the Rorschach ink-blot test. Various credentials often used in the selection of professional personnel, such as application blanks, were included. Because selection is often based on the impressions a candidate makes on an interviewer, this study also investigated how well an interviewer could predict later success in a professional position. After each student had gone through this complete assessment, an analysis was made in order to learn which of all these methods, or combinations of methods, yielded the best predictions of success.

One of the problems was, of course, to determine whether or not a student was successful. Consequently, follow-up studies were made at different stages of his training and, if possible, upon the completion of his training; and an attempt was made to measure how well he was performing his professional duties. In the past, psychologists spent much time in developing selection procedures, but they had relatively ineffective ways of deciding whether their procedures were valid, that is, whether they predicted actual performance on the job. The primary reason for this difficulty was that the measurements of job performance, especially of professional jobs, were inadequate. For example, if a medical student completed his medical school course, went into practice, and after that was favourably regarded by his patients and by other doctors, he was thought to be a good doctor. Although these criteria may be important indexes of professional success, they do not directly measure the individual's professional competence. Kelly and Fiske and their colleagues, by focusing attention on the theory of so-called criterion measures and on the development of procedures for obtaining these measures, appreciably advanced psychological work on the problems of selection.

The results of the study showed that both the objective tests and records and the clinical judgments and interviews were reasonably reliable and valid. An interesting and rather controversial finding was that the objective measures seemed to be better for predictive purposes than either the projective tests or the clinical judgments. Although much more work needed to be done before a final evaluation of these techniques could be attempted, this research cast some doubt on their value. A more specific result was that these psychologists found that they were better able to predict a general factor of success in the profession of clinical psychology than to predict success on any particular aspects of the duties involved. In general, this research not only advanced the solution of the problems of selecting and training clinical psychologists, but also, because of its scope and its inquiry into many types of psychological techniques, it was relevant and significant for the over-all problem of the selection of professional and other high-level personnel.



DOUBLE MAZE for testing cats' memories, used at Washington university, St. Louis, Mo., in 1951, to study the effects of anoxia (oxygen deficiency) just after birth on intelligence in maturity. About half of each litter tested had been subjected to anoxia after birth

The use of a theoretical or formal model led to a new approach to the study of language and communication. Beginning with an analysis of a communication system first made by telephone engineers, George A. Miller in his book, *Language and Communication,* described the process in the following way. Communication is thought of as a system in which information is passed from one person or place to another. The first component in the system is the source of information; *i.e.,* the person who is doing the talking or writing or other kind of communication. The next part is the transmitter, by which a message is encoded or put into a form in which it can be communicated. Speech, sign language, writing, etc., are all codes for sending a message. Next is the channel along which the message is sent in time or space. In speech the channel is the air which carries the sound waves to a listener's ear; in writing it may be a printed page. When the message is received, it must be decoded or put into its original form at its destination, and then the communication process is complete. In this system any errors that may arise are called noise. A perfect communication system would have no noise and the message would travel from its source to its destination without distortion. Emphasized in this approach is the fact that communication occurs in sequence, with one event following another in time or space. The order of these sequences is determined partly by the needs and desires of the communicating person and partly by the grammar, syntax and other characteristics of a language. By making sequential analyses of the statistical probabilities that one word or a series of words will follow another word or series of words, it may become possible to predict, at least on a short-term basis, the verbal behaviour of a human being.

In 1951 a publication of prime importance, the *Handbook of Experimental Psychology,* appeared. Although primarily of pedagogical interest, the book is significant in that it presents a technical survey, written by experts, of the field of experimental psychology at the middle of the 20th century.

In addition to the research and theoretical developments, psychology continued to undergo changes in its professional structure. The recent growth in the number of practising psychologists, as contrasted with those who do research or teaching, had led several states to enact laws concerning the practice of psychology. In some states certification laws were put into effect. Certification provides for the setting up of examination procedures or other means of establishing standards of performance, and the psychologist who goes through the steps necessary to show that he meets these standards is entitled to call himself a certified psychologist. Certification laws do not restrict the practice of psychologists who are not certified. Some states, on the other hand, passed licensing laws which limited the practice of psychology to those who could meet the qualifications to obtain a licence. Legislation had previously been enacted in Connecticut, Georgia, Kentucky, Oklahoma and Virginia; in 1951 two more states, Minnesota and Nevada, passed laws covering psychological practice. (*See* also Psychiatry; Psychosomatic Medicine.)

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Psychosomatic Medicine.

A. E. Bennett and associates reported in Nov. 1951 that of 574,683 total beds in the 4,761 United States general hospitals, there were only 24,000 beds, or 4%, for psychiatric patients. These beds accommodated only 1% of all mental patients. Increasing appreciation of the role of emotional factors in many illnesses had made the general hospital the proper place in which to teach psychiatry and conduct research. Of 73 four-year medical schools in the United States in 1951, 52 used general hospitals for psychiatric teaching, training and research. Seventeen did not. Voluntary health insurance coverage of psychiatric disorders was seriously lacking. Only 10% of Blue Cross and 5% of Blue Shield plans that were studied provided the same benefits for psychiatric as for other medical disorders.

Approximately one-third of private practising psychiatrists had no hospital affiliation for treatment purposes. The restriction to office practice, together with the increasing public demand for psychiatric service, greatly handicapped both patient and physician.

Three hundred patients suffering from relatively early psychosomatic illnesses were studied by Marc Musser to determine the common and important bodily symptoms which correlated closely with the development of their emotional disorder—symptoms which might suggest the possibility of an underlying emotional disorder. All of the patients had thorough physical examinations and on no occasion was the influence of existing organic disease minimized. Persistent insomnia was present in 57% of the patients, and was often the earliest manifestation of emotional difficulty. In 30% of the patients who had recurrent headache, an emotional cause was rarely suspected initially. Many had received intensive treatment for chronic nasal sinusitis, allergic rhinitis, histamine cephalalgia and atypical migraine, and only after these approaches had failed was psychiatric investigation undertaken. Pain or aching in the muscles of the neck, back, chest or extremities was a prominent complaint in 43% of the patients.

These symptoms were some of the early bodily manifestations of emotional disturbances and often were the only indications of the psychosomatic nature of a patient's illness. Musser concluded that when these complaints are present, a thorough investigation of the life situations and personality of the patient is indicated.

Many gynaecological problems, previously investigated from a physical standpoint only, were shown by W. S. Kroger and S. C. Freed to have an important emotional component, for example, leukorrhoea, low back pain and sterility. New information was reported concerning emotional factors in menstrual dysfunctions and frigidity.

A book by Edward Weiss dealing with emotional factors in cardiovascular disease pointed out the great importance of these factors in producing symptoms generally attributed to heart disease, as well as in the precipitation and aggravation of actual organic disease of the heart. (*See* also Medicine; Nervous System; Psychiatry; Public Health Services.)

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Public Assistance: *see* Child Welfare; Social Security.

Public Health Engineering.

Development of water resources continued to be of major significance in virtually every country of the world during 1951. Shortage of the water supply of New York city during 1948–50 merely tended to dramatize a situation confronting small as well as large populations. The Water Resources Policy commission appointed by Pres. Harry S. Truman in Jan. 1950 proposed greater federal participation in the study and development of water resources—a participation not generally acceptable to many professional engineering groups.

The practice of water fluoridation continued to expand in 1951. By controlling the fluorine concentration of potable water, it had been found possible to reduce dental caries in children by 60% to 65% at a relatively low annual per capita cost of 5 to 15 cents. The National Research council of the United States reported that the administration of such a program presents no serious problem of public health or control. The practice was being given similar attention by the ministry of health of England. More than 6,000,000 people in the United States were using artificially fluoridated water in 1951, and 3,000,000 more were drinking water with a natural fluoride content sufficient to reduce dental caries.

Progress was made in studies on removal of radioactive contaminants from water, by coagulation with alum and sodium hydroxide and with other orthodox coagulants. The efficiencies of removal, however, depended upon the particular radioactive elements involved. With some, phosphate coagulation appeared particularly effective, as in the removal of mixed fission products and strontium 89.

A major development in equipment for water purification in England involved the use of finely divided woven fabrics of stainless steel as filtering media. The finest wires are about 0.0022 in. in diameter; the number of apertures per square inch in some of the fabrics is 80,000, with the apertures having a nominal size of about 35 microns. The fabric is used either for preliminary filtration of water or for the final clarification of sewage effluent from purification works.

EMPTYING SMOG BAGS at a California foundry in 1951, after smoke was sucked from the foundry's stacks and blown through filter bags to remove grit. The antismog machinery was installed by order of the Los Angeles County Air Pollution Control district

Insecticides.—The effectiveness of DDT apparently continued to decline in 1951. Flies were becoming more resistant not only to DDT but to other insecticides. Even Anopheles were not responding as effectively as before to DDT applications. Attention was directed to the development of alternative insecticides and the elimination of insect-breeding areas.

Laboratory studies confirmed the assumption that water wettable suspensions of DDT are vastly superior to emulsions of DDT on mud wall surfaces.

Animal-Borne Diseases.—The infectious diseases of animals constitute a considerable hazard to man. Food poisonings by Salmonella, Staphylococcus and Streptococcus had been attributed frequently to poultry. The turkey and the duck now played a new role in the engineering aspects of food control. A sound and inclusive poultry inspection service, under competent engineering and veterinary supervision, had become a major necessity for the protection of the health of the public. The characteristics of global rat populations were reviewed, with the general conclusion that to decrease the population, competition among rats should be fostered by decreasing food.

The results of increasing competition by manipulating the environment had been apparent in Baltimore, Md. In 1944, 400,000 rats were estimated to be living in Baltimore; in 1947 there were about 165,000 and in 1949 about 65,000. The reduction accomplished was of high engineering significance, because it was due primarily to the rehabilitation of substandard dwellings and to the simultaneous cleaning of dwellings. (*See* also ACCIDENT PREVENTION; CHILD WELFARE; EPIDEMICS AND PUBLIC HEALTH SERVICES; INDUSTRIAL HEALTH.)

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FILMS OF 1951.—*Every Drop to Drink* (British Information Services).

(AB. W.)

Public Health Services: *see* EPIDEMICS AND PUBLIC HEALTH SERVICES.

Public Libraries: *see* AMERICAN LIBRARY ASSOCIATION; LIBRARIES.

Public Relations.

While no truly reliable figures were available at the close of 1951, the best estimates were that about 35,000 persons were directly engaged in the practice of public relations in the United States. An estimated 6,500 employees of the federal government were performing public relations activities, 3,500 persons were in the employ of public relations counselling firms and the balance of about 25,000 were on the pay rolls of business, industrial, educational, charitable and other institutional organizations, and of state and municipal governments.

There were during the year at least 750 public relations counselling firms engaged in business in the United States, the great majority of them headquartered in New York city. As one index of the growth of the profession, only about half that many firms were in existence five years before. The larger of these firms had staffs ranging in size from 15 to more than 200 persons. A number received aggregate annual fees in excess of $500,000.

The United States civil service commission reported that in June 1951, 6,548 persons were working for executive departments and agencies of the federal government at information, editorial and public relations positions throughout the country. However, Sen. Homer Ferguson (R. Michigan) was reported by the *Chicago Daily News* to have stated that if all persons doing full or part-time "propaganda," direct and indirect, for the government were actually counted the total would be more than 60,000.

The bureau of the budget estimated that pay-roll costs for public relations personnel in the federal employ were $13,539,000 for the fiscal year 1949. While figures for later years were not available, there were good grounds to believe that pay-roll costs for this purpose had substantially increased by 1951.

Surveys of public relations trends in industry conducted by the Public Opinion Index for Industry of the Opinion Research corporation and by the National Research committee of the Public Relations Society of America disclosed sharply increased activity in the field during the year. In a review of concerns with assets of $5,000,000 and more, these were among the more significant disclosures:

Sixty companies out of 100 in a representative sample covering utilities and communications, trade, transportation and manufacturing had public relations departments. The department was headed by a vice-president in one company in five. About 70% of the persons in charge of public relations for their companies reported directly to the president or the chairman of the board. Size of public relations staffs varied from 1 person to 200, with a department of 10 to 15 persons being about average for large corporations. Approximately one-third of the companies surveyed reported an increase in staff during the year.

Public relations appropriations by industry continued to increase in 1951, with 38% of the corporations reporting an increase over the 1950 budget and only 8% reporting a decrease. The surveys further disclosed that 82% of the chief executives of corporations were taking an active part in the public relations efforts of their companies and that one-third of these officers were giving more time to public relations activities than they did five years before.

Other figures reported by the surveys and illustrating the increasing use of various tools of public relations included the following:

Employee publications were being produced by 76% of the companies in 1951 as against 57% in 1947. About 74% of the companies were sending regular letters to employees in 1951, whereas only 28% were regularly using this communications device five years previously.

In 1951, 79% of the large companies invited people in the community to visit their plants and learn about the companies at first hand. In 1948, only 26% of large companies had adopted this practice.

The use of newer information tools also showed marked uptrends. Comic books containing general company and economic information were used by 22% of the large corporations in 1951 as against 9% in 1949. Educational motion pictures were employed by 73% of the concerns in 1951 as against 48% one year previously. In 1951 about 17% of the surveyed corporations began using information racks for the easy and regular distribution of pamphlets and other printed materials.

Economics courses to which companies invited their foremen and other employees were offered by 20% of the companies in 1951 as against 12% in 1949.

Corporations were depending less on voluntary comment as a means of evaluation of public relations results and more on the more objective and scientific opinion survey. During the year 38% of the large companies made regular use of opinion surveys, while a year before only 20% did so.

At least 70 United States colleges and universities were offering courses in public relations and 6 were granting a bachelor's degree in the field.

The largest meeting in the history of the profession was held Nov. 18 to 21, 1951, in Chicago, Ill., with more than 500 delegates from all sections of the United States and from Canada, Venezuela and Puerto Rico attending the fourth annual conference of the Public Relations Society of America. (D. O'B.)

Public Utilities.

The first public utilities in the United States to feel inflationary effects in the past had been the urban transit utilities, followed shortly by the telephone utilities. Rate increases for these industries were justified in large part by the dominance of the labour factor in their operations. In 1951, however, the continuing and spreading effect of price and wage inflation began to affect also the retail rates of gas and electric utilities. The dockets of state regulatory commissions were bulging with applications from the gas and electric companies for rate increases, and commission orders were being issued granting them in whole or in part. The dominating argument for the advances was that, besides allowing for increases in the cost of labour and materials, the need for increases in depreciation rates and in the rate of return must also be recognized. The Office of Price Stabilization resisted these rate advances with the plea that their effect upon the economy, if granted, would be inflationary. The commissions justified their orders by contending that some increases were necessary to protect the credit of the companies at a time when large issues of equity securities had become necessary to provide the capital for plant expansion. A significant new note in these arguments was the contention by the utilities that depreciation as a current cost should be based upon the current high cost of replacement of physical property instead of the lower actual costs of the past.

Another important development for public utility industries was the construction for the Atomic Energy commission at Paducah, Ky., of a new plant which would require 1,000,000 kw. of electric power. Early in the year, agreements were reached that half of these energy requirements would come from TVA and half from Electric Energy, Inc., a new company formed jointly by five private electric utilities operating in the vicinity. The importance of this new development was signified by the fact that to construct a new steam-electric plant, the new company was authorized to sell $100,000,000 in bonds to two insurance companies

Judicial Decisions.—Since World War II a growing number of states had passed legislation restricting the right of public utility employees to strike against their employers. Among them a Wisconsin statute provided that where the collective bargaining process reaches an impasse or stalemate and the state labour relations board finds that the dispute, if not settled, may cause interruption of an "essential service," and where such interruption results in damage and injury to the public, a process of conciliation followed by compulsory arbitration be instituted. A union of motor coach employees, being unable to agree upon new terms for wages with its employer, the Milwaukee Electric Railway and Transport company, had called a strike to enforce its demands. The Wisconsin employment relations board immediately secured a court order restraining the strike. This order was affirmed on appeal by the supreme court of Wisconsin. The union appealed the Wisconsin decision to the United States supreme court which overthrew the state anti-strike law (340 U.S. 874). The court found that the procedure required by the Wisconsin law was in conflict with the procedure required under the federal Taft-Hartley act in which congress had expressly safeguarded the right of employees to engage in concerted activities for the purpose of collective bargaining, including the right to strike. Since congress, in restricting employees' rights in cases involving national emergencies, had not gone to the length of prohibiting strikes, such greater restrictions were prohibited to the states in their legislation.

In *Cities Service Gas Co.* v. *Peerless Oil and Gas Co.* (340 U.S. 179), the supreme court for the first time sustained the fixing of a minimum price for natural gas as a reasonable regulation in the interest of conservation. The Oklahoma commission had fixed the minimum wellhead price in the Guyman-Hugoton field and had ordered the Cities Service company to take gas ratably from the Peerless company at such minimum price. The court sustained this order.

As clearing the way for state commissions to direct natural gas toward uses deemed by them to be conservationally most important, the federal supreme court sustained (341 U.S. 329) an order of the Michigan commission directing the Panhandle

Eastern Pipe Line company to secure a certificate of public convenience and necessity before selling gas to industrial consumers in the service area of a local gas company. The court held that although such sales were in interstate commerce, congress in passing the Natural Gas act had left them to regulation by the states as matters of essentially local concern.

Another commission decision, in this case of the Federal Power commission, had long-run implications upon the conservation issue. In the Phillips Petroleum case, decided Aug. 22, 1951, a divided commission held that transportation and sale of gas in interstate commerce is not within its jurisdiction if made in the course of production and gathering. This case appeared certain to be appealed to the supreme court.

Legislation.—Florida joined the ranks of the states subjecting its privately-owned gas and electric utilities to a comprehensive system of regulation administered by a state Railroad and Public Utilities commission. In other states, besides the usual grist of laws making minor amendments in existing regulations, changing names, length of tenure of commissioners and size of commission, there appeared a distinct trend to subject both electric and telephone co-operatives to commission jurisdiction.

When congress in 1951, despite executive pressure, failed to advance the Great Lakes-St. Lawrence seaway and power project, the Canadian parliament on Dec. 19 approved legislation to authorize the construction of the St. Lawrence waterway project by Canada alone. Previously, parliament had endorsed a measure approving an agreement between the federal government and the province of Ontario whereby the latter would take over the power project in the international rapids section. With the expectation of forestalling the Canadian plan of unilateral action, which would involve the payment of tolls by U.S. shipping using the waterway and which would have serious drawbacks for the U.S. in other respects, the president, in his budget message, again asked the approval of congress for the joint project by including a $20,000,000 supplemental appropriation for fiscal 1953 to the army engineers for the beginning of construction. According to latest estimates, the comprehensive plan would cost about $600,000,000, with a power capacity of 940,000 kw. The controversial seaway part of the project was defended upon the new ground that an inland and submarine-proof route was advisable for reasons of national security, and to bring iron ore cheaply from Labrador to the steel mills of the middle west.

The Electrical Industry.—The year 1951 carried both production and sales of electric power to hitherto unheard-of totals. Compared with 1944, the peak war year, 1951 showed a boost in energy production from 228,000,000 kw.hr. to 371,000,000 kw.hr. and sales from 198,000,000 kw.hr. to 317,000,000 kw.hr. In the same period, capacity rose from 49,000,000 kw. to 75,000,000 kw. (*See* also DAMS; ELECTRICAL INDUSTRIES; FEDERAL POWER COMMISSION; LAW; RAILROADS; RURAL ELECTRIFICATION; TELEGRAPHY; TELEPHONE; TENNESSEE VALLEY AUTHORITY; ELECTRIC TRANSPORTATION.) (M. G. G.)

Canada.—Pressures on such public utilities as those filling the transit, electric power, telephone communication and fuel gas needs of the public continued and even increased throughout 1951. The increase was, in general, a result of the expanding population, but in particular it could be traced to the improving standard of living and to the growing tendency of the population to concentrate in cities. The latter meant, for instance, that transit companies needed more vehicles and that the vehicles had to travel longer distances (into spreading suburban areas) to maintain scheduled routes.

Despite the competition of bottled gas, consumption of natural gas soared (1949: 60,457,177,000 cu.ft.; 1950: 85,128,691,000 cu.ft.). Five companies sought the right to export from Alberta. The U.S. Federal Power commission refused permission to Texas natural gas interests to export about 10,000,000,000 cu.ft. per year to Ontario areas.

Despite intense programs for expanding telephone service in 1951, waiting lists of persons wanting phones continued to embarrass even the larger companies, though there were 40% more phones than in 1946. During the year the major companies spent more than $100,000,000 for new installations, exchanges, toll lines, and to help finance them were granted rate increases running from 5% to 12%. (C. CY.)

Publishing: *see* BOOK PUBLISHING; NEWSPAPERS AND MAGAZINES.

Puerto Rico. A United States insular dependency in the West Indies, Puerto Rico has an area of 3,435 sq.mi. Pop. (1950 census) 2,210,703. Rural population was estimated at 59.5% of the total, urban population 40.5%. Chief cities (with April 1, 1950, preliminary census figures): San Juan, the capital (223,949); Río Piedras (132,369); Ponce (99,190); Mayagüez (58,744); Caguas (33,733); Arecibo (28,500). Languages: Spanish and English. Religion: predominantly Roman Catholic. Governor in 1951: Luis Muñoz Marín.

History.—In the process of carrying out the objectives of public act 600 of the U.S. congress, which recognizes the right of the people of Puerto Rico to organize a government pursuant to a constitution of their own adoption, a referendum was held on June 4, 1951, to accept or reject public act 600. The people of Puerto Rico, by a great majority, accepted public act 600. On Aug. 27, 1951, elections were held to select the delegates to the constituent assembly. On Sept. 17, 1951, the inaugural session of the constituent assembly was held. Antonio Fernós Isern, resident commissioner of Puerto Rico in Washington, D.C., was selected president.

On June 4, 1951, and through a process of referendum, the municipality of Río Piedras was annexed to the municipality of San Juan, giving the capital a population of 356,318 inhabitants.

Education.—Total enrolment during 1951 in the public and private schools of Puerto Rico was 482,319. Public schools had an enrolment of 458,793 pupils; private schools 23,526. Enrolment in the public schools was distributed as follows: 340,047 in elementary schools; 99,640 in secondary schools; 6,522 in vocational schools; and 12,584 in evening schools. In the public schools, the number of teachers, principals and assistant superintendents was 9,691; private schools employed 1,045 teachers. Higher education was carried on by the University of Puerto Rico, Río Piedras, the Polytechnic Institute of Puerto Rico, San Germán, the College of Sacred Heart, Santurce, the University of Saint Mary and the Puerto Rico Junior college.

The estimated total school-age population (persons 6 to 18 years old) in Puerto Rico in 1951 was 706,289. Of this number, 454,866, or 64.4%, were enrolled in the public and private schools of the island.

Banking and Finance.—Total bank deposits as of June 30, 1951, amounted to $281,717,419; bank debits were $311,983,565; bank loans amounted to $154,307,893.

Insular government revenues and receipts for the fiscal year (ending June 30) 1950–51 totalled $229,031,436 of which $134,571,845 was received in the general fund and $94,459,591 in all other funds. The total disbursements, excluding transfer payments, for the same period amounted to $226,927.333. Of this total, disbursements from the general fund amounted to $132,886,499 and from all other funds $94,040,834.

Trade.—For the fiscal year (ending June 30) 1950–51, the value of shipments of goods and merchandise from the United States to Puerto Rico was $400,397,676. The value of imports from foreign countries for the same period was $37,137,930. The total value of goods and merchandise entering Puerto Rico was $437,535,606, of which 91.5% came from the United States and 8.5% from foreign countries. During the fiscal year, the value of shipments from Puerto Rico to the United States was $254,337,842 and the value of exports to foreign countries was $17,076,076.

Communications.—During the fiscal year (ending June 30) 1950–51, 70,755 motor vehicles were registered, of which 45,063 were passenger vehicles, excluding government owned vehicles; 9,529 were heavy trucks; 9,938 were light trucks; and 6,225 were other vehicles such as tractors, trailers, motorcycles, etc., and government-owned vehicles. The insular department of the interior kept under maintenance, as of June 30, 1951, 3,693 km. of roads. During the fiscal year, 2,723 vessels entered insular ports with a registered tonnage of 10,385,860 short tons. During the same period, 146,978 passengers arrived at the island, 139.524 by air and 7,454 by water. A total of 188.898 passengers departed from the island, 183,300 by air and 5.598 by water. As of June 30, 1951, there were 37,066 telephones in service in the island. As of Aug. 1951, 24 radio stations were operating.

Agriculture.—During the 1951 crop year, 10,501,396 short tons of

PUERTO RICAN WOMEN finishing custom-made carpeting at a new factory near Carolina, P.R., in 1951. They are shown applying dyed wool yarn to the backing fabric premarked for design

sugar cane were harvested in Puerto Rico. The coffee crop amounted to 172,000 cwt.

Manufacture.—Sugar production for the 1951 crop year amounted to 1,201,310 short tons of raw sugar (96° basis), and 207,055 short tons of refined sugar (96° basis). The total production during fiscal year (ending June 30) 1950–51 of some manufactured products was as follows: distilled spirits, 4,598,911 proof gallons; beer 3,495,397 gal.; blackstrap molasses 60,407,525 gal.

During the year, the total value of building permits granted was $97,487,564. There were 6,530 building permits granted, and 10,563 new dwelling units authorized. Electric power generated for the same period amounted to 610,973,362 kw.hr. (J. L-Ee.)

Mineral Production.—The accompanying table shows the tonnage and value of mineral production in the territory in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Mineral Production of Puerto Ric

(Short tons)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Cement	3,187,451	$8,299,186	2,171,486	$6,109,041
Lime	8,166	180,828	7,347	184,618
Stone	250,010	574,709	519,870	826,621
Other Minerals		?		244,699
Total		?		$7,365,000

Pulitzer Prizes.

The annual Pulitzer prizes in journalism, letters and music, first awarded in 1917, were established at Columbia university by the will of Joseph Pulitzer. The four 1951 prizes in letters, of $500 each, were awarded as follows: fiction award to Conrad Richter for *The Town* (Knopf); biography award to Margaret L. Coit for *John C. Calhoun, American Portrait* (Houghton); history award to R. Carlyle Buley for *The Old Northwest; Pioneer Period, 1815–1840* (Indiana Historical Society); poetry award to Carl Sandburg for *Complete Poems* (Harcourt Brace). No drama award was given for 1951.

Twelve prizes in journalism were awarded; they consisted of $500 each to the individuals, and gold medals to the two newspapers cited. Six foreign correspondents received awards in international reporting, marking the first time that more than one award had been given in this field. No award was made in the field of national reporting. The journalism prizes were awarded as follows: for meritorious public service, to the *Miami Herald* for crime reporting exposing gangster infiltration into Miami daily life and to the *Brooklyn Eagle* for its series on gambling and police corruption in Brooklyn; for local reporting, to Edward S. Montgomery of the *San Francisco Examiner* for his series of articles which resulted in an expose within the bureau of internal revenue; for international reporting, to Fred Sparks of the *Chicago Daily News* for his story from Berlin concerning the training of a new Nazi army by the Communists; and to Homer Bigart and Marguerite Higgins of the *New York Herald Tribune,* Keyes Beech of the *Chicago Daily News,* Relman Morin and Don Whitehead of the Associated Press for their reporting of the Korean fighting; for distinguished editorial writing, to William H. Fitzpatrick of the *New Orleans States* for a series of editorials on the United Nations Genocide Covenant and Covenant on Human Rights; to Reginald W. Manning of the *Arizona Republic* (Phoenix) for his cartoon "Hats"; to Max Desfor of the Associated Press for his photographic coverage of the Kòrean fighting, as typified in his "Flight of Refugees Across Wrecked Bridge in Korea."

The Pulitzer prize in music, first given in 1943, was awarded to Douglas Stuart Moore for his score of the opera *Giants in the Earth.* (R. E. Bs.)

Pulp Industry: *see* Paper and Pulp Industry.

Pyrite: *see* Mineral and Metal Production and Prices.

Q Fever: *see* Respiratory Diseases; Veterinary Medicine.

Quakers: *see* Friends, Religious Society of.

Quebec.

The largest Canadian province, Quebec is located along the lower St. Lawrence river. Area: 594,860 sq.mi., of which 71,000 sq.mi. are water. Pop. (1951 census): 4,055,681. Capital: Quebec city (pop. 1951) 161,439, metropolitan area 271,236; chief city: Montreal (*q.v.*) 1,002,703, metropolitan area 1,370,044.

History.—The third session of the 23rd legislature concluded in March 1951 (having started in Nov. 1950) with 67 government and 83 private bills sanctioned by the lieutenant governor. The government was authorized to make large expenditures on new hydroelectric projects, highways, and agricultural and housing assistance. The fourth session of the legislature convened early in Nov. 1951 to provide enabling legislation for Quebec's participation in the federal old-age security scheme (*see* Social Security). Provincial rent control took over from the former federal rental body.

Extremely buoyant economic conditions prevailed throughout the year.

Education.—In the 1945–51 period, 1,385 new schools were built in the province and 7,547 existing schools were improved.

Finance.—The 1951–52 provincial figures (with 1950–51 in parentheses) were: revenues $237,771,000 ($231,985,000), ordinary expenditures $173,697,200 ($149,952,860), capital expenditures $44,150,700 ($31,015,000), debt charges $18,879,000 ($19,647,000).

Transportation.—The 1951 provincial expenditure on roads ran to $62,000,000, compared with $42,000,000 in 1950. Increased traffic led to inauguration of a policy of keeping 90% of the 6,730 mi. of first-class highways open during the winter months. An 80-mi. cutoff across Gaspé was practically open, which saved encircling the entire peninsula. The year saw completion of about 40 mi. of the 350-mi. railway from Sept Iles to the northern Quebec-Labrador iron ore discoveries.

Agriculture and Fisheries.—Crops for the year were given an estimated value of $205,000,000 and livestock of $312,000,000. In 1951 6,339,400 ac. were under cultivation.

Production of fish for the first nine months of 1951 (with production for the comparable period of 1950 in parentheses) was: landings of 85,933,000 lb. (101,580,000 lb.) which brought $2,584,000 ($2,631,000).

Industry.—Pulp and paper production for 1951 was set at $400,000,000, while lumbering for the year did not exceed $100,000,000.

The 8,700 manufactories of 1941 had nearly doubled in number by 1951, and production totalled about $4,500,000,000. Early in 1951 the premier announced that in the 1951–53 period public and private interests would spend another $1,500,000,000 on hydro expansion.

Minerals.—The total value of minerals for 1951 was officially estimated

FRIGHTENED ORPHANS, their hands still linked, making their way to safety after filing down the single fire escape of the Hospice Ste. Cunegonde in Montreal, Que. The Catholic refuge for orphans and the aged went up in flames in June 1951, taking the lives of 35 adults

at $240,000,000. More than 600,000,000 tons of iron ore were blocked out in the Ungava area, and work on the railroad, town site and hydroelectric plants went forward. Mining was expected to begin in 1954. About $15,000,000 was authorized for development of the copper deposits in Gaspé. The north-shore titanium deposits were being exploited for an expected 110,000-ton yield by 1952. The Barraute silver-zinc find was further outlined, and completion of the highway into the Chibougamau area brought the announcement of existence there of an $80,000,000 copper-gold ore reserve. (C. Cy.)

Racing and Races: *see* Air Races and Records; Automobile Racing; Horse Racing; Motor-Boat Racing; Track and Field Sports; Yachting.

Radar: *see* Electronics; Civil Aeronautics Administration.

Radio.

The number of radio stations in operation or being constructed throughout the world in 1951 did not change substantially, according to the best available estimates. These placed the total at about 6,750, counting booster or relay as well as broadcast stations but excluding television (TV) and frequency modulation (FM) stations.

Unofficial estimates indicated that the number of radio receiving sets in use throughout the world increased by about 5,000,000 to 9,000,000, to reach a total of 171,000,000 to 175,000,000. Most of these were on the North American continent. The U.S. total alone was placed at about 104,000,000, compared with an estimated 90,000,000 in 1950.

U.S. Stations.—The year 1951 was one of steady but unspectacular growth in the broadcasting field. There was a net gain of 87 amplitude modulation (AM) stations during the year. In FM, however, which had never really caught on with the public despite early enthusiasm of broadcasters, the number of stations showed another decline in 1951.

The box score kept by *Broadcasting Telecasting Magazine* from official records of the Federal Communications commission (FCC) showed that 3,161 broadcasting stations—AM, FM and TV—were in operation or had been authorized by the end of Dec. 1951. This figure represented a net gain of 57 over the 3,104 reported at the end of 1950, whereas the 1950 total represented a net loss of 34 as compared with 1949. The number of stations actually on the air at the end of 1951 was the largest in history: 3,083, compared with 3,014 the previous year.

The *Broadcasting Telecasting Magazine* box score placed the AM stations total at 2,406, of which 2,295 were in operation. A year earlier, at the end of 1950, the box score showed 2,319 AM authorizations, with 2,231 of this number in operation. The FM station authorization total dropped from 676 to 648; but, as had been the case in 1950, all of the authorized stations were on the air.

In television, the FCC's licensing freeze was still in effect—though the communications agency gave hope of lifting it early in 1952—and the number of TV station authorizations again, for the third year, did not gain. Indeed, in August, through the effectuation of a previously issued FCC order, an authorization for a TV station in Jacksonville, Fla., was deleted and the total number of authorizations dropped from 109 to 108. The number of stations in operation increased, however, from 107 to the full 108, and the number serving U.S. citizens reached 109, counting a new station at Matamoros, Mex., across the border from Brownsville, Tex.

Applications for new AM stations awaiting FCC action numbered 310 in Dec. 1951, compared with 263 a year earlier. In FM, 11 applications were pending compared with 10 in 1950. In TV, the 1950 year-end total of 374 grew to 475 during 1951 and the number was still increasing as a result of the FCC's indications that it would soon lift the licensing freeze.

Facsimile.—There was little activity in the facsimile field in 1951. Approximately a dozen FM stations, most of them owned by newspapers, were engaged in this method of record transmission and reproduction—about the same number as in 1950. Technical standards called for an 8.2-in. paper size, with speeds permitting transmission at a rate of 16 letter-size pages per hour.

Transit Radio.—One of the major developments in FM—"transit radio," or the transmission of special programs (usually music and news) to receivers installed on streetcars and buses, which had become a sizeable operation in many cities—was facing a supreme court test at the close of the year. The supreme court agreed in October to hear an appeal from a District of Columbia court's decision, in a case brought by a group opposed to what they called "forced listening," which held that transit radio "commercials and announcements" were unconstitutional in that they "deprive objecting passengers of liberty without due process of law." The high court, which was expected to hear the case early in 1952, also agreed to consider whether transit radio music and noncommercial announcements, such as weather reports and other public service features, are legal or illegal.

The outcome of this case, it was felt in radio circles, might also have implications for other FM specialized services, such as broadcasting programs for reception in stores, factories, restaurants, etc.

U.S. Commercial Broadcasting.—The year 1950, latest for which official reports were available at the close of 1951, brought a reversal of the downward trend in net revenues which sharply mounting expenses had produced in immediately preceding years. Instead of taking a 12.21% drop in net income before federal taxes, as they did in 1949, AM networks and stations enjoyed a gain of approximately 25.7% as their total rose to $70,743,262 as compared with $56,262,915 in the preceding year, according to official figures compiled and released by the Federal Communications commission.

Gross revenues registered a 7.1% gain, reaching $443,057,845. This compared with $413,784,633 in 1949, which represented a 1.67% increase over 1948.

The FCC report placed total broadcast expenses for 1950 at $372,314,583, up 4.1% from the 1949 figure of $357,521,718. The report was based on information filed by 7 AM networks, their 26 owned and operated stations, and 2,117 other AM stations in 1950, and by 7 networks, 28 owned stations, and 1,993 others in 1949.

The 4 national AM networks and their 18 owned AM stations accounted for $106,037,156 of total broadcast revenues in 1950, while 3 regional networks and their 8 owned stations accounted for $4,441,302, and the 2,117 other stations accounted for $332,579,387. The preceding year, the three classifications reported $105,287,561, $4,153,648, and $304,343,424, respectively.

In net income before federal taxes, the nation-wide networks and their owned stations reported $18,662,605 compared with $18,498,708 in 1949; the three regional networks and their owned stations, $321,737 in 1950 as against a loss of $593,632 in 1949; and the 2,117 other stations, $51,758,920, compared with $38,357,839 reported by 1,993 in 1949.

Receipts from the Sale of Time.—Time sales, which represent the financial backbone of broadcasting, climbed to a new high mark in 1950 with an increase of approximately 6.6% over the previous year, the FCC report showed. The 6.6% gain put the 1950 total at $453,564,930, as against 1949's $425,357,133, which had represented a 2.07% increase over the 1948 totals. Revenues from the sale of network time totalled $131,530,216, compared with $134,898,325 in 1949; time sales to national and regional advertisers amounted to $118,823,880 ($108,314,507 in 1949); and time sales to local advertisers totalled $203,210,834 ($182,144,301 in 1949).

These totals included commissions paid to agencies, etc., which broadcasters regard as an expense of sale. Commissions and payments of this nature totalled $52,475,775, whereas in 1949 the comparable total was $50,307,683.

AM Industry Balance Sheet.—A comparison of fundamental financial data for the years 1950 and 1949 is shown in Table I, prepared on the basis of FCC records.

Table I.—*Financial Status of AM Broadcasting Industry in U.S.*

AM networks and stations	1950*	1949†	Per cent increase (decrease in parentheses)
Revenues, sale of network time . . .	$131,530,216	$134,898,325	(2.5)
Revenues, time sales to national, regional advertisers	118,823,880	108,314,507	9.7
Revenues, time sales to local advertisers	203,210,834	182,144,301	11.6
Commissions to agencies, etc.	52,475,775	50,307,683	4.3
Revenues from talent sales, etc. . . .	41,968,690	38,735,183	8.3
Total broadcast revenues	443,057,845	413,784,633	7.1
Total broadcast expenses	372,314,583	357,521,718	4.1
Broadcast income (before federal income taxes)	70,743,262	56,262,915	25.7

*Seven networks, 2,143 stations covered in report.

†Seven networks, 2,021 stations covered in report.

Tangible Broadcast Property.—Seven AM networks, their 26 owned stations, and 2,108 other AM stations had a total original investment of $242,397,350 in tangible broadcast property, according to the FCC report for 1950. This total was broken down as follows: 4 nation-wide networks and 18 owned stations, $28,431,206 (compared with $25,499,895 in 1949); 3 regional networks and 8 stations, $1,662,737 ($4,930,738 in 1949); and 2,108 other stations, $212,303,407 ($200,156,402 for 1,997 stations in 1949). Total depreciated cost of these properties: $149,413,180. By category, the depreciated costs were listed as follows: 4 national networks and 18 stations, $12,369,293 ($10,-

PAMELA BROWN (left), John Gielgud and Dorothy McGuire rehearsing for their 90-min. performance of *Hamlet* in 1951. They were presented by the Theatre Guild on the Air, chosen the outstanding dramatic program of the year by the Academy of Radio and Television Arts and Sciences

513,660 in 1949); 3 regional networks and 8 stations, $461,794 ($3,234,150 in 1949); and for 2,108 other AM stations, $136,582,093 ($136,326,482 for 1,997 stations in 1949).

Table II.—*AM Tangible Broadcast Property in the U.S.**

	1950	1949	Per cent increase (decrease in parentheses)
Original cost	$242,397,350	$230,587,035	5.1
Depreciation to date	92,984,170	80,512,743	15.4
Depreciated cost	149,413,180	150,074,292	(0.44)

*1949 figures represent 4 national networks and 18 owned stations, 3 regional networks and 8 stations and 1,997 other stations. 1950 figures represent 4 national networks and 18 stations, 3 regional networks and 8 stations and 2,108 other stations.

FM Finances.—There was no way of counting FM revenues and expenses accurately, principally because many FM stations were operated by AM broadcasters and often in these cases there was no clear distinction between the financial records, especially the expense data, for the two stations. It was generally accepted, however, that FM's income was still comparatively small. In many instances, joint AM-FM stations offered the FM audience as a bonus with the AM.

Estimated 1951 Time Sales.—Official figures on radio time sales in 1951 were not available, but *Broadcasting Telecasting Magazine* placed the 1951 total at approximately $485,492,606. This represented a gain of almost $32,000,000 over the $453,564,930 recorded in 1950. A comparison of the 1951 estimates with the 1950 totals computed by the FCC is provided in Table III.

Table III.—*Time Sales of U.S. Radio Stations*

Class of business	1951 (estimated)	1950	Per cent increase (decrease in parentheses)
National network	$116,641,381	$124,633,089	(6.4)
Regional and miscellaneous network	7,125,000	6,897,127	3.3
National and regional non-network	134,291,439	118,823,880	13.1
Local	227,434,786	203,210,834	11.4
Total	$485,492,606	$453,564,930	7.1

Source: 1952 *Radio Yearbook of Broadcasting Telecasting Magazine.*

U.S. Manufacturing.—The Radio-Television Manufacturers association, which represented more than 80% of the industry, in a preliminary estimate in December placed 1951 production at approximately the following levels: home radio receivers, 6,700,000; automobile radios, 4,500,000; portable radios, 1,300,000.

Although the outlook for 1952 indicated further limitations on civilian production, primarily because of material shortages, officials of the association expected a faster pace of deliveries of military electronic equipment. This, they felt, would increase employment and take up much of the plant capacity which had been idle for a period in mid-1951.

U.S. Programs.—The most popular radio network programs during the third week of November in 1951 as compared with the same week in 1950 are shown in Tables IV and V. The tables segregate the programs between daytime and nighttime.

Table IV.—*Top Rated Nighttime AM Network Programs in the U.S.*

Program	Rank Nov. 1951	Rank Nov. 1950	Nielsen rating Nov. 1951	Nielsen rating Nov. 1950
Radio Theatre	1	1	16.3	20.9
Jack Benny	2	2	16.0	20.3
Amos 'n' Andy	3	5	14.9	16.5
Charlie McCarthy	4	3	13.1	17.0
Godfrey's Talent Scouts	5	4	12.4	16.6
People Are Funny	6	...	11.2	...
Fibber McGee & Molly	7	...	11.0	...
Walter Winchell	8	6	10.4	16.1
You Bet Your Life	9	...	10.0	...
Bob Hawk Show	10	...	9.8	...
My Friend Irma	...	7	...	15.2
Red Skelton	...	8	...	15.0
Mystery Theatre	...	9	...	14.7
Mr. Chameleon	...	10	...	14.6

Source: A. C. Nielsen Company, Chicago, 1952.

ARMED GUARD at the studios of Radio Free Europe in western Germany, a private U.S. enterprise for broadcasting to soviet satellite nations. It was given the 1951 George Foster Peabody award for its "contribution to international understanding"

The year 1951 was marked by much experimentation with new radio programs, as broadcasters sought to develop shows that would better meet or offset television competition. A. C. Nielsen Co. measurements indicated that, among early fall programs, comedy variety radio shows—which had been tied with general drama for first place in 1950—had dropped to fifth place in 1951. News interest remained at a high level, because of the Korean war and general world conditions.

Table V.—*Top Rated Weekday AM Network Programs in the U.S.*

Program	Rank Nov. 1951	Rank Nov. 1950	Nielsen rating Nov. 1951	Nielsen rating Nov. 1950
Arthur Godfrey (Liggett & Myers)	1	1	8.3	10.0
Helen Trent	1	3	8.3	8.7
Pepper Young	3	...	8.0	...
Road of Life	4	...	7.6	...
Our Gal Sunday	5	2	7.4	8.8
Ma Perkins	5	5	7.4	8.1
Big Sister	7	9	7.3	7.6
Right to Happiness	8	...	7.0	...
Arthur Godfrey (Nabisco)	9	6	6.9	7.8
Sky King	10	...	6.7	...
Challenge of Yukon	...	4	...	8.3
Arthur Godfrey (Gold Seal)	...	7	...	7.7
Wendy Warren	...	7	...	7.7
Rosemary	...	9	...	7.6

Source: A. C. Nielsen Company, Chicago, 1952.

U.S. Nation-Wide Networks.—The number of U.S. national radio networks, which had increased from four to six in 1950, dropped back to five in 1951 when the Progressive Broadcasting system suspended operations on Feb. 1, less than three months after it started. The four veteran radio networks were the American Broadcasting company (ABC), the Columbia Broadcasting system (CBS), the Mutual Broadcasting system (MBS) and the National Broadcasting company (NBC). The latter

TINY TRANSISTOR developed at the Bell Telephone laboratories, New York city, in 1951 (compare size with peas in open pod). It amplified electrical signals about 100,000 times and required only one-millionth of the power needed by the miniature vacuum tube

celebrated its 25th anniversary (Nov. 15) with special programs throughout the last half of the year. The youngest national network, the Liberty Broadcasting system (LBS), which had started full-time service on Oct. 2, 1950, claimed by the end of 1951 to have 430 stations affiliated with it.

A change in ownership of ABC loomed at the end of 1951 as result of an agreement reached in May whereby ABC would be merged with United Paramount Theatres, Inc., a major motion picture theatre company, in a $25,000,000 deal. The FCC, whose approval was required because ABC was a station licensee, scheduled a hearing for early 1952.

In another major development, CBS entered the manufacturing field on a substantial scale by acquiring, through a $20,000,000 exchange-of-stock arrangement consummated June 15, the properties of Hytron Radio and Electronics Corp., manufacturers of radio and television tubes and receiving sets, phonographs, and radio and TV cabinets. As a corollary, and also in recognition of increasing competition between radio and TV broadcasting activities, CBS a few weeks later reorganized into six autonomous units, including separate divisions for operation of its radio and television networks.

The possibility of future changes of significance in the ownership and perhaps in the type of network operation of the Mutual Broadcasting system developed in October, when plans were announced for a merger of WOR and WOR-TV (New York city) with the radio and television properties of General Tire and Rubber Co., which included two regional networks (the Yankee network in New England and the Don Lee Broadcasting system on the west coast). Both WOR and General Tire owned blocks of Mutual stock which combined would form clear majority control of the network for the first time. Under the plan, which was awaiting FCC action when 1951 ended, General Tire or a subsidiary would be in control.

U.S. Organizations; Regulation.—A series of executive changes, and a change in name, were executed by the broadcasters' trade association, the National Association of Broadcasters (NAB). Taking cognizance of television's growing importance as a broadcast medium, NAB in April changed its name to National Association of Radio and Television Broadcasters (NARTB). A few weeks later, at its annual convention, held in Chicago, Ill., NARTB advanced Pres. Justin Miller to the office of board chairman and general counsel and installed Harold E. Fellows of WEEI, Boston, Mass., as NARTB president.

In the meantime, William B. Ryan had left the NAB general managership which he assumed in 1950 and became president of NAB's semiautonomous sales promotion agency, the Broadcast Advertising bureau, which was scheduled to receive independent status in 1952.

In other radio-TV trade organizations, Glen McDaniel, a vice-president of Radio Corporation of America, was elected first paid president of the Radio-Television Manufacturers association (RTMA) and took office on April 1, and Murray Grabhorn, a former network executive, on July 1 became managing director of the National Association of Radio and Television Station Representatives (NARTSR), an organization of advertising sales representatives for radio and TV stations.

Broadcast Music Inc. (BMI), licensing and publishing organization established and supported by the broadcasting industry, expanded its activities during 1951 with several new major projects under the direction of Pres. Carl Haverlin and reported in December that the year 1951 had been one of the best in its 11-year history.

Regulation.—In the over-all field of radio and wire communications regulation, Pres. Harry S. Truman's temporary Communications Policy board, set up in Feb. 1950 to seek ways of achieving economy in the use of frequencies, submitted a voluminous report in Feb. 1951. Implementing it five months later, President Truman appointed Haraden Pratt, a vice-president of American Cable and Radio Corp., as his telecommunications adviser, with responsibility for formulating national policy on both national and international frequency allocations. Broadcasters derived much hope from the appointment, for they thought it might lead to restoration of a number of scarce frequency bands which they felt were being withheld from them unjustifiably by various government radio operations.

In the area of private broadcasting, the FCC in March handed down its decision on its proposal to adopt a uniform policy to be applied in all cases where applicants or licensees had violated laws (primarily the antitrust laws) other than those dealing specifically with broadcasting. In its decision, the commission held that it had authority to consider such violations as an aid in determining an applicant's character qualifications, but that it would do so on a case-by-case rather than on a uniform basis.

In Nov. 1951, on the eve of a presidential election year—always a troublesome time for broadcasters, who regularly face heavy demands for political broadcast time but who must operate within strict legal requirements to ensure equal opportunity for all rival candidates—the FCC served new notice that it would not tolerate censorship of radio political speeches, even if libel or slander were involved. Broadcasters had pleaded that if they permitted political speakers to broadcast slanderous material, then the stations would be subject to prosecution under state libel or slander laws. FCC took the position that its "no censorship" edict, since it stemmed from a federal ban on censorship in general, would in effect supersede state laws. The commission conceded that the apparent conflict in laws created uncertainty, but held, in its November ruling, that "hereafter we will not accept the plea of doubt and uncertainty in the state of the law as a reason for not administering the law as we read it."

At the congressional level, Sen. William Benton, Democrat, of Connecticut, stirred up a controversy which reverberated throughout the broadcasting industry by introducing a bill to create a national citizens advisory board on radio and television. The proposed board would review and report on the operation of radio and television in terms of the public interest. The plan was attacked by broadcasters and some government officials as raising dangers of censorship; by others it was defended as a wise and legal step to improve radio and television as mediums for enlightening, educating and improving the public. It had not been acted upon finally when congress adjourned, but remained available for action when the second session convened in Jan. 1952.

Inter-American Agreements.—The new North American Regional Broadcasting agreement (N.A.R.B.A.), developed and signed in late 1950 after much controversy, remained a subject of intermittent dispute in 1951, when it came up for ratification by the U.S. senate. The agreement, replacing an earlier one which had expired, was intended to govern AM broadcast allocations among the U.S., Canada, Cuba, the Bahamas and Jamaica and the Dominican Republic, but its critics contended it made too many concessions to some of the other countries, especially Cuba. The senate foreign relations committee assigned a subcommittee to study it, but no further action was taken during the 1951 session. (R. W. Cr.; S. Tf.)

Great Britain.—The report of the Beveridge committee, published in Jan. 1951, recommended that the British Broadcasting corporation should remain responsible for all British broadcasting, including television. Severe interference with the reception of the British domestic services resulted from the Copenhagen plan of 1950 realloting medium wave lengths. Steps were, however, taken to assist listeners in the areas most seriously affected by erecting a number of low-power transmitters, several of which were in service by the end of 1951. A plan for a nationwide service on very high frequencies was submitted by the B.B.C. to the general post office. Improvement in the reception of the Light program was effected when the power of the long-wave transmitter (1,500 m.) at Droitwich was increased to 400 kw. Third program coverage was improved by the opening in April of a new high-power transmitter at Daventry on a wavelength of 464 m.

The Festival of Britain played a large part in B.B.C. programs. The Home service presented a special series of plays and symphony concerts as a contribution to Festival year. Outside broadcasts gave extensive coverage to the Festival and, with the Canadian Broadcasting company, to the royal tour of Canada. The Reith lectures, on "Power and the State," were given by Lord Radcliffe of Werneth. Bertrand Russell gave six weekly talks on "Living in an Atomic Age." In the Light program the high light was the "Festival of Variety" on May 6. Sixty different operas were broadcast in the Third program during the year, including first performances of Igor Stravinsky's *The Rake's Progress* in Venice, It., and of Benjamin Britten's *Billy Budd* at Covent garden. (G. G. Wr.)

After referring to the Lucerne and Copenhagen plans for the distribution of wave lengths within the medium- and long-wave broadcasting bands, the Beveridge committee recommended that the British Broadcasting corporation should give increased and urgent attention to the development of a scheme for higher-frequency broadcasting, using frequencies above 30 mc./s. corresponding to wave lengths below ten metres.

The second of the five high-power television transmitting stations was opened at Holme Moss, Yorks., on Oct. 12, 1951; this station, which gave good reception at 50 or 60 mi., had an aerial about 2,450 ft. above sea level. The carrier frequencies of the vision and sound transmitters were 51.75 mc./s. and 48.25 mc./s. and the corresponding powers were 45 kw. and 12 kw., respectively.

A transmitting station was installed at Wrotham, 20 mi. S.E. of London, and equipped with both the amplitude and frequency systems of modulation of carrier waves in the region of 90 mc./s. (wave length 3.3 m.). The aerial, which was about 1,200 ft. above sea level, was of the slotted type which had been found convenient for broadcasting and television radiation on metre wave lengths. Using transmissions from the Wrotham station, signal strength measurements were made at distances up to about 60 mi.

Other investigations conducted in Great Britain were concerned with the effect of transmission of the waves through the lower atmosphere to distances of 100 mi. or 200 mi. from the transmitter.

The development of radio links as integral parts of trunk networks had been one of the major features of postwar work in the field of communication both in Great Britain and abroad. The intensive research into radar carried out during the years 1939–45 provided a range of basic techniques at decimetre and centimetre wave lengths, which were applied and extended in the course of this peacetime development. As it was part of the policy in developing television in the United Kingdom that in the first instance one program should be made available for the whole country, it was necessary to develop means for distributing the sound and vision signals carrying this program. When the Birmingham station was opened, provision was made for this to be connected to London both by radio link and a coaxial cable. Both systems were designed to carry the video frequency signals over a band width of 3 mc./s., although provision was made for the possibility of having to extend this later. The radio link operated over four stages, two-way transmission being available on separate frequencies in the region of 900 mc./s. The special cable was provided with two separate coaxial lines for the television signals, and a number of other conductors for telephony, monitoring and signalling purposes. Provision was made for repeaters at every three miles along the cable. The characteristics of both the cable and radio links were found to be very satisfactory for the transmission of television with no perceptible delay or distortion of detail. (R. L. S-R.)

Commonwealth.—In Australia, government economies caused a reduction in the annual budget of the Australian Broadcasting commission (ABC) of nearly £150,000, but the position was restored by a measure introduced into the federal parliament in November to raise the licence fee from £1 to £2. During the year the ABC opened two more stations, bringing the total to 54.

The royal commission on national development in the arts, letters and sciences completed its study of broadcasting in Canada and endorsed the existing radio system operated by the Canadian Broadcasting commission.

In South Africa, Springbok radio, a commercial program to supplement the existing noncommercial services in English and Afrikaans, was established in Johannesburg and Capetown. Radio Pakistan opened its new broadcasting house in Karachi on July 16. It included 14 studios and the latest FM transmitters.

Important broadcasting schemes were launched in the British colonies. In Nigeria building began on three main stations at Lagos (20 kw.), Kaduna (7½ kw.) and Enuga (7½ kw.) which would give short-wave coverage in four languages to the whole of Nigeria. The Lagos station began broadcasting at the end of the year. In Cyprus work progressed on the building of a 10 kw. medium-wave station at Nicosia to provide a domestic service for the island in Greek, Turkish and English. In Tanganyika a low-power medium-wave station was set up by the Tanganyika government as a pilot scheme for broadcasting to Africans. Shortage of receiving sets remained a basic problem. There were 800 community listening sets installed in Malaya, which greatly increased the rural audience.

By the end of the year there were broadcasting services in 24 of the British dependent territories. In 14 of these broadcasting was operated by the government, in 7 by commercial companies and in 3 by both. In Singapore the British Far Eastern Broadcasting service opened in May a new high-power short-wave relay transmitter to improve the B.B.C. service to the far east, southeast Asia and southern Asia.

Europe.—A significant step was the proposed admission of the German Federal republic to the European Broadcasting union.

The Italia prize, offered every other year for outstanding radio programs, was divided in 1951 between Great Britain and France, each being awarded 9,000 Swiss francs.

The U.S.S.R. and other Cominform countries greatly increased their output of external broadcasting to Italy, Germany, France, Spain and the United Kingdom during the year. In order to improve the penetration of soviet broadcasts in western Europe, Moscow took over a number of the domestic transmitters in Hungary, Poland and Czechoslovakia.

Radio Free Europe, operating from Munich with U.S. backing opened a medium-wave transmission to Czechoslovakia on May 1. On June 1 it began a short-wave transmission to Albania, and on Oct. 6 a short-wave transmission to Hungary. (*See* also Advertising; Federal Communications Commission; Humour of 1951; Munitions of War; Standards, National Bureau of; Television.)

Films of 1951.—*This Is Britain: Radio* (British Information Services).
(G. G. Wr.)

Radiology: *see* X-Ray and Radiology.
Railroad Accidents: *see* Disasters.

Railroads.

United States.—U.S. railroads experienced a critical year in 1951 as they enlarged and improved their capacities to meet the demands of industrial and military mobilization. The railroads continued during 1951 to be operated under the token supervision of the U.S. army following the taking over of the railroads on Aug. 27, 1950, by Pres. Harry S. Truman to avert the threatened nation-wide strike called by the Brotherhood of Railroad Trainmen and Order of Railroad Conductors.

Freight traffic in 1951 aggregated 643,000,000,000 ton-miles, and gross freight operating revenues exceeded $10,000,000,000, a new operating revenue record. Operating and other expenses and taxes, however, also increased to new record levels so that net railway operating income fell to $903,000,000, a reduction of $70,000,000 below the 1950 net.

The rate of return on net investment was also lower—3.54% in 1951 compared with 3.96% in 1950.

Expenditures of Class I railroads for improvements and extensions in plant to enlarge capacity and to increase operating efficiency aggregated $1,412,000,000 in 1951, including $1,061,000,000 for rolling stock and $351,000,000 for improvements in roadway, structures and other fixed facilities. During the year the railroads put into service about 3,500 new locomotives, nearly all of them diesel-electric units, and about 84,000 new freight cars. A small number of new passenger-carrying cars were added to equipment.

At the end of 1951 the railroads had on order about 120,000 freight cars and approximately 1,700 locomotives aggregating more than $1,000,000,000 in commitments for equipment. In many cases deliveries of freight cars and locomotives were scheduled for 1951 but were delayed because of shortages or allocations of materials. Deliveries of freight cars were being made at the rate of about 10,000 per month. In October 10,082 cars were put in service; in November 9,824 cars; and in December approximately 10,000. The average number of new cars put in service in 1951 was 7,100 monthly.

Freight car retirements averaged about 4,500 cars per month; approximately 53,000 were withdrawn from service in 1951 as unfit for further service. The net addition to the freight car fleet during the year was about 32,000.

Freight cars badly in need of repair usually constitute about 5% of the total. At the end of 1951 the number of cars in bad order and unfit for service dropped below 5% for the first time in eight months. The decrease of about 9,000 in the number awaiting repairs plus the net addition to the freight car fleet mentioned above meant that approximately 40,000 additional cars were available for service at the end of 1951. The car supply situation was frequently tight, however, and at times there were shortages, particularly of cars required by heavy industries and cars for grain shipments.

Safety Record.—Railroads continued in 1951 to exert efforts to improve train safety, but the record in 1951 was even less satisfactory than in 1950. Reports of the Interstate Commerce commission for the first ten months of 1951 showed 100 passengers killed and 1,164 injured in train accidents, compared with 73 killed and 1,022 injured in the same period of 1950. In train service accidents (including persons not on the trains) 16 were killed and 1,481 injured in the first ten months of 1951, compared with 22 killed and 1,601 injured in the comparable period in 1950.

In the first ten months in 1951, 9,044 train accidents were reported to the ICC, compared with 8,190 in 1950. The number of accidents resulting in casualties was 452 in the first ten months of 1951 and 419 in the same period of 1950.

Freight Rates.—On Jan. 16, 1951, and by amendment filed Jan. 24, 1951, the railroads petitioned the Interstate Commerce commission for authority to increase freight rates and charges generally by 6% with maximum increases in specific sums less than 6% upon certain commodities such as agricultural and forest products. A motion was filed to permit these increases to become effective on one day's notice as interim increases. On March 12, the Interstate Commerce commission authorized interim increases generally of 4% in eastern territory, and 2% in southern and western territories, subject to maximum increases of 2 cents per 100 lb. on fresh fruits, vegetables, melons, preserved food products, lumber and sugar. The increases authorized on grain and grain products were 2%; on coal and coke, 2% subject to a maximum of 6 cents per net ton or 7 cents per gross ton; and lignite coal and briquettes, 2% subject to a maximum of 3 cents per net ton or 3.5 cents per gross ton.

No increases were authorized on the line-haul rates on iron ore to upper Great Lakes ports, on handling charges on iron ore at upper or lower lake ports, on perishable protective services or on wharfage, handling or tippling charges at South Atlantic or Gulf of Mexico ports. Increases were authorized according to the percentage increases in the respective territories on all other special service or accessorial charges.

Hearings were held by the Interstate Commerce commission in a half dozen cities in various parts of the United States. On Aug. 8, 1951, the ICC handed down its decision and order authorizing additional increases as surcharges to be added to the bills for transportation charges, generally, of 9% in eastern territory, and of 6% in southern and western territories and interterritorially, subject to the following maximum increases.

6 cents per 100 lb. on fresh fruits, vegetables, melons and canned foods;
4 cents per 100 lb. on sugar and lumber;
6% on iron ore, grain and grain products;
6% on coal and coke, subject to a maximum increase of 20 cents per net ton or 22 cents per gross ton;
3% on lignite coal and briquettes, subject to a maximum of 10 cents per net ton or 11 cents per gross ton;
20 cents per net ton or 22 cents per gross ton on phosphate rock;
50 cents per net ton or 56 cents per gross ton on potash.

No increase was authorized on charges for perishable protective services, loading or unloading livestock or unloading fresh fruits and vegetables at New York city and Philadelphia, Pa.

The authorized increases were to expire Feb. 28, 1953, unless modified or terminated by action of the Interstate Commerce commission prior to that date. The record was held open for the purpose of re-examining the results of the increases authorized upon carriers' revenues and upon the economy of the country. The increases went into effect generally Aug. 28, excepting those on grain and grain products which became effective Sept. 12, 1951.

On Oct. 19, 1951, the railroads petitioned the Interstate Commerce commission to permit an increase in all freight rates and charges to the full amount of 15% sought in the original petition in all freight traffic territories of the United States. As the year closed this petition was before the Interstate Commerce commission.

A matter of great importance to railroads and shippers during 1951 was the supplementation of railroad tariffs to provide for the increases in freight rates and charges resulting from ICC's permission to increase rates and charges by different amounts on different commodities in different freight traffic territories. Numerous supplements containing the increases had been published by the railroads, and efforts were made in 1951 to reissue supplements containing the changes. This difficult but necessary technical task did not keep pace with the needs of railroads and industries for the reissued information largely because of the necessity of docketing with freight traffic associations changes in rates necessary to restore groupings and rate relationships disrupted by the horizontal or general freight rate cases.

The quotation of freight rates and charges and the use of freight tariffs by carriers had become increasingly difficult and expensive. Many of the tariffs containing the basic rates had not been reissued since prior to World War II.

Defense Transportation.—One of the most important railroad developments of 1951 was the increase in defense and military traffic as a result of the Korean war. Late in 1950 the secretary of defense had announced uniform policies for the co-ordination of the traffic management affairs of the army, navy and air force with respect to the negotiation for commercial transportation services and charges, the routing of military traffic, the use of transportation equipment by the military and the utilization of highway transportation services. These activities were co-ordinated through the military traffic service of the department of defense.

On May 7, 1951, the traffic management division of the General Services administration was given responsibility for the policies and traffic management activities of the executive agencies of the federal government other than the department of defense, the U.S. coast guard, the Atomic Energy commission and the department of agriculture.

The Defense Transport administration continued to adhere closely to the policies and practices followed by the Office of Defense Transportation during World War II in regard to voluntary public participation and co-operation among shippers and transportation companies in transportation, storage and port utilization. DTA continued to rely upon voluntary action and encouragement with a minimum of managerial activity by government to supply necessary services and facilities. It also continued its efforts to stimulate increased ownership and building of freight cars and to secure critical materials for car construction and maintenance. It set a goal of 10,000 new freight cars per month, including 850 tank cars. It directed its efforts toward obtaining 1,200 diesel units and 15 steam locomotives a quarter.

Express Rates.—The Interstate Commerce commission on April 13, 1951, authorized the Railway Express agency to increase rates on shipments up to 99 lb. by 30 cents per shipment, with proportionate increases in multiples of first class rates and charges. These rates became effective Nov. 15, 1951.

A further petition was filed by Railway Express agency on Dec. 22, 1951, seeking an immediate increase in first class rates per pound of 57 cents with proportionate increases in other first and second class rates.

(*See* also INTERSTATE COMMERCE COMMISSION; UNITED STATES.) (G. L. WN.)

Great Britain.—The shortage of coal resulted in the withdrawal of many passenger services and a shortening of the period during which extra summer holiday services were operated. Some relief was obtained by closing certain uneconomical branch lines to passenger traffic; some lines were closed to both passenger and freight traffic. Congestion of freight traffic, particularly in south Wales, was mainly the result of the shortage of train crews; but the source of the problem was the change in direction of traffic and the longer average haul per ton of freight loaded. This had two main causes. First, there was the diversion of coal traffic from export to home consumption; thus, south Wales coal, instead of being shipped at Cardiff, might be consigned to Birmingham, Leeds, London or Cambridge, a situation for which the railway network was not designed. Secondly, government bulk buying seemed to have resulted in development of much crosshaulage which would not have come about under normal trading conditions.

Wage increases were granted to meet the rise in the cost of living and to keep staff in the industry, and the exceptional policy was adopted of recruiting Italians for railway work in Great Britain. Railway traffic receipts, thanks to an increased level of charges for freight, rose by about £27,000,000, largely

THREE-LEVEL passenger coaches in service on the German Federal railway in 1951, featuring double-decker accommodations at the centre of the car and a single level at front and rear accounted for by revenue from the carriage of coal; however, expenditure appeared to have risen more than proportionately and the financial situation gave cause for concern. The British Transport commission asked for a scale of increased passenger fares; this request resulted in a long hearing before the Transport tribunal, and in November the commission asked the minister of transport for an emergency increase in freight charges. Several series of standard locomotives came into service; specific mention should be made of the mixed-traffic Pacific (4-6-2) Britannia class, two series of 4-6-0 main-line locomotives and a standard 2-6-4T type for outer suburban and secondary main-line duties. The first British-built gas-turbine locomotive was handed over to British railways, and several main-line diesel locomotives as well as a large number of diesel shunters were placed in service.

There was consistent improvement in the number of cars available and in the scrapping of obsolete stock; this was mainly the result of the merging into the British railways stock of private fleets taken over on nationalization. About 1,000,000 cars were now available for Great Britain's internal traffic and the percentage under repair or awaiting repair was materially reduced. That the punctuality of trains was still far below the prewar standard was largely the result of speed restrictions caused by extensive permanent-way renewals and the shortage of staff to carry out such renewals. Important works schemes completed during the year included the mechanization of the large marshalling yard at Toton, Nottinghamshire, which was capable of handling 4,000 cars a day, chiefly coal traffic destined for London, the southwest and the eastern counties. At York one of the largest signalling installations in the world was inaugurated in 1951.

Two new train ferries also began working—the "Norfolk Ferry" for the Parkeston (Harwich)-Zeebrugge route and the "St. Germain" (under the French flag), for the Dover-Dunkirk route.

Continental Europe.—In France remarkable results were achieved with the experimental section, electrified on the 50-cycle A.C. system, in the La Roche-sur-Foron area. These results might lead to the reconsideration of electrification proposals in many other countries; British railways announced their intention of testing the same system of traction in the Lancaster area. French national railways (Société Nationale de Chemins de Fer—S.N.C.F.) planned to adopt this 50-cycle system (which could be co-ordinated with the industrial supply system) for the Valenciennes-Thionville lateral line, which carried heavy coal and mineral traffic.

The Netherlands railways had attained front rank in technical progress and efficient operation, and the administration of the new Technical Research and Tests office for all the European railways was entrusted to them. Electric traction was extended to additional main-line sections in eastern and southern Netherlands when the summer timetables were introduced.

Railway developments in western Germany included the replacement of the double track, removed in 1945, on a 33-mi. section of the Mannheim-Basle main line and further electrification in the Stuttgart area. Extensive trials were being made with double-deck coaches.

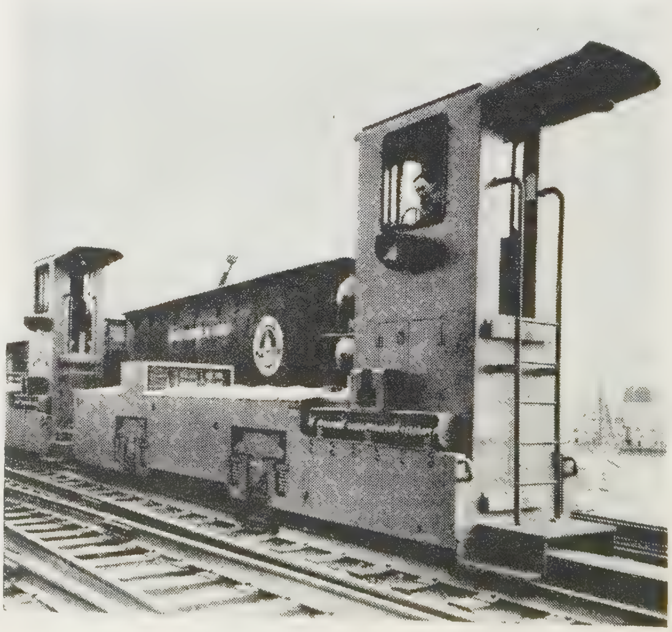
Italian State railways continued to electrify lines in Sicily and elsewhere, but financial considerations delayed electrification between Milan and Venice. In Austria the Linz-Amstetten section was converted to electric traction and further progress made with electrification onward toward Vienna, and construction work continued on the new Semmering tunnel. Swiss federal railways made tests with rubber-tired passenger coaches, similar to those working between Paris and Strasbourg. Avalanches caused great damage to the Gotthard and Simplon railway routes, and sections of the railway in the Po valley, It., were inundated. In Spain the United States-built "Talgo" articulated train, of revolutionary design, operated with success the express service between Irun (on the French frontier) and Madrid, covering the 396 mi. in 8 hr. 55 min.

Consistent progress was being made in the reconstruction of the Spanish National railways. Electrification continued in Norway, and Sweden continued its policy of absorbing private local lines and amalgamating them with the state system. A new ferry service was inaugurated between Gedser (Denmark) and Grossenbrode (western Germany) to avoid the delay caused by passage through eastern Germany. New railway construction in Europe was mainly in the Balkan countries where new lines were opened in Yugoslavia and small sections in Albania and Greece.

Africa.—The South African system continued to rely on steam and electric traction to handle increasingly heavy traffic; more than 60,000,000 tons of freight were being moved annually. Electrification continued on the Cape Western system and on the Rand, the existing conversions costing more than £2,000,000 which was only one-quarter of the entire program. Orders for 345 new steam locomotives and 120 electric units were in hand. Rhodesian railways were equally hard-pressed by expanding traffic requirements, and large numbers of Beyer-Garratt articulated locomotives were on order. East African railways, serving Kenya, Uganda and Tanganyika had record traffic.

Asia.—The rehabilitation of the Japanese state railways was shown by their re-entry into the International Union of Railways (U.I.C.) and by the important programs they prepared for further electrification and reconstruction. The Japanese railways had now electrified about 1,000 mi. of their 3 ft. 6 in.-gauge line, a 1,500-v. D.C. system with overhead feed being adopted. There were about 370 electric locomotives, but multiple-unit electric vehicles were being used on many routes. Important developments in India included the regrouping of the railways. The southern system—consisting of the erstwhile Madras and Southern Mahratta and South Indian railways—was formed in April 1951; the central system—founded on the Great Indian Peninsular railway—and the western system—based on the Bombay, Baroda and Central India railway—were being formed. Indian railway traffic increased considerably; however,

SWITCHER LOCOMOTIVES placed in service at the Baltimore & Ohio's new import docks at Baltimore, Md., in 1951. They ran on narrow-gauge tracks between two lines of freight cars and pushed either or both lines of cars with arms that sprang out on each side of the cab beneath the operator. The electric pushers were powered by a third rail between the tracks



additional rolling stock was now arriving.

Australasia.—Australian railway problems arose from the shortage of labour, fuel and steel, rising prices and the inability to increase the level of charges. In New South Wales new locomotives included Beyer-Garratts for the first time; heavy Australian-built 4-8-2 steam units, oil-burning steam locomotives and electric as well as diesel-electric locomotives were also included. The Sydney-Wallerawang section was being electrified on the 1,500-v. D.C. system.

The Victorian government railways achieved considerable success with brown coal (lignite) as a locomotive fuel; tests were also being made of the use of lignite for gas-turbine locomotives. The Western Australia, South Australia and Commonwealth railways were introducing main-line diesel units. New Zealand government railways made an operating profit in the financial year 1950–51—the first for five years—but labour difficulties delayed electrification progress.

Canada.—The report of the Royal Commission on Transportation in Canada, published in 1951, recommended major changes in the system of freight rates, thereby aiming at the equalization of rates in the different regions of the dominion. New railway construction continued in connection with the development of mineral resources in eastern Quebec and Labrador, the new line starting from Sept Isles on the St. Lawrence. In British Columbia the Pacific Great Eastern railway, owned by the province, was being extended northward to join the Canadian National railways line to Prince Rupert; further extensions to the north were envisaged. In northern Manitoba the C.N.R. was constructing new lines in the Sherridon lake area, again in connection with the development of mineral resources. The same railway acquired a 26-mi. section of line between Quebec city and St. Joachim, thus giving it direct access to Murray bay; construction toward Labrador might also be started.

In November a new signalling system, controlling 40 track-miles, was inaugurated at Hornepayne, Ont., on the transcontinental main line. Automatic block signals were installed between Jackman and Red Pass junction in British Columbia. The Canadian Pacific railway's new mechanized hump marshalling yard at St. Luc near Montreal was the first of its kind in Canada. Canada could now not only meet its own requirements of diesel locomotives but was also in a position to export them. The first big diesel unit of Fairbanks Morse design from the Canadian locomotive works at Kingston entered service in the summer; there were also diesel-building shops in Montreal and London, Ont. Connections between Newfoundland and the mainland were examined by the royal commission.

South America.—An official statement placed the Argentine railways' operating loss by the beginning of 1951 at 543,000,000 pesos. Large contracts for new rolling stock, mainly diesel-electric locomotives and rail cars, were placed in the Netherlands; many of the new passenger cars were to be air conditioned. Other diesel-electric units were on order from the United States.

In Brazil, government purchase of the British-owned Leopoldina railway was reported to be complete in November. Local production of rolling stock and rails was progressing, but large orders for traction units—steam, electric and diesel-electric—had to be placed in the United States and Europe. Construction continued of a rail link between Chile and Brazil via Bolivia. (*See* also Electric Transportation.) (C. E. R. S.)

Rainfall: *see* Meteorology.
Raisins: *see* Fruit.
Ramjets: *see* Jet Propulsion.
Rapid Transit: *see* Electric Transportation.
Rates of Exchange: *see* Exchange Control and Exchange Rates.

BLACK MARKET NYLON hose for sale on a London street; the illegal traffic drained regular markets of more than half their supply of nylon stockings in 1951 and meant a serious loss to British exports

Rayon and Other Synthetic Fibres.

The U.S. Federal Trade commission issued on Dec. 11, 1951, trade practice rules for the rayon and acetate textile industry, in which the official definitions of rayon and acetate fibres were given, as follows:

> Rayon: Man-made textile fibres and filaments composed of regenerated cellulose and yarn, thread or textile fabric made of such fibres and filaments.
>
> Acetate: Man-made textile fibres and filaments composed of cellulose acetate, and yarn, thread, or textile fabric made of such fibres and filaments.

The commission, in officially issuing these definitions, answered two long discussed problems in nomenclature: (1) whether the term rayon was to apply to all fibres of a cellulose base, that is, derivatives of natural products, wood pulp and cotton linters, or whether acetate cellulose was sufficiently different in physical and chemical characteristics to warrant a separate identity; and (2) whether the term synthetic fibres was acceptable as a generic name for the many new types which had come into production since rayon and acetate had appeared. The adoption of man-made fibres as an all-exclusive term for both rayon and the newer fibres was the Federal Trade commission's solution.

So rapidly did the production of new fibres develop during 1951 that there was danger of ignoring the fact that, quantity-wise, the newcomers were still much in the minority.

Market conditions during the year were not encouraging to an industry which had become accustomed to yearly increases in production and consumption. In the United States, textile supplies, especially in the field of women's and children's clothing, were more than sufficient to meet the demand. In the man-made fibre field, stocks of yarn and fabric accumulated rapidly, continuing a trend which had started in 1950 when retailers and garment makers complained of the dearth of business. But the first quarter of 1951 saw the production of rayon fabrics in the United States reach the highest point in recorded trade history. The first quarter's production was 636,300,000 yd. The highest previous quarter was in the fourth quarter of 1950 with a production of 632,200,000 yd. The second quarter showed some sliding off, and by the third quarter, the mills had become painfully aware of the backing up of demand. The third quarter showed a production 30% lower than in the same period of 1950. The total production for 1951 was 2,046,000,000 yd. compared with the 1950 total of 2,426,000,000 yd.

A reflection of the mill curtailment was the unprecedented accumulation of yarn stocks by the producers. Ever since the development of rayon on a large scale, especially since the middle 1930s, producers' stocks of yarn had been low, as the demand had been such that their orders were usually close to their production capabilities. In 1951, however, stocks of filament yarn rose to 91,300,000 lb. from 6,100,000 lb. in 1950. Staple and tow yarn showed stocks of 15,200,000 lb., compared with 2,000,000 lb. in 1950. Shipments to broad goods weaving mills totalled only 430,000,000 lb. during 1951, compared with 535,000,000 lb. in 1950.

However, the rayon yarn producers found encouragement in the tire yarn field. The production of tirecord yarn rose from 305,000,000 lb. in 1950 to 333,000,000 lb. in 1951. There was also an increase in the production of staple and tow yarn, from 305,000,000 lb. in 1950 to 336,000,000 lb. in 1951. Filament yarn, while representing 50% of the total capacity, dropped from 645,000,000 lb. in 1950 to 625,000,000 lb. in 1951. The over-all production figure was slightly above 1950, *i.e.,* 1,294,000,000 lb. in 1951, compared with 1,259,000,000 lb. in 1950.

The popularity of acetate filament yarn was of fairly recent origin. The first recorded production in the U.S. in 1919 was 100,000 lb. In 1951 production of acetate filament yarns had grown to 300,100,000 lb. Acetate staple, which did not enter commercial production until 1935, with 300,000 lb., amounted to 128,700,000 lb. in 1951. In 1940 the consumption of acetate filament yarn was about half as much as the viscose and cuprammonium types. Ten years later, in 1950, the consumption in each group was about equal.

In the field of other man-made fibres, nylon continued to increase in production. Its chief use in hosiery, added to its second most important use in knitted fabrics, otherwise known as warp knit or tricot, was further expanded by higher yardage of woven fabric. Nylon hosiery in 1951 reached a production of 52,000,000 dozen pairs, compared with 55,200,000 dozen pairs in 1950. Nylon knitted fabric production was reported in 1951 as at the annual rate of 5,900,000 lb., based on 1950 industry reports. Nylon woven fabric in 1951 reached a total of 146,800,000 yd., compared with 110,200,000 yd. in 1950. Glass fibres achieved in 1951 the status of being separately reported in official statistics. Without comparable figures for previous years, the 1951 production for the first three quarters of the year showed a rising trend, 3,600,000 yd., 4,100,000 yd. and 4,400,000 yd., respectively, with an estimated sharp rise in the last quarter. A total of 17,000,000 yd. to 18,000,000 yd. was expected for the year. The vogue for automobile slip covers of plastic fibre was indicated by the fact that the monofilament production was also reported for the first time. Beginning with the second quarter of the year, production was at the rate of about 14,000,000 yd. annually. While individual production figures on the new fibres were not published, at the end of 1951 it was estimated that the total production in 1951 of nylon and all other synthetic fibres, including Dynel, protein fibres, Saran and other monofilaments, was 210,000,000 lb.

In 1951 total world production of rayon and acetate was estimated at 3,960,000,000 lb., of which 2,120,000,000 lb. was filament yarn and 1,840,000,000 lb. was staple. This was an increase from a total of 3,494,000,000 lb. in 1950, including 1,929,000,000 lb. of filament and 1,564,000,000 lb. of staple. The U.S. share was 45% of the filament, compared with 50% in 1950 and 18% of the staple, compared with 20% in 1950. It was announced that the owners of the nylon patents, E. I. du Pont de Nemours, had arranged for the licensing of a new Japanese enterprise for nylon production. Nylon production was expanding in Great Britain and various countries of Europe, and new plants for acrylic production were reported in Germany. (*See* also Wool.) (I. L. Bl.)

Reclamation: *see* Forests; Irrigation; Soil Erosion and Soil Conservation.

Reconstruction Finance Corporation. The Reconstruction Finance corporation was established by the U.S. congress on Jan. 22, 1932. Since that time its powers and duties have been periodically renewed and amended by the congress to meet changing national needs. By statute its lending powers extend to June 30, 1954, and the life of the agency to June 30, 1956. Its capital stock is $100,000,000, all held by the United States.

Management and Organization.—Authority for the management and direction of the RFC is vested in an administrator and a deputy administrator, both appointed by the president, with the advice and consent of the senate. This form of organization was instituted by the president in a reorganization plan which took effect in May 1951. Under this plan the former board of directors of the RFC was abolished, and all its functions were transferred to the administrator.

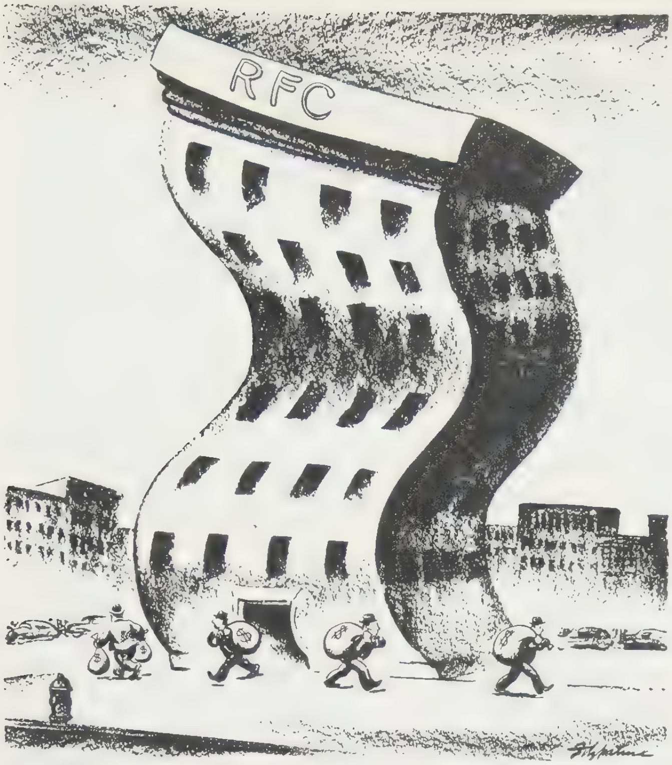
The reorganization plan also established a loan policy board composed of the following members: the administrator, as chairman; the deputy administrator, as vice-chairman; the secretary of the treasury, the secretary of commerce and one other person to be designated from time to time by the president from among the officers of the United States who are required to be appointed by and with the advice and consent of the senate.

The loan policy board establishes general policies (particularly with reference to the public interest involved in the granting and denial of applications for financial assistance by the corporation and with reference to the co-ordination of the functions of the corporation with other activities and problems of the government) which govern the granting and denial of applications for financial assistance by the corporation.

The corporation functions through a principal office at Washington, D.C., and loan agencies established in 33 cities throughout the United States.

Functions.—The RFC is authorized to make loans to business enterprises (including railroads and air carriers); to make loans to financial institutions; to subscribe for and make loans upon the nonassessable preferred stock of insurance companies and to purchase the legally issued capital notes and debentures thereof; to purchase the securities of and to make loans to states, municipalities and other public agencies; and to make loans because of floods or other catastrophes.

Under the RFC act, as amended, the Defense Production Act of 1950 and applicable executive orders and regulations, the corporation also makes loans (including bank participations) to business enterprises for the purpose of financing defense pro-



"CROOKED OR JUST FUNNY LOOKING?" a 1951 cartoon by Fitzpatrick of the *St. Louis Post-Dispatch* (Mo.)

duction. In addition, the corporation is authorized to purchase securities or to make loans (including participations therein or guarantees thereof) for the purpose of aiding in financing projects for civil defense purposes.

Other functions relate to the production of strategic and critical materials—synthetic rubber, tin and abacá (Manila hemp) and the liquidation of certain defense plants and facilities.

Operations.—Loans to business enterprises, directly and in participation with banks, during the fiscal year 1951 constituted the principal lending activity of the corporation. Such loans were made primarily for the purpose of assisting, expediting, increasing or maintaining the production of goods or services necessary to meet either military requirements or essential civilian requirements. From June 30, 1950, through June 30, 1951, 5,770 applications for such loans, amounting to $600,000,000, were received; and 2,702 loans were authorized (including 38 Defense Production act applications approved under RFC's regular lending authority) in the gross amount of $301,000,000, in which banks participated to the extent of $16,000,000. More than 51.6% of the number of these loans were for $25,000 or less, and approximately 89.2% of the number did not exceed $100,000. On June 30, 1951, 7,067 business loans were outstanding in the aggregate amount of $463,000,000. In addition, the corporation had outstanding commitments to participate in 3,933 business loans made by banks, totalling $121,000,000, of which RFC's share was $78,000,000.

Other loans or purchases of obligations authorized during the fiscal year included those to states, municipalities and other public agencies, $2,800,000; and catastrophe loans aggregating $2,400,000. As of June 30, 1951, total loans and investments outstanding amounted to approximately $841,000,000. Under the provisions of section 302, Defense Production Act of 1950, 453 loan applications in the aggregate amount of $1,200,000,000 were directed to RFC for review, 38 of these applications were approved in the amount of $62,000,000 under RFC's regular lending authority and certificates of approval were received from the various delegate agencies for an additional 40 loans aggregating $68,000,000.

The Texas City, Tex., tin smelter, which was constructed by RFC as a national defense measure in 1942, continued in operation. During the fiscal year June 30, 1950–June 30, 1951, RFC acquired and produced 36,835 long tons of refined tin. Sales of metal during that time amounted to $112,904,777.

Virtually all facilities for producing general-purpose synthetic rubber, known as GR-S, as well as the plants for the production of butyl, used principally in the manufacture of inner tubes, are government-owned and are operated for the account of RFC. During the 1951 fiscal year, 638,118 long tons of synthetic rubber were produced, and sales amounted to $298,143,047. At the close of the fiscal year, 27 plants were in operation. These projects represented an investment of approximately $496,000,000.

The four abacá plantations located in Costa Rica, Guatemala, Honduras and Panamá continued in operation during the fiscal year 1951, and 19,500,850 lb. of fibre were produced and 19,987,200 lb. sold for $5,543,578.

As of June 30, 1951, there remained for liquidation, defense plants and other facilities (exclusive of synthetic-rubber facilities, the tin smelter and the fibre plantations) constructed or otherwise acquired for purposes of national defense prior to and during World War II at a cost of $53,016,134.

(W. S. Sn.)

Red Cross.

United States.—High lights of the work of the American Red Cross in 1951 were in the national blood program, services to the armed forces, civil defense preparation and disaster relief.

The national blood program was expanded widely, several new regional programs and defense centres being added to meet increasing needs for blood. While civilian needs continued at a high level armed forces demands soared, and collections reached the largest volume since World War II. The increase, however, was not enough both to meet rising military needs in Korea and to build a reserve of dried plasma. In the summer the Red Cross joined with the department of defense in a vigorous campaign to increase donations. By October there was an upsurge in the total collections obtained through 43 regional centres and 10 defense centres. A total of 800 communities were being visited by 121 "bloodmobiles." Collections were also made by 14 community blood banks co-operating with the Red Cross and by the department of defense on domestic military installations.

Red Cross field workers served throughout the year with U.S. troops overseas and on military installations in the United States. Behind them stood chapter workers in local communities, who helped servicemen's families by providing counselling and guidance, assistance with communications and reporting, and financial help when necessary. Chapter workers and Red Cross staff in Veterans administration offices assisted veterans and their dependents in obtaining government benefits, and Red Cross staff served in military hospitals and in veterans' hospitals.

Recognizing that a major emergency would be attended by a critical shortage of medical and nursing help, the Red Cross increased its efforts to train as many people as possible in first aid and home nursing. More first-aid certificates were issued than in any year since World War II—by October the total was 1,298,000. Home-nursing certificates issued had reached 250,000. Special emphasis also was laid on the training of volunteer nurse's aides.

In the Red Cross water safety program, 788,655 swimming and lifesaving certificates had been issued and 26,455 instructors authorized by June 30. The survival swimming course was adopted early in the year as an official training course of the navy. During the summer the Red Cross operated 32 aquatic schools at which 2,500 persons received intensive training in water safety skills.

The largest of more than 300 disaster relief operations during the year involved assistance to 27,000 flood-stricken families in Kansas, Missouri, Oklahoma and Illinois. The total cost of the operation was expected to approximate $12,000,000. During the fiscal year 1950–51, assistance was given to more than 75,000 families in 535 counties located in 45 states.

International activities of the American Red Cross included relief to war refugees in Korea, where the Red Cross joined with the United Nations and the far eastern command in a broad civilian relief and rehabilitation operation. Co-operating with the League of Red Cross Societies, the American Red Cross also sent aid to refugees in Turkey, famine sufferers in India, earthquake victims in El Salvador and the hurricane-stricken in Jamaica. Aid was given to Red Cross societies in other countries for the development of their programs, including those in Germany, Japan, Yugoslavia and Iran. During 1950–51 study visitors from 15 countries journeyed to the United States.

The Junior Red Cross program of bringing the youth of the world closer together in mutual understanding continued. Members in the schools prepared gift boxes and school chests for overseas shipment, and exchanged thousands of paintings and correspondence albums. Extensive community services included gifts of goods and services to civilian and military hospitals and a wide range of volunteer work in co-operation with adult Red Cross services. College students, working through local chapters, participated as adult members in Red Cross programs.

(J. G. MA.)

World.—In South Korea, the Italian, Norwegian and Swedish Red Cross societies each provided fully staffed and equipped 100-bed field hospitals; the Danish Red Cross a hospital ship; and the Siamese Red Cross a medical team for sick and wounded members of the United Nations forces. The Red Cross societies of Australia, Belgium, Canada, Great Britain, the Philippines and the United States assigned more than 100 welfare officers for service with their respective troops and in hospitals. At the request of the United Nations, the League of Red Cross Societies recruited five medical welfare teams for service to the civilian population of South Korea, and member societies of the league contributed civilian relief supplies valued at approximately $1,000,000.

In North Korea, the Chinese Red Cross provided 72 epidemic control experts; the Hungarian and Rumanian Red Cross societies each contributed a field hospital; and the Bulgarian Red Cross sent almost 100 tons of food, clothing and medical supplies.

The International Committee of the Red Cross inspected prisoner of war camps in South Korea but was refused entry into North Korea. (*See* PRISONERS OF WAR.)

In the field of international disaster relief, Red Cross societies contributed more than $2,000,000 for assistance to victims of earthquakes in Colombia and El Salvador, cyclones in the West Indies, famine in India and floods in Italy. In September a disaster relief seminar for Latin-American Red Cross societies was organized by the League of Red Cross Societies in Mexico City.

In May representatives of 17 national Red Cross societies met in Hanover, Ger., at the request of the League of Red Cross Societies, to study the refugee situation in Germany and Austria. Red Cross assistance to these and other refugees in Turkey, Lebanon, Syria, Jordan, that part of Palestine held by Egypt, Pakistan and India totalled approximately $750,000.

In October representatives of 20 of the 22 Red Cross societies of the Americas held their sixth Inter-American Red Cross conference in Mexico City.

Yugoslavia released an additional 364 Greek children to the International Red Cross for repatriation under resolutions voted by the United Nations general assembly in 1948, 1949 and 1950. Efforts of the International Red Cross to obtain repatriation of Greek children living in Bulgaria, Czechoslovakia, Hungary, Poland and Rumania failed, and in November the United Nations general assembly in Paris called upon government representatives of those countries to meet in Paris during the assembly for discussions on this subject.

The International Committee of the Red Cross continued its work of reuniting families dispersed during World War II, particularly in central Europe.

Toronto, Ont., was selected for the 18th International Red Cross conference and the 22nd session of the board of governors of the League of Red Cross Societies, July 23–Aug. 8, 1952.

(H. W. DG.)

Reforestation: *see* FORESTS.
Reformed Church: *see* PRESBYTERIAN CHURCH.

Refugees.

The International Refugee organization terminated its activities on Jan. 31, 1952, after four and one-half years of service to refugees and displaced persons in Europe and the far east resulting from World War II. In that time 72,834 refugees had been repatriated to their countries of origin and 1,038,750 resettled in other countries. Eighteen governments, Australia, Belgium, Canada, China, Denmark, the Dominican Republic, France, Guatemala, Iceland, Italy, Luxembourg, the Netherlands, Norway, New Zealand, Switzerland, the United Kingdom, the United States and Venezuela, members of the organization, had contributed a total of $406,867,295 to accomplish these results.

More than 1,000,000 persons were under care and maintenance in camps for varying periods of time awaiting repatriation or resettlement. The total expenditures of the organization were estimated at $429,775,450.

In the final period of the organization's activities from July 1, 1950, to Jan. 31, 1952, 257,335 refugees were moved to new homes in Argentina, Australia, Brazil, Canada, Chile, New Zealand, the United States and other countries.

The I.R.O. continued its efforts during 1951 to make arrangements for the permanent care and hospitalization of refugees who, because of age or infirmities, were unable to provide their own support. Approximately $20,000,000 of the organization's funds was spent in securing custodial care for 32,000 such persons and their dependent relatives. Many were placed in existing homes for the aged and in religious institutions in western European countries. Sweden, for instance, accepted 335 tuberculous patients and their dependents. Norway accepted blind refugees for training and tuberculous refugees for hospitalization. By Dec. 31, 1951, only 362 families remained for whom no such arrangements had been completed, 333 in Shanghai and 29 in the Philippines. The former were transferred to the custody of the U.N. high commissioner for refugees with funds for their care for six months and the latter to the World Council of Churches with an appropriate financial grant.

Shipping operations of the organization continued into Jan. 1952 but, when finally terminated, 12,205 refugees remained awaiting transport to overseas countries of reception. Funds for the movement of this final group were turned over to the Provisional Intergovernmental Committee for the Movement of Migrants from Europe. This committee had been organized at a conference on migration convened by the Belgian government in

ORPHANS evacuated from Seoul early in 1951 shown at a refuge on the island of Cheju, south of Korea, after they had had adequate food and medical attention

Brussels in Nov. 1951. Twenty-seven governments attended the conference and 16, including those of emigration and immigration countries, voted to establish the committee. A budget of $36,954,000 was adopted at the first session of the committee, which planned to move 116,000 persons during one year of operations. These were to include refugees and ordinary migrants from western Germany, Austria, the Netherlands and Greece who would not otherwise be moved. It was estimated that 40,000 would be moved to Canada in the period, 25,000 to the United States, 25,000 to Australia, 18,000 to Brazil, 4,000 to Chile, 3,000 to Bolivia and 1,000 to other countries. The governments which indicated their intention to participate as members of the committee were Austria, Australia, Belgium, Brazil, Canada, Chile, the German Federal Republic, France, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, Norway, Venezuela and the United States. The financing of the committee's budget was to result partly from outright contributions by member governments and partly from reimbursements by receiving governments for the transport of persons moved to their countries.

The general assembly of the United Nations established the Office of High Commissioner for Refugees at Geneva, Switz., on Dec. 14, 1950, and elected G. J. van Heuven Goedhart of the Netherlands as high commissioner for a three-year period beginning Jan. 1, 1951. This office was set up to provide legal protection for refugees until they acquired nationality in their new countries of residence.

At its sixth session in Paris in Dec. 1951, the general assembly of the United Nations approved a budget of $718,000 submitted by the high commissioner to cover the administrative expenses of his office and 11 branch offices in the important countries of residence of refugees. These offices were to intervene with the governments of the countries in which they were located to ensure that refugees received minimum rights and privileges essential to the achievement of self-dependence. Such rights and privileges included among others freedom from arbitrary expulsion, access to the courts, the right to work, opportunities for education, participation in the benefits of social security systems and the possession of travel and identity documents. The high commissioner reported that such offices had already been established in Bonn, Ger., Vienna, Aus., and Washington, D.C.

The U.N. general assembly in Dec. 1950 decided to convene at Geneva in 1951 a diplomatic conference to complete and sign the convention relating to the status of refugees recommended to it by the Economic and Social council. This conference was held in July 1951. Twenty-two governments were represented. The draft convention presented to the conference was amended to give the signatory governments more discretion in applying the provisions of the convention in situations in which the security of the governments might be affected. The convention was signed by 15 governments. The convention provided that signatory governments might exercise a choice to apply the provisions of the convention to refugees arising from events in Europe prior to Jan. 1951 or to refugees whatever their origins might be.

The definition of refugees contained in the convention was more limited in scope than that contained in the statute of the Office of the High Commissioner. The refugees falling under the competence of the high commissioner were, in general, those previously the concern of the International Refugee organization—namely, those unable or unwilling to avail themselves of the protection of their former countries of nationality for reasons of fear of persecution because of race, religion or political opinion. However, persons recognized by the authorities of the countries in which they had taken residence as having the rights and obligations attached to the possession of the nationality of their country of residence did not fall under the competence of the high commissioner.

The 9,500,000 prewar members of the German minorities in Poland, Czechoslovakia, Hungary and Yugoslavia who were in western Germany did not fall under his competence. Their situation improved slightly during 1951 because of rising economic levels in western Germany. However the problem of securing their integration in the economy of that area continued to challenge the resources of the Bonn government and the occupying powers. The flow of refugees from eastern Germany continued at a monthly rate of more than 20,000 during the year.

Certain provisions of the United States Displaced Persons act of 1948 which, as amended, were to expire on June 30, 1951, were extended to Dec. 31, 1951, by action of the U.S. congress. More than 300,000 refugees and displaced persons, the maximum permissible under these provisions, received U.S. visas before the final deadline. The U.S. Displaced Persons commission continued in operation to select migrants of German ethnic origin who could be granted visas up to June 30, 1952, under section 12 of the act. About 28,000 of these, eligible for admission to the U.S., remained to be visaed on Dec. 31, 1951.

United Nations efforts to resolve the problem of 875,000 Arab refugees in Lebanon, Jordan, Syria, Gaza and Israel, resulting from the conflict in Palestine in 1948, continued during 1951. The United Nations Relief and Works Agency for Palestine Refugees took over responsibility for this task from its predecessor agency, the United Nations Relief for Palestine Refugees, on May 1, 1950. At its sixth session in Paris in 1951 the general assembly of the United Nations accepted the recommendation of the agency for a program envisaging the raising and spending of $50,000,000 for relief and $200,000,000 for the reintegration of these refugees to be carried out over a period of three years starting as of July 1, 1951. (*See* also IMMIGRATION AND EMIGRATION; INTERNATIONAL LABOUR ORGANIZATION.)

(G. L. W.)

Relay Racing: *see* Track and Field Sports.

Relief: *see* Community Chest; Red Cross; Social Security. *See* also the articles on the various states.

Religion. Notable events in religion during 1951 were the 1,500th anniversary of the Council of Chalcedon at Rome; the 1,900th anniversary of St. Paul's mission to Athens in Greece; the closing of the Holy Year at Fatima in Portugal; the beatification of Pope Pius X; intensified persecution of Christians in many Communist-controlled lands—notably Bulgaria, China and Korea, with the resignation of T. C. Chao from the presidium of the World Council of Churches; and the failure of all but a few Christian leaders from behind the "iron curtain" to attend ecumenical functions as evidences of persecution in its subtler aspects.

Incredulity, not unnaturally, greeted the news of the "Protestant Church day" (Kirchentag) in Berlin, with approximately 400,000 persons in attendance from both sides of the "iron curtain," and more than 200 foreign visitors and speakers, dealing with the theme "We are, despite all, brethren." Such outstanding leaders as Stanley Jones and Toyohiko Kagawa both visited Germany, where interest in religion was markedly increasing. Almost equally symptomatic of German religious revival were a meeting in France of the German-French Christian fellowship to discuss the problems of Europe, and the public confession of the German Evangelical Church of its sins against Jews with strong admonition to its members to show their sincerity by caring for Jewish cemeteries.

The real purposes of communism with respect to all religion became progressively clearer, and its studied denunciation of all western Christian life was intensified; *e.g.,* in the rash of "denunciation meetings" forced upon the Chinese Christians, as well as the charges of mass murder made against devoted Catholic workers in mission orphanages and hospitals. It was a time of intense suffering for many hard-pressed Christians, although those within metropolitan U.S.S.R. seemed largely to have escaped the worst forms of maltreatment, since nearly half the people in European U.S.S.R. were still loyal to the churches. No such restraints operated where Christians were in the minority. A new form of campaign to make the churches destroy themselves from within was discerned in various parts of the vast area dominated by Communist totalitarian dictatorship.

In Yugoslavia, former "iron curtain" area, Archbishop Aloysius Stepinac was released and greater freedom was accorded all churches.

At the Festival of Britain, as well as in the jubilee commemorating the founding of the federal government in Australia, religion played a notable part. In London, on Ascension day, May 3, the festival began formally with a service in St. Paul's cathedral. The archbishop of Canterbury preached the sermon.

A notable development of the festival was the widespread revival in England of religious drama. The Society for the Propagation of the Gospel celebrated its 250th anniversary and a new edition of *The Reader's Bible* marked the festival year, as did increased church membership, larger Sunday school attendance and continued response to religious broadcasts. The Eighth Methodist Ecumenical conference met at Oxford, Eng., changing its name to World Methodist council.

In the United States, united campaigns of evangelism under the National Council of the Churches of Christ in the U.S.A. in cities and universities totalled 40, teaching missions numbered 52, with 26 weeks of "visitation evangelism." Staff work was provided for similar undertakings in Japan. The response was almost uniformly encouraging.

Rome created four new U.S. dioceses. Seattle became an archdiocese. The church's status in the Union of South Africa was changed and archbishoprics were set up in Capetown, Durban, Pretoria and Bloemfontein. The pope issued three encyclicals: *Evangelii Praecones; Ingruentium Malorum,* calling attention to contemporary evils and exhorting the faithful to intensified prayer; and *Sempiternus Rex,* the latter appealing to all Christians to unite and fight under a single banner against communism.

The Roman Church was, like other churches, troubled by the Communist move to set up independent churches in China, Poland and Hungary with Communist "yes men" as their leaders.

Although Quakers visiting Moscow at the invitation of the soviet government returned with the claim that all was sweetness and light in Moscow, the rest of the Christian world was agreed in accepting the warnings of the World council concerning the sinister nature of Communist peace propaganda.

Jews and Protestants in the U.S. were virtually unanimous in opposing the appointment of an ambassador from the United States to the Vatican state. The president blundered, they said, into an action which would divide and embitter U.S. religious groups.

At the end of 1951, 100 U.S. Jewish chaplains were in uniform, recruited by the three major rabbinical associations. Of the 255 Reformed congregations in the U.S., 240 had moved toward increased ritualism and toward what resembled traditional Judaism. Influx of Jewish families into the suburbs of the larger cities contributed greatly to synagogue growth, and a number of new congregations were reported to have been established.

In the fall of 1951, headquarters of Reformed Judaism was moved from Cincinnati, O., to the House of Living Judaism in New York city. The National Sabbath commission, sponsored jointly by the Rabbinical assembly and the United synagogue, was established. Four leading theological schools enrolled 1,289 students. The Synagogue Council of America celebrated its 25th anniversary during 1951.

The Commission on Justice and Peace of the Central Conference of American Rabbis linked its endorsement of United Nations action in Korea with opposition to communism and all other forms of totalitarianism. The Synagogue Council of America joined Christians in supporting the "aid to India" bill.

The World Brotherhood movement, launched by the (U.S.) National Conference of Christians and Jews, expanded to other lands including France, Denmark, Italy, Luxembourg, Germany and Switzerland, Canada and the United Kingdom having previously been related to it. (*See* also Christian Unity; Church Membership; also under separate denominations.)

Films of 1951.—*Cradle of Religion* (Hamilton Wright Organization, Inc.). (H. S. Lr.)

Religious Denominations: *see* Church Membership.

Religious Education. **Protestant and Orthodox.**—Early in 1951 the report of a "World Study of Church Youth Work" was published by the World Council of Christian Education and Sunday School association. The study was undertaken on behalf of this council and two other world bodies—the World Council of Churches and the International Missionary council. It brought together an unprecedented body of information about the status of Christian youth work in many countries.

Good progress was made during the year toward the third World Conference of Christian Youth to be held in India in 1952. A special conference committee, composed chiefly of Asiatics, met in Calcutta in Dec. 1951 to carry forward the planning. The theme chosen was "Christ, the Answer." The conference was being sponsored by five world organizations: World's Student Christian federation, World's Young Women's Christian association, World's Alliance of Young Men's Christian associations, World Council of Christian Education and Sunday School association and World Council of Churches. The first such conference was held in Amsterdam, Neth., in 1939, and the second in Oslo, Nor. in 1947.

In December the Latin American Union of Evangelical Youth held its third congress, in Buenos Aires, Arg. The delegates numbered about 80 from 14 countries. The theme of the congress was "United Christianity and Evangelization." Lima, Peru, had been the site of the first congress in 1941; the second was in Havana, Cuba, in 1946.

Encouraging new developments occurred in two countries of Africa. The Christian council of Nigeria, in its biennial meeting in August, acted to establish a board of youth work. In the Gold Coast the Christian council decided to appoint an education committee to be concerned with Christian education in both church and school. The new African ministers in the government proposed a restudy of existing laws regarding the relation of religion and education, and the first task assigned the new committee was to draw up a statement of basic principles on religious education in both denominational and nondenominational schools. This was to be sent to the government's director of education.

St. Vladimir's Orthodox Theological seminary in New York city continued its training of students for English speaking parishes in America. In addition to its regular theological training program, St. Vladimir's took the initiative in organizing the Orthodox students in American universities in Orthodox Christian fellowships. The seminary was also sponsoring evening classes for Sunday-school teachers. (F. L. Kp.)

Roman Catholic.—The Catholic school system includes five classes of institutions: parochial or elementary, secondary, normal, seminary and university. Institutions in the seminary division are of two classes, preparatory and major. In 1951 there were 2,575,329 students in 8,202 parochial elementary schools, and 80,412 in 508 private elementary schools; 337,414 students attended 1,628 diocesan and parochial high schools and 197,597 attended 801 private high schools; 236 colleges and universities were instructing 236,636 students; 28,798 seminarians studied at 392 seminaries.

The theme of the annual convention of the National Catholic Educational association was "Human Rights and Education." Resolutions were passed to encourage teachers to emphasize more forcibly the various aspects of human rights in their instruction of Catholic youth, to encourage greater emphasis on human rights in teacher training programs, to encourage a deep regard for human rights in the administration of Catholic education.

Mrs. Caroline J. Putnam, founder and president of Catholic Scholarships for Negroes, Inc., reported that the organization was assisting 75 Negro students. Among them were 23 studying to be teachers, 12 doctors, 9 nurses and 4 social workers.

The Panama Canal Zone's only Catholic school reported that it was overcrowded at the end of its first year. In 1950 the school had 314 students; in 1951 the enrolment was 340, with a waiting list of 160. The school was conducted by the Vincentian missionaries and staffed by ten Sisters of the Third Order of St. Francis.

In conformity with the ideals set up by the Catholic Rural Life conference, Xavier high school in Dyersville, Ia., transformed itself into a Catholic agricultural high school while still maintaining all the cultural studies. (J. LaF.)

Jewish.—On Jan. 13 and 14, 1951, the first national conference devoted to Jewish education took place in New York city. The conference surveyed the status of Jewish education in the United States, its achievements and its failures and the problems involved in the task of expanding and deepening the educative process for the children and young people, with a view to defining the objectives of education for Jewish living and devising a program of community action for their realization.

The movement for day schools was growing despite the added financial burden which was bearing down heavily upon the sponsors. The Conservative group had difficulty in accommodating all who wished to enlist in the summer camps which that group had instituted.

Courses in Modern Hebrew in the high schools of New York were winning devotees both in students and sponsors. The success of the Israeli state accounted a great deal for the popularity of these courses. The first secular Jewish institution of higher learning, Brandeis university, was growing and developing.

Some, though not significant, progress was evident in Jewish education in European countries.

In Israel consideration of the improvement and expansion of Jewish education constituted a major preoccupation for the government, despite the colossal economic and political problems with which the government was faced.

Jewish education for the Jews of the U.S.S.R. was, in 1951, literally nil. (B. H.)

Rent Control: *see* Law.

Rent Stabilization Board: *see* Defense Mobilization Agencies, U.S.

Representatives, House of: *see* Congress, United States; Elections, U.S.

Republican Party.

The Republicans utilized 1951 as a year for framing issues and strengthening their party in preparation for the 1952 presidential election. In co-operation with southern conservatives in congress, they rejected or sidetracked almost all of Pres. Harry S. Truman's domestic "fair deal" program. Meanwhile, they sought to resolve disagreements among themselves, especially on foreign policy, and to minimize the growing threat of an intra-party squabble over the 1952 presidential ticket.

CAUGHT IN A FREEZE?
SUFFERING FROM COLD SHOULDER, FROSTBITE, CHILBLAINS?
HOT UNDER THE COLLAR?
OLD GOP
OLD GOP
OLD GOP
LABOR
HERBLOCK
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"AHEM!" a cartoon by Herblock of the *Washington Post*, published in 1951

The G.O.P. drew encouragement from the scattered elections held during 1951. In ten contests to fill vacancies in the house of representatives, they netted a gain of two seats. This increased their membership in that body from 199 to 201, as against 232 Democrats, 1 Independent and 1 vacancy.

The Republicans lost one seat in the senate through the death of Sen. Arthur H. Vandenberg of Michigan. Gov. G. Mennen Williams, a Democrat, appointed Blair Moody, a Washington newspaper correspondent to fill the vacancy, and he increased the Democratic representation from 49 to 50. With the death in November of Sen. Kenneth S. Wherry of Nebraska, minority floor leader, the Republican membership was reduced to 45 at the year's end, but Nebraska's Republican governor, Val Peterson, restored the lineup to 50 Democrats and 46 Republicans by appointing another Republican, Fred A. Seaton, to fill the vacancy at the 1952 session.

Municipal elections on Nov. 6 also had a Republican trend. Although Republicans were not the actual beneficiaries, the outcome in Boston, New York and Philadelphia reflected popular reaction against corruption at both the local and national levels. The G.O.P. was especially heartened by its capture of many mayoralties from the Democrats in industrial cities in the east and middle west. These indicated that high taxes and high prices had hurt the Democrats among labour and white-collar elements.

The congressional coalition of Republicans and southern Democrats continued blocking bills on civil rights, compulsory health insurance, the Brannan farm plan, federal aid to education, etc. The combination granted only $5,691,000,000 in new taxes, as against an original White House request for $16,500,000,000, subsequently reduced to $10,000,000,000.

On foreign affairs and national defense, the minority generally accepted administration proposals, although with strings attached. In appropriating for overseas military and economic aid, they fixed a specific allocation of the funds. They also stipulated that no more than six divisions might be shipped to Europe without prior consent from congress.

Although the Republicans were fortunate in that Democratic congressmen assumed responsibility for initiating numerous investigations of alleged corruption, maladministration and laxity in several executive agencies, the minority made capital of disclosures of political favouritism and collusion in the Reconstruction Finance corporation, the department of justice and the internal revenue bureau.

Sen. Joseph R. McCarthy's resumption of his 1950 attacks on alleged Communists in the state department, and especially his floor denunciation of Gen. George C. Marshall before the latter's retirement as secretary of defense, caused misgivings among several colleagues. Headed by Sen. Margaret Chase Smith of Maine, several Republican senators issued a statement indirectly condemning the McCarthy technique as "un-American." Sen. William Benton, Connecticut Democrat, introduced a resolution for McCarthy's expulsion, on which hearings were begun late in the year.

A split developed on foreign policy, with a possible bearing on 1952 candidates and platform. One group, consisting largely of congressmen from eastern states, favoured all-out aid to Europe. Another faction, headed by Sen. Robert A. Taft of Ohio, while favouring limited aid to Europe, insisted that the administration devote more thought and resources to "containing" the U.S.S.R. in the far east.

Rep. Joseph W. Martin, Jr., of Massachusetts, house minority leader, helped precipitate a politico-military controversy by making public a letter from Gen. Douglas MacArthur, in which the latter questioned the administration's program in the Korean conflict and the far east generally. Ousted in April by President Truman, MacArthur returned to the United States to receive a hero's welcome from congress, several cities and state legislatures. Subsequently, he delivered speeches criticizing "internal subversion, corruption and detailed regimentation" at Washington, D.C.

The division between the "internationalists" and "isolationists," although both factions repudiated those characterizations, soon developed into a squaring-off over 1952 candidates. It resulted in an open skirmish between the forces of Senator Taft, who announced his candidacy in early fall, and backers of Gen. Dwight D. Eisenhower, commander of the western European army by appointment of President Truman.

Although Eisenhower's military assignment seemed to prevent him from entering the race, up to the end of 1951, or even disclosing his political affiliations, distinguished Republicans organized on his behalf. The principal promoters were Gov. Thomas E. Dewey of New York, Sen. James H. Duff of Pennsylvania, Sen. Henry Cabot Lodge of Massachusetts and National Committeeman Harry Darby of Kansas.

Another hat was thrown into the ring when Gov. Earl Warren, the 1948 vice-presidential nominee, announced that he was in the running, and shortly afterward Harold E. Stassen, former Minnesota governor and president of the University of Pennsylvania, also indicated that he would seek the nomination.

Sen. Karl E. Mundt of South Dakota proposed a formal alliance of Republicans and conservative southern Democrats that would project their Capitol hill tieup into the political realm, but he made small progress. However, in the summer the Republican national committee held its first meeting below the Mason-Dixon line, at Tulsa, Okla., at which time it chose Chicago, Ill. as the 1952 convention site.

The G.O.P. had a slight intra-family difficulty, involving National Chairman Guy G. Gabrielson. When the Fulbright inquiry disclosed that he had obtained a Reconstruction Finance corporation loan of $18,500,000 for his firm, Carthage Hydrocol, Inc., Sen. Richard H. Nixon of California demanded his resignation. Gabrielson refused on the ground that he had obtained the funds before he took his political post, and he was generally backed by committee members. (*See* also DEMOCRATIC PARTY; ELECTIONS, U. S.; UNITED STATES.) (R. TU.)

Research Libraries, Association of: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Resins: *see* PLASTICS INDUSTRY.

Respiratory Diseases.

In 1951, most cases of pneumonia were still loosely termed "viral" or, even more indefinitely, "primary atypical." The relative proportion of bacterial pneumonias (mostly caused by the pneumococcus) and of primary atypical pneumonias had varied in different years and localities. The number of cases ascribable to known microbial agents other than bacteria remained relatively small except in areas where Q fever was prevalent.

R. F. Reimann, investigating the "changing nature of pneumonia," found that at least some of the alleged change was more apparent than real. The number of cases of pneumonia reported in Philadelphia, Pa., for instance, had fluctuated only little during the period from 1930 to 1948 although there had been a striking downward trend in the mortality. In one large Philadelphia hospital, the number of cases specifically identified as pneumococcal pneumonia per 1,000 admissions for all causes was almost identical in the years 1937 through 1939 before effective sulfonamides were widely used, and again from Oct. 1946 to Oct. 1949, after penicillin had come into regular use.

Other clinicians in large hospitals of various U.S. cities

Case Fatality Rates in Pneumococcic Pneumonia According to Age of Patients and Method of Treatment

	No Specific Treatment			Treated with Specific Serum			Treated with Sulfonamides			Treated with Penicillin, Aureomycin or Terramycin		
Age Group	No.	Died	% Died	No.	Died	% Died	No.	Died	% Died	No.	Died	% Died
10 to 19	115	3	3	121	2	2	116	3	3	64	1	2
20 to 29	172	20	11	170	7	4	279	9	3	162	2	1
30 to 39	216	45	21	247	30	12	357	34	10	251	8	3
40 to 49	222	71	32	172	35	20	236	33	14	207	7	3
50 to 59	175	83	47	85	31	36	141	31	22	107	9	8
60 to 69	101	50	50	72	30	42	90	26	29	72	11	15
70 or over	86	59	68	22	15	68	55	21	38	57	9	16
All cases	1,087	331	30.5	889	150	16.9	1,274	157	12.3	920	47	5.1

Reported by H. F. Dowling and M. H. Lepper, *Am. J. M. Sc.*, 222:397 (Oct. 1951).

were quoted by Reimann as indicating that the number of patients with lobar (pneumococcal) pneumonia had not changed materially from the presulfonamide era. The severity of these cases, as judged at least by the percentage of those whose blood had been invaded by the pneumococcus, likewise was about the same as before the sulfonamides became available. Moreover, in South Africa, where pneumonia is always highly prevalent among miners, an actual increase in cases of lobar pneumonia was reported.

The situation with respect to deaths from pneumonia, however, was quite different; the mortality rate had been showing a slow but steady decline since the time of the pandemic of influenza in 1918. This downward trend was accelerated after 1936; in Philadelphia, for example, the number of annual deaths declined from more than 2,000 in 1936 and preceding years to between 1,100 and 1,250 in 1940–44 and subsequently to about 750 in 1948.

Data on fatality rates (number of deaths per 1000 hospitalized patients with pneumonia) reflected more clearly the effects of the new specific treatments. At the Cincinnati General hospital, for example, mortality from pneumococcal pneumonia ranged between 37% and 28% in the period 1936–39, inclusive, when only specific serums were used and only a relatively small proportion of the cases were treated with such serums. From 1940 to 1945, when sulfonamides were used in all cases, the fatality rate ranged between 14% and 20%. After 1949, when penicillin and other antibiotics were employed in the treatment of all cases, the mortality dropped to between 6.5% and 10%.

Even more revealing were the data collected by H. F. Dowling and M. H. Lepper, reproduced in the accompanying table. Their figures also showed the progressive decline in the fatality rate of pneumococcal pneumonia. They also showed that the benefit from the various treatments was shared by all age groups, although perhaps not equally for each group and each type of treatment. There was still a significant mortality from pneumonia in persons over 50 and particularly over 60.

The choice of treatment among the antibiotics (penicillin, aureomycin, terramycin and chloramphenicol) was still difficult to evaluate in 1951 because all appeared to be about equally effective in the pneumococcal pneumonias. Variable results, however, had been reported from the treatment of pneumonias caused by other agents, but the numbers of such cases were not adequate for valid comparisons.

Little was added to knowledge of the so-called primary atypical (viral) pneumonias in 1951. In one large hospital it was shown that cases of this disease had been recognized in significant though somewhat varying numbers in each of the four successive years preceding the report. The seasonal incidence, however, was similar in each of these years; it was high during the summer months, reached a peak during the autumn, dropped to or below the summer level during the winter and had its lowest incidence during the spring months. (Pneumococcal pneumonias reached their peak of incidence in the winter, and the fewest cases were in the summer months.)

Most, although by no means all, investigators who had studied the effects of antibiotics on the course of "viral" pneumonias had found that aureomycin, in particular, and perhaps also terramycin and chloramphenicol, have a significant beneficial effect in alleviating the symptoms and shortening the course of the disease. The results of a study reported from a U.S. air force base, however, were interpreted as indicating that none of the antibiotics exert any significant beneficial effect upon the duration of the illness in the mild disease. The cases reported, however, must have been unusually mild, since the patients had fever for an average of only one and one-half to three days in each of the various therapeutic groups, including those who received no therapy. These patients must, therefore, have had an illness that was far different from the types observed in patients in whom the beneficial effects of aureomycin had been previously demonstrated; in the latter, the average duration of fever and symptoms without treatment, or with penicillin, was usually from 10 to 14 days.

NEW MILL HILL LABORATORY in London, Eng., centre of the World Health organization's 1951 campaign against influenza, in which eggs were employed in checking for the presence of the virus and for testing experimental vaccines

Q fever continued to arouse considerable interest. The results of epidemiologic studies conducted in 300 cases of this disease and among 10,000 persons in selected population groups in the Los Angeles area of California were reported in 1951. Together with previous studies they indicated that the major factor in the spread of this disease to man is association with infected livestock. They showed that dairy cattle and some of their raw products were the most frequent sources of human infection in this area. Persons most likely to become infected are those with occupational exposure to livestock, those who live near dairies or livestock yards and those who use raw milk. It was concluded from these studies that although universal pasteurization of milk would help prevent some infections, and the vaccination of occupationally exposed groups might afford protection to those groups, effective control of the disease in man had to await the development of measures for the control of the infection in the animal sources of the disease.

Another series of intensive studies on Q fever was also reported from California. One involved an investigation of blood serums from more than 16,000 sheep, goats and cattle from that state for evidence of infection with Rickettsia. Antibodies for this agent, *Coxiella burneti*, were found to vary in distribution in these three species in two major geographic areas. In northern California the highest prevalence of antibodies was encountered in sheep and goats while in southern California the highest incidence of antibodies was encountered in dairy cattle and goats. These findings agreed with the results of epidemiological observations of human Q fever which indicated that the majority of cases in southern California had a history of contact with dairy cattle, whereas in northern California, such contact was with sheep and goats.

In this connection it is of interest that *Coxiella burneti*, the causal Rickettsia of Q fever, was isolated from the air of a shed in a commercial goatery in southern California. An outbreak of the disease was also described among the crew of a trans-Pacific ship which carried successive cargoes of pregnant dairy goats. From 15% to 32% of the goats examined had antibodies in their blood which indicated recent infection with *Coxiella burneti*. The evidence pointed to the goats as possible sources of infection of the crew.

An outbreak of Q fever involving 68 persons at an agricultural college in California was also described. The source or mode of transmission of the infection was not determined with certainty, but the evidence pointed to sheep as the probable source. Most of the human cases were in students of animal husbandry, suggesting that the disease was acquired through more or less direct contact with infected animals. In some cases, however, the possibility of airborne transmission was considered.

Clinical studies of 180 cases in northern California indicated that Q fever is a systemic disease of varying duration and severity, the fever not infrequently lasting for more than three weeks, especially in older people. Evidence of pneumonia was not found frequently and changes in the lungs were demonstrated by X-ray in only one-third of the patients examined.

The results of treating Q fever with aureomycin were compared with those obtained by the use of penicillin. Aureomycin appeared to bring about a significant reduction in the duration of fever and was considered to be highly beneficial, whereas penicillin probably was not. In some patients, however, the response to aureomycin appeared to be slight or negligible and no explanation was found for these failures.

Mention may also be made of an epidemic of psittacosis (ornithosis) in Texas. This disease previously had been associated with exposure to sick parrots, or later to pigeons and other types of fowl. The outbreak reported in 1951 occurred among employees of a poultry and egg plant. Of 78 employees in one establishment engaged in dressing turkeys for market, 22 acquired the disease and 3 died. Epidemiologic studies revealed that a group of turkeys constituted the most probable source of infection.

Some investigations were made during 1951 of the effects of cortisone and ACTH in the treatment of pneumonia. The studies indicated that the symptoms of pneumonia may be temporarily alleviated but the infection itself is apparently unaffected and may progress during treatment. Experimental infections in animals are not benefited and treatment with ACTH or cortisone may even be associated with increased severity and mortality. There were increasing numbers of reports, however, indicating that all types of human infection may actually be aggravated or initiated during treatment with ACTH and cortisone.

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Retail Sales: *see* BUSINESS REVIEW.

Réunion.

The status of this former French island colony in the Indian ocean (about 420 mi. east of Madagascar) was changed in 1946 to that of an overseas *département*. Area: 970 sq.mi. Pop.: (1950 est.) 255,000; (1946 census) 242,067, of whom 97% were French subjects but only 6,698 were of French origin. The inhabitants are mainly coloured (Negroes, creoles, mulattoes, Indians and Chinese), speak a creole patois and are mainly Roman Catholic. Chief towns (pop., 1946 census): Saint-Denis (cap., 36,096); Saint-Louis (23,936); Saint-Paul (25,959); Saint-Pierre (22,379). Prefect: Roland Béchoff.

History.—The elections of June 17, 1951, sent one Communist and two Republican deputies to the National assembly in Paris. Nine Independents, four Gaullists, two Communists and two Christian Democrats were elected to the general council of the island. Sugar cane planters protested against the island's being made a *département* because this incurred social obligations which increased cost prices. There was a proposal to restrict the area devoted to sugar cane and to concentrate sugar factories. The quota of sugar to be admitted to France was limited to 150,000 metric tons, that of rum to 30,000 hectolitres. The slackening of demand in France was leading to a bottleneck in production. The S.A.P.M.E.R. Company, founded on Réunion to exploit the fisheries in the vicinity of Saint-Paul and Amsterdam islands, in 1950 landed 147 metric tons of false cod and 70 metric tons of crayfish tails.

Finance.—Currency: Fr. C.F.A. (Colonies Françaises d'Afrique) = 2 metropolitan francs. U. S. \$1 = 350 metropolitan francs.

Foreign Trade.—(1950): imports 4,578,000,000 fr. C.F.A.; exports 3,320,000,000 fr. C.F.A. Principal exports: sugar 2,327,000,000 fr.; rum 317,000,000 fr.; vegetable oils 266,000,000 fr. Trade is almost entirely with the French Union.

Transport and Communications.—(1950): Railways 227 km.; roads 2,000 km.; motor vehicles 5,900. (HU. DE.)

Rheumatic Diseases.

Efforts were extended during 1951 to learn how the hormones cortisone (the adrenal cortical hormone) and corticotropin (ACTH—the adrenal stimulating secretion of the pituitary gland) produce their effects, but with little success. The usefulness of these hormones in practical management of patients with different forms of arthritis was explored extensively. The biggest problems in this field are met in patients with rheumatoid arthritis because this is a chronic disease. These hormones do not obliterate the underlying disease mechanism; they only suppress it. Hence, to benefit this chronic disease one is faced with the need for prolonged use of the hormone, and with the problems of avoiding troubles during hormone administration. Trials of various schedules of treatment were critically evaluated with the result that most investigators agreed that smaller doses than were used in the early trials, sufficient to produce partial but not complete suppression of the disease, continued over many months, was usually the best plan. Many persons were significantly helped and fewer difficulties were encountered when this plan was followed. The duration of treatment must be determined separately in each case according to the comparison of the degree of benefit, how well the patient gets on when trials to discontinue treatment are made, and the amount of undesired effects of the hormone. Many patients got on well without cortisone or corticotropin; some could not tolerate the use of the amounts required to produce good anti-rheumatic effect; many could be helped greatly by the hormones. Much attention was being given to the wise selection of patients as candidates for such treatment.

In addition to the use of cortisone and corticotropin in severe, progressive cases of rheumatoid arthritis, the drugs were found to have significant value in the rehabilitation of patients who had been incapacitated from long-standing disease.

Perfection of a much better and more reliable delayed-absorbing corticotropin made the use of this hormone more practical and more popular. Even so, it was far less adaptable than cortisone (which could be used in tablet form) in the management of ambulatory (non-hospitalized) patients. Production of both hormones increased during the year so that the needs were usually met. (*See* also CORTISONE AND ACTH.)

Patients with severe osteoarthritis, especially of the hip joints, were made comfortable and rehabilitated by prolonged use of cortisone, with little or no trouble even in elderly patients. Cortisone used in this disease can be only ameliorating, for the underlying pathologic changes are irreversible.

A "sister-steroid" to cortisone, namely hydrocortisone (compound F) was found to possess essentially the same pharmacologic characteristics as cortisone. It has no advantages over cortisone for usual oral or intramuscular use, but early studies indicated that it has greater effects when injected directly into the joint cavity of an inflamed or painful joint. Injections had to be repeated at intervals of from 7 to 50 days. The much smaller amount of steroid required together with the avoidance of troubles which sometimes accompany systemic use of such steroids, made further study of this method of local use of hydrocortisone attractive.

The revival of an interesting theory of the cause for rheumatoid arthritis was presented by T. M. Brown and associates, who pointed out that certain bacteria might be responsible for this disease, indirectly through immune reactions. Based upon this premise, slow elimination of the organisms by long use of small, daily doses of terramycin (an antibiotic to which the bacteria are sensitive) was tried, and a preliminary report was made that such treatment seemed to be effective. However, much more study of this approach to treatment was needed before its value could be ascertained.

Numerous investigators showed that a new drug, benemid, in proper doses, increases the urinary excretion of uric acid, and thereby reduces the content of uric acid in the blood. This effect was expected to be of great value to patients with gout —a disease with alteration of uric acid metabolism. Indeed in many patients with gout, lowering of the blood uric acid was consistently effected. Whether or not this would reduce or eliminate the attacks of arthritis which characterize gout could be determined only after longer study.

Investigations in arthritis and related fields were expected to continue and increase. Developments in this direction were being made possible through the support of the newly formed Arthritis and Rheumatism foundation. Also the United States public health service had provided increasing stimulus and aid to arthritis research, especially through its newly organized Institute for Arthritis and Metabolic Diseases. (*See* also BIOCHEMISTRY; ENDOCRINOLOGY.)

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(R. H. FR.)

Rhode Island. A north Atlantic state of the United States, in New England, Rhode Island was one of the 13 original states; it is popularly known as "Little Rhody." Area: 1,214 sq.mi. (smallest of the United States), including 157 sq.mi. of water. Pop. (1950 census): 791,896, a gain of 11% since 1940. The principal cities, with 1950 populations, were: Providence (cap., 248,674); Pawtucket (81,436); Woonsocket (50,211); Cranston (55,060); Warwick (43,028); Newport (37,564); Central Falls (23,550).

History.—At the 1951 session of the legislature, leading measures passed included the following: a general appropriations act for support of the government for the fiscal year ending June 30, 1952, to the amount of $48,970,869.68; an act to provide additional revenue for the ensuing fiscal year for the state and its municipalities by doubling the 1% sales tax, increasing the corporate income tax from 4% to 5%, raising the tax on pari-mutuel betting from 5% to 7% and placing an excise tax of 50 cents per gallon on alcoholic beverages; an act creating a state board of education consisting of seven members to be appointed by the governor; an act providing for a special election on the question of calling a constitutional convention for the limited purpose of proposing amendments to the constitution on these subjects: permanent registration of voters, qualification of voters (veterans' exemptions), increasing compensation of state legislators, repeal of poll tax, life tenure for judges of the supreme and superior courts, home rule for cities and towns, increase of borrowing power of the state, redevelopment of blighted areas and requirement of off-street parking in cities and towns, and also providing for a subsequent special election for ratification of action of the constitutional convention by the electorate; an act to approve for the second time and submit to the voters an amendment to the constitution for abolishing the poll tax; an act reducing from 15 to 12 weeks the duration of benefit payments under the cash sickness compensation act, for unemployment due to sickness resulting from pregnancy, with provision for lifting the limitation in cases of unusual complications; an act to provide for a retirement and benefit system for municipal employees and its integration with the federal Social Security act; an act for the regulation and restriction of evictions of tenants; an act extending veterans' benefits to members of the armed forces who have had part in the Korean war; an act to promote housing for persons engaged in national defense activities; and an act creating a commission to make a complete revision of the workmen's compensation laws and to draft an act for submission to the legislature at its 1952 session.

The chief executive officers of the state elected in Nov. 1950 for 1951–52 were Dennis J. Roberts, governor; John S. McKiernan, lieutenant governor; Armand H. Coté, secretary of state; William E. Powers, attorney general; Raymond H. Hawksley, general treasurer. Edmund W. Flynn was chief justice of the supreme court.

Education.—During 1950–51 there were in the public elementary schools 63,844 pupils and 2,181 teachers; in junior high schools 16,526 pupils and 851 teachers; in senior high schools (three years) 12,039 pupils and 703 teachers; in senior high schools (four years and vocational) 4,711 pupils and 243 teachers. Pupils attending private schools were: elementary 27,690; junior high 4,547; senior high (three years) 923; senior high (four years) 6,060. The total number of teachers in private day schools was 1,426. Current expenditures for day schools were $20,429,017.71 and for evening schools $66,601.87. The commissioner of education in 1951 was Michael F. Walsh, working under the newly created state board of education of seven members whose chairman was C. B. Collins.

Social Insurance and Assistance, Public Welfare and Related Programs.—The total number of persons receiving public assistance in all categories (including incapacitated fathers) in Nov. 1951 was 33,079 or about 4.2% of the state's population. The total amounts paid out during the year Dec. 1, 1950, to Nov. 30, 1951, were as follows: general public assistance $3,555,826; soldiers' welfare $149,742; old-age assistance $5,355,692; aid to dependent children $3,601,578; aid to the blind $120,356; aid to the disabled (started in May 1951 and matched by federal payments) $35,448. In unemployment compensation, the net amount of benefit payments during 1951 was $17,408,018.42 to 83,544 different individuals. The amount paid into the fund during 1951 including interest was $17,101,106.80. There were 553 inmates in corrective institutions on Nov. 30, 1951, and 5,713 patients in charitable institutions and institutions for defectives, the number in the latter being 4,209.

Communications.—The total mileage for highways on Dec. 31, 1951 (excluding city roads and streets under the control of the seven cities), was 2,622 mi. of which 842.29 mi. were state roads built and maintained by the state into and through the cities. At the close of 1950, railroads were operating 184.76 mi. of track in the state.

Water-borne commerce of the state for 1950 was 8,379,590 tons, of which 827,800 tons were foreign commerce (imports 827,703 tons, exports 97 tons), 7,007,778 tons were coastwise (receipts 6,396,427 tons, shipments 611,351 tons), 405,364 tons were internal (receipts 202,682 tons, shipment 202,682 tons) and 138,648 tons were local.

On Dec. 31, 1951, there were four publicly owned (state) airports and seven privately owned airports or landing fields. Also there were two naval air stations owned by the United States.

In Dec. 1951 there were 241,434 telephones in service.

Banking and Finance.—There were 25 banking institutions in 1951. Resources of 18 banks under state supervision totalled $788,025,447.84, and of 7 banks under federal supervision, $373,044,990.03. Savings deposits (exclusive of club accounts) in savings banks and trust companies (the 18 state banks) amounted to $497,617,646 on June 30, 1951. In addition, 6 loan and investment companies had resources of $5,218,949.67; 7 building and loan associations $97,045,350.42; 41 credit unions $20,638,337.71.

At the close of the fiscal year, June 30, 1951, total state receipts were $51,642,430.32; expenditures and encumbrances $50,925,028.20; surplus from operation $717,402.12. The state gross debt was $52,617,000, net debt $47,302,975.58.

Agriculture.—The total acreage of principal crops harvested was 52,200 in 1951. Cash income from crops in 1950 was $5,248,000; from livestock and livestock products $16,407,000; from government payments $96,000; total gross farm income $21,751,000. The value of livestock Jan. 1, 1951, was $8,374,000.

Leading Agricultural Products of Rhode Island

Crop	1951	1950	Average 1940-49
Corn, all, bu.	287,000	301,000	309,000
Hay, all, tons	49,000	44,000	50,000
Alfalfa, tons	2,000	2,000	2,000
Potatoes, bu.	1,060,000	1,210,000	1,263,000
Oats, bu.	32,000	31,000	32,000
Apples (commercial), bu.	243,000	261,000	212,000
Peaches, bu.	18,000	3,000	14,000

Source: U.S. Department of Agriculture.

On Jan. 1, 1951, the livestock population of the state included: 1,000 horses and colts; 21,000 milk cows; 6,000 other cattle; 9,000 hogs; 2,000 sheep and lambs; 638,000 chickens; 5,000 turkeys; and 1,100 colonies of bees. Livestock products in 1950 included 138,000,000 lb. of milk valued at $8,156,000; 940,000 chickens, $2,075,000; 34,000 turkeys, $300,000; 8,500,000 doz. eggs, $4,394,000.

Industry and Manufacturing.—The estimated number employed in the state in Nov. 1951 was 292,000, distributed as follows: manufacturing 140,700; trade (wholesale and retail) 52,600; government (federal, state, local) 33,300; service (personal, medical, legal, etc.) 22,300; transportation and public utilities 15,200; construction 16,700; finance, insurance, real estate 10,500; miscellaneous 700. (Farmers, self-employed, domestics and armed services personnel are excluded.)

Employment in manufacturing in Nov. 1951 totalled 120,766 production wage earners and 19,895 nonproduction workers (salaried personnel), and the weekly pay roll was $6,716,891 for all manufacturing industries in Rhode Island according to the state department of labour. Wage earners were distributed among manufacturing industries as follows: textiles 54,796 (cotton 14,408, rayon-silk 3,639, woollen-worsted 21,988, finishing 10,208, miscellaneous textiles 4,553); jewellery-silverware 17,844; metals and machinery 34,210 (primary 6,867, fabricated 5,694, machinery 13,815, electrical machinery 7,834); rubber products 7,073; apparel 3,012; food 4,457; miscellaneous 19,269. The number of establishments employing five or more workers was 3,739 in Oct. 1951, and the number of persons employed was 203,833. (M. C. Ml.)

Mineral Production.—Rhode Island's mineral production is limited mainly to building materials. In 1949 it included 398,487 short tons of sand and gravel (valued at $378,896), 74,670 tons of stone ($451,029) and other nonmetallics valued at $98,760; total value $928,685. In 1950 sand and gravel increased to 579,528 tons ($580,322) and stone to 239,400 tons ($798,186).

Rhodesia, Northern.

A British protectorate in central Africa. Area: 290,320 sq.mi. Pop. (June 1950 est.): 1,866,000, including 38,000 Europeans. Religion: pagan (*c.* 80%) and Christian. Chief towns (European pop. 1950): Lusaka (cap. 4,615), Nkana-Kitwe (5,234), Luanshya (4,685), Mufulira (3,322), Ndola (2,962). Administration: governor; executive council, 7 official and 4 unofficial members; legislative council, 9 official members and 14 unofficial (10 elected European, 2 nominated to represent African interests and 2 African). Governor: Sir Gilbert Rennie.

History.—Proposals for federating the Rhodesias and Nyasaland produced by a conference of officials in London earlier in 1951 were discussed at Victoria Falls in September. African opinion in Northern Rhodesia was solidly against any form of federation but the African representatives from the protectorate indicated at Victoria Falls that they would be ready to consider federation after the policy of partnership should have been defined and, as defined, put into progressive operation. Sir Gilbert Rennie, the governor, Roy Welensky, leader of the unofficial members of the legislature, and J. B. Beckett, member for agriculture, had discussions in London in April with James Griffiths, secretary for the colonies, on the Northern Rhodesian constitution, but no decision was obtained.

A report on the Kariba gorge hydroelectric scheme by the Central African council recommended initial construction to produce 380,000 kw. at a cost of £43,518,000 with ultimate expansion to 1,000,000 kw. at a cost of £74,500,000. The creation of a Zambezi river authority and a Rhodesian hydroelectric board was also proposed. The government issued £7,730,000 3½% inscribed stock 1970–72 at £99% for development work. A loan of £3,000,000 was made by the Economic Cooperation administration for copper mining development. A threatened strike of 30,000 African mineworkers was averted by wage concessions. The co-operative movement made great progress reaching a total of 64 African societies with 10,364 members and a capital of £18,429.

Education.—Government schools (1949): 16, of which 11 provided a limited secondary course (attendance 3,730); controlled private schools, attendance 858; convent school at Broken Hill provided full secondary course.

Finance and Trade.—Currency: Southern Rhodesian pound at par with sterling. Budget: (1950 actual) revenue £11,758,324, expenditure £11,676,248; (1951 est.) revenue £14,417,630, expenditure £14,375,310. Foreign trade (1950): imports £26,710,000; exports £49,942,000. Principal exports (1950 values): copper (blister and electrolytic) £42,857,000, lead £1,334,208, zinc £2,630,533, tobacco £1,004,222. (*See* also RHODESIA, SOUTHERN.) (G. R. Mn.)

Rhodesia, Southern.

A self-governing British colony in central Africa, Southern Rhodesia is separated from Northern Rhodesia by the Zambezi river and is bounded northeast and east by Portuguese East Africa, south by Transvaal and southwest and west by Bechuanaland protectorate. Area: 150,333 sq.mi. Pop. (1951 census): 2,146,324 including 136,017 Europeans, 4,343 Asians and 5,964 mixed. Chief towns (European pop.): Salisbury (cap., 40,510); Bulawayo (32,269); Umtali (5,762); Gwelo (5,115). Languages: English, Afrikaans and tribal dialects. Religion: Africans mainly pagan, Christian minority. Administration: governor; executive council (cabinet); legislative assembly, in which seats were held (Dec. 1951) as follows: United party 23, Rhodesia (former Liberal) party 5, Rhodesia Labour party 2. Governor, Maj. Gen. Sir John Noble Kennedy; prime minister, Sir Godfrey Huggins.

History.—Defense measures taken during 1951 included the registration of all non-African males between the ages of 18 and 29 for six weeks' training in camp; the raising of an additional company of the Rhodesian African Rifles; a short service commissions scheme to train fighter pilots for two complete squadrons in two years; and an expenditure of £2,000,000 on building up strategic stocks. The educational test for the franchise was stiffened; the property qualification was raised to £500 and the income qualification to £240 a year. The Liberal party changed its name to the Rhodesia party and a new political organization called the Democratic party was formed, mainly with Afrikaner support. R. F. Halsted, minister for trade and industrial development was dropped from the cabinet after failures in gasoline supplies. A report on agriculture by Sir Frank Engledow was published. In January the government issued £5,000,000 3½*s.* 1980–85 at par; 43% was left with the underwriters. The United States granted a loan of £5,000,000 for Rhodesia railways through the Economic Cooperation administration.

Central African Federation.—Proposals for a closer association of Southern Rhodesia, Northern Rhodesia and Nyasaland (*qq.v.*) had been discussed for a number of years. The issue was complicated by the differing status of the territories, Southern Rhodesia being a self-governing colony and the other territories protectorates. The presence of permanently resident and landowning European groups distinguished the territories from others in Africa in which Africans had made rapid constitutional progress. In all the territories attempts were being made to work out a constitutional partnership between the elements of a plural society, but the directions taken were different. In the north considerable constitutional advances, in which the African had a substantial place, had been made by 1951; in Southern Rhodesia the emphasis was placed on African economic and educational advancement as an essential preliminary to increased participation in government. A royal commission in 1938 had considered closer association but recommended at that time only an interterritorial advisory body which came into being in 1945, after being delayed by World War II, as the Central African council. This was reduced in 1951 to a secretariat.

Informal discussions took place in 1949 between Southern Rhodesian leaders and the unofficial members of the Northern Rhodesian legislature. A conference of officials met in London in March 1951 to examine the matter afresh. Its report was published in June and was accompanied by a comparative survey of native policies. The survey found that the principles of policy, of leading the African to full partnership, did not materially differ between the northern territories and Southern Rhodesia; the main difference was that it was held in the north that the African must be induced from the outset to play a full part in the administration of his own area and a direct part in the politics of the whole territory, whereas in Southern Rhodesia it was held that he must first become the equal of his future partner—the European—in health, material well-being and education.

The officials' report emphasized the interdependent nature of the economies of the territories (*e.g.*, Southern Rhodesian coal for Northern Rhodesian copper smelting) and pointed out that a slump in any one of a few commodities would have a disastrous effect on the territories working as isolated units. The economic development of all had gone forward rapidly in ten years and the European population had more than doubled. Differences in native policy could no longer be regarded as a valid argument against closer association; African opinion in the north was still opposed to it, which was a serious obstacle, but in the last resort, the officials thought, and given adequate representation and protection of their interests, the Africans would come to realize its advantages from their point of view.

The report therefore proposed a federation, to be called British Central Africa. The federal authority would control external affairs, defense, economic matters and the principal public utility services, while the territories would control most other matters, in particular those most affecting the African. But African interests would also be watched in the federal sphere by a minister responsible ultimately to the United Kingdom government. Africans would also have representation in the legislature.

The proposals were discussed by representatives from the three territories with James Griffiths, secretary for the colonies, and Patrick Gordon Walker, secretary for commonwealth relations, at Victoria falls, Sept. 18–21. The Africans from the north opposed them, according to the communiqué issued Sept. 21, but the other interests accepted federation in principle. The Conservative government which took office in London in October announced on Nov. 21 that it endorsed federation and believed it to be in the best interests of the Africans; assurances given by earlier governments were renewed; amalgamation, except by majority consent, was ruled out; and it was proposed that the conference reassemble in London in July 1952.

The course of events caused much disappointment in Southern Rhodesia. Sir Godfrey Huggins, the prime minister, explained in parliament on Nov. 19 that he had always wanted amalgamation but, as it was unattainable, accepted federation in principle. (*See* also RHODESIA, NORTHERN.)

Education.—European (1950): government primary schools 76, teachers 527, pupils 14,254; high schools 15, teachers 333, pupils 5,011; private registered schools 11; aided European schools 10, teachers 196, pupils 3,755; aided farm schools 12, teachers 12, pupils 172. Asian and mixed: government schools 12, teachers 65, pupils 1,815; other schools 5, teachers 33, pupils 994. African: government primary schools 9, teachers 5 European and 126 African, pupils 4,477; aided primary schools 2,133, teachers 8 European and 5,980 African, pupils 212,184; government post primary schools 3, teachers 19 European and 31 African, pupils 854; aided post primary schools 10, teachers 27 European and 9 African, pupils 506; aided teacher training schools 19, teachers 85, students 944.

Finance and Banking.—Currency: Southern Rhodesian pound (£SR1 = £1 sterling); circulation incl. Northern Rhodesia and Nyasaland (June 1951) £11,109,000. Budget (1950–51): revenue £17,997,385; expenditure £16,736,780; (1951–52 est.) revenue £20,885,200, expenditure £21,901,326. National debt (March 1951) £91,614,059. National income (1950 est.) £89,100,000.

Foreign Trade.—Imports (1950) £58,875,000, exports £40,754,000, re-exports £7,500,000; (Jan.–June 1951) imports £38,934,000, exports £19,578,000, re-exports £4,389,000.

Transport and Communications.—Main roads (1950): *c.* 15,600 mi., incl. 2,500 mi. hard-surfaced. Railways: 1,352 mi.; (1950) passenger traffic 2,368,017, freight 6,001,496 tons.

Agriculture.—Tobacco (Virginia, 1950–51): 89,431,985 lb.

Industry.—Fuel and power: coal (1950) 2,346,000 tons, (Jan.–June 1951) 1,209,000 tons; electricity (1950) 219,159,417 units sold. Raw materials (1950): gold 511,000 oz.; asbestos 71,527 tons; chrome 321,353 tons. (G. R. MN.)

Rice. The 1951 U.S. rice crop of 43,805,000 bags (100 lb. each) was 7% larger than the previous record crop (1949), 13% larger than the 38,689,000 bags of 1950 and about one-third larger than the 1940–49 average (31,431,000 bags). The record crop resulted from a 20% increase in harvested acreage, 1,947,000 ac., compared with 1,620,000 ac. in 1950. An average yield of 2,250 lb. per acre fell below the 2,388 lb. of 1950 but exceeded the 2,083-lb. average of 1940–49.

Texas ranked first among the states with 12,408,000 bags, followed by Louisiana with 11,324,000, California with 10,362,000 and Arkansas with 9,011,000 bags.

The probable average price to farmers was estimated at $4.77 per bag, compared with a government loan level of $5, whereas the 1950 price received averaged $5.09. Exports for the year were estimated at 18,000,000 bags, compared with 13,167,000 bags in 1950.

The world rice crop for 1951–52 was preliminarily estimated at 337,387,500,000 lb., compared with 339,644,300,000 lb. in 1950–51 and about 335,700,000,000 lb. before World War II. Planted acreage was near the record of the previous year (233,220,000 ac.) and well above the 211,547,000 ac. of prewar; the decline was mostly the result of unfavourable weather in China

Rice Production of the Principal Producing Countries

(In millions of pounds; rough)

Country	1951–52	1950–51	Average, 1935–36 1939–40
China	99,000	103,500	110,372
India	—	70,000	74,740
Pakistan	27,740	27,560	24,340
Japan	25,000	26,443	26,791
Thailand	14,500	14,951	9,589
Malayan federation	—	14,280	14,126
Indochina	12,500	12,000	14,396
Burma	11,800	11,505	15,683

and Japan. World exports of rice increased to a level about half as large as the prewar level, which was about 20,000,000,000 lb. of milled rice per year. (J. K. R.)

Ridgway, Matthew Bunker

(1895–), U.S. general, was born on March 3 at Fort Monroe, Va. He graduated from the U.S. Military academy at West Point in 1917, and was assigned as an instructor at West Point during World War I. He later saw service in China, Nicaragua and the Philippines, and at the outbreak of World War II was serving in the war plans division of the war department in Washington, D.C. He was given command of the 82nd infantry division, which was later converted into an airborne division, and which he led in invasions of Sicily in 1943 and Normandy in 1944. When World War II ended he was in the Philippines, participating in the arrangements for the invasion of Japan. He was Gen. Dwight D. Eisenhower's representative on the United Nations Military Staff committee in 1946; U.S. Caribbean commander in 1948, and was serving as deputy chief of staff for administration when he was called to replace Lt. Gen. Walton H. Walker when the latter was killed in Korea, Dec. 1950. As commander of the U.S. 8th army, he engineered the U.N. forces' comeback against the North Koreans. When Pres. Harry S. Truman dismissed General Douglas MacArthur, April 11, 1951, he named General Ridgway to succeed to the four commands: supreme commander, Allied powers, and as such chief of the Japanese occupation; commander in chief, U.N. command in Korea; commander in chief, far east (U.S.), and commanding general U.S. army, far east. It was under General Ridgway that the prolonged truce talks began in July. He repeatedly asserted thereafter that while he steadily worked for peace, his forces were ever alert to repel any further attacks by Communists in Korea.

Rio De Oro: *see* SPANISH COLONIAL EMPIRE.
Rio Muni: *see* SPANISH COLONIAL EMPIRE.

Rivers and Harbours.

In 1951 construction was executed on 150 regular river and harbour projects by the U.S. army corps of engineers; of this number 23 were completed. Maintenance was performed on a total of 330 projects, including the extensive intercoastal waterways and Mississippi river system, the connecting channels on the Great Lakes, the 490 navigation locks and dams and 270 harbours, and also the channels and canals of the Ohio river system, the upper Mississippi river, the Illinois waterway, the hydroelectric generating plants on the Missouri river at Fort Peck, Mont., and the Columbia river at Bonneville, Ore. During the fiscal year which ended June 30, 1951, $186,142,500 of federal funds was expended for new work and maintenance of river and navigation projects and inland and coastal harbours.

The Rivers and Harbors act of 1951, including supplemental appropriations, provided $192,657,613 for maintenance and improvement of U.S. rivers and harbours. Of this total, $125,192,613 was for new construction work on 43 projects in 29 states, the District of Columbia and Alaska. Maintenance, operation and care were allotted $61,287,500; advance planning $500,000. The act specified that no planning could be undertaken or continued unless certified by the president or necessary to defense. No new construction could be initiated except the Dalles

OFFICIAL TESTING of a radar system for locating vessels, which was expected to end costly and dangerous fog jams in the New York harbour. A port official is shown being "talked" through harbour traffic, in May 1951, via two-way radio communication with a radar centre lock and dam, Oregon and Washington, and Old Hickory lock and dam, Tennessee, both multipurpose projects providing hydroelectric power. The important river and harbour projects allocated $1,500,000 or more for construction were: McNary lock and dam, Columbia river, Oregon and Washington, $42,900,000; Missouri river, Kansas City, Mo., to Sioux City, Ia., $4,000,000; Mississippi river, between Ohio and Missouri rivers, $5,000,000; Cheatham lock and dam, Tennessee, $3,000,000; Old Hickory lock and dam, Tennessee, $2,000,000; St. Anthony falls, Minnesota, $1,500,000; Gulf Intracoastal waterway, New Orleans district, $4,400,000; Demopolis lock and dam, Alabama, $4,000,000; Monongahela river, Pennsylvania, $4,000,000; Jim Woodruff dam, Florida, $6,300,000; Chief Joseph dam on the Columbia river, Washington, $16,892,000.

At the end of 1951 there were 686 authorized investigations in advanced stages of completion. The work involved in this survey program was approximately 60% complete. Included in the studies were the Trinity river, Texas; Galveston-Houston-Texas City channel, Texas; the coast of California, to determine the advisability of providing harbours of refuge for small craft; Hudson river improvement for deep-draft tankers; Duluth-Superior harbour, Minnesota; Illinois waterway duplicate locks; Delaware river, Philadelphia to Trenton; Atchafalaya river, Morgan City, La., to Mississippi river via Old River, La.; and a survey of the water resources of Alaska for navigation, power development, flood control and related purposes.

At the Bonneville dam and reservoir, Oregon and Washington, the ten electric-power generating units were operated at capacity throughout the year. At the Fort Peck dam, on the Missouri river in Montana, the reservoir was operated throughout the year for the maintenance of navigation on the Missouri river, and for the secondary purposes of flood control and hydroelectric production. Operation of the two completed generating units was continued during the major portion of the year, with the total power production during the first six months being approximately 145,481,000 kw.hr. Installation of a third generating unit of 35,000-kw. capacity was under construction. (G. Hb.)

Canada.—During 1951, about $1,400,000 was spent to widen ship channels in the Fraser river and add more dikes and dams to existing $11,000,000 Fraser valley dike water-control system. The Eastern Rockies Forest Conservation board announced plans to build dams to control and increase the flow of water from mountain ice fields to prairie rivers. The irrigation gates of the 2,530-ft. earth dam (largest in Canada) on the St. Mary river near Lethbridge, Alta., were opened in July, bringing river water to 500,000 ac. Stream flow throughout the year was heavy, and in October was 141% above normal. The federal government voted nearly $10,000,000 for the acquisition, construction and improvement of harbour and river works. After holding hearings at various Great Lakes centres, the international joint commission was authorized to adopt a $125,000,000 program to control and prevent pollution of boundary waters. (*See* also CANALS AND INLAND WATERWAYS.) (C. Cy.)

Roads and Highways.

World economic and political conditions prevented spectacular progress in the highway programs of most countries during 1951, but there were important extensions of highway systems and improvement of existing roads. In the world-wide search for additional supplies of certain minerals and other raw materials many development operations and plants were established in remote regions. In most instances highways had to be constructed to serve such activity.

United States.—Highway improvement in 1951 went forward at about the same rate as in the two preceding years when funds expended exceeded all previous levels. Increased costs, however, more than offset the gain in dollars expended. In 1950, expenditures for construction of all streets and highways amounted to $2,400,000,000 and maintenance of the great network of roads cost $1,400,000,000. The 1951 construction expenditure was estimated at $2,700,000,000, and it was certain that the maintenance expenditure would exceed that of 1950.

Large cities of the country, such as New York city, Chicago, Ill., Detroit, Mich., Atlanta, Ga., Denver, Colo., Los Angeles and San Francisco, Calif., made good progress in constructing expressways to solve urgent traffic problems. Many miles of main highways were rebuilt. A significant trend was wide acceptance of the idea that development along heavily travelled main highways and access to them must be regulated to preserve a free flow of traffic. A notable project of this character was the 28-mi. divided highway around Boston about 12 mi. from the centre of the city.

Progress in building roads, when measured by previous standards of performance, was excellent; but there was unsatisfactory progress toward correction of the many faults of the existing road system. The accumulated deficiency in rehabilitating worn and obsolete roads was 74,000 mi. in 1951 and was increasing at the rate of 5,000 mi. or more per year.

In the fiscal year ending June 30, 1951, the federal-state co-operative highway construction program was supported by a federal authorization of $450,000,000. All classes of federal-aid projects brought to completion during the fiscal year totalled 20,030 mi. The completed work included 4,850 mi. of highways and 849 bridges on the federal-aid system outside of cities; 554 mi. of streets and 294 bridges on urban portions of the federal-aid system; and 13,875 mi. of road and 1,556 bridges on the secondary or farm-to-market system. Work in national forests, national parks and miscellaneous construction totalled 752 mi.

Canada.—In eight of ten provinces work on the 5,000-mi., $300,000,000 Trans-Canada highway proceeded toward a scheduled completion date in 1956. In September contracts had been let totalling more than $50,000,000. Some delays were experienced from inability to obtain equipment and materials, but work was maintained in accordance with the previous schedule.

The Alaska highway was kept open throughout the year, and some improvements were accomplished in Canada through relocations to improve alignment and replacement of temporary bridges with permanent steel and concrete structures. Sections of the highway in Alaska were further improved with asphalt surfacing, all of the section within Alaska being scheduled for a surfacing of this type by 1953. Several truck and bus lines operated regular scheduled service over portions or all of the route between Dawson Creek, B.C., in Canada, and Fairbanks in Alaska. Canada built low standard roads extending from the Alaska highway at a point about 40 mi. S. of Whitehorse in the Yukon Territory to and somewhat beyond the village of Atlin and an access road to mining developments south and west of Watson lake. Another lateral feeder road was built northward from a connection about 30 mi. W. of Whitehorse.

Mexico.—The government devoted approximately one-sixth of its budget to development of internal transportation systems, which included a large-scale program of development of secondary or feeder roads to the main trunk arteries. With the completion of the major north and south routes leading to the United States border, Mexico initiated a large program of lateral road construction that brought better transport to large agricultural areas. A notable piece of highway work was the construction of a modern high-speed road across the Isthmus of Tehuantepec below Mexico City to connect ports on the Pacific ocean and the Gulf of Mexico.

Mexico also completed, without outside assistance, the last gap of the Inter-American highway within Mexico to connect with the Guatemalan frontier. An uncompleted and impassable 25-mi. gap on the Guatemalan side of the frontier alone prevented continuous all-weather travel from the United States to a point below Managua at the southern Nicaraguan frontier with Costa Rica. While the route immediately north and south of San José, Costa Rica, was open for all-weather travel there was still an impassable gap of 65 mi. in northern Costa Rica and 150 mi. in southern Costa Rica and northern Panamá. Work was resumed during 1951 on the Inter-American highway in El Salvador, northern Panamá and northern Costa Rica.

South America.—In Brazil and Argentina, road construction continued at a steady pace throughout 1951, including several large new projects of modern design adjacent to the larger cities.

Colombia obtained a loan of $16,500,000 from the International Bank for Reconstruction and Development to be used for construction of approximately 100 mi. of new highways and the rehabilitation of 2,000 mi. of existing trunk highways.

The most outstanding project in Venezuela was the complete relocation and construction of a modern high-speed four-lane divided highway, including several tunnels, on the approach to Caracas.

In Bolivia work continued on a section of new highway from Cochabamba to Santa Cruz with funds obtained by loan from the Export-Import Bank of Washington, D.C.

The Peruvian section of the Pan American highway was opened for all-weather traffic from Ecuador to Bolivia and Chile. The main route from La Tina to Concordia has a length of 1,632 mi., and the alternate routes to Aguas Verdes in the north and Desaguardero in the south add 489 mi., making a total of 2,121 mi. for the system. A new section of highway immediately south of Lima was opened to traffic in September. Work was begun on reconstruction of the Central highway penetrating the Andean range back of Lima toward the Cerro de Pasco mines.

The largest project under way in Ecuador during the year was the reconstruction of a section of highway from Manta to Quevedo financed by a loan from the Export-Import Bank of Washington, D.C.

Africa.—About 11 trans-African routes were classified and submitted for approval to the fourth Highways congress held in Johannesburg, U. of S.Af., in 1951. The Union of South Africa, having obtained a loan of $20,000,000 from the International Bank for Reconstruction and Development, embarked on a comprehensive program of highways to be completed in 1955. Priority was given to five roads to serve rich agricultural, dairy, livestock and ranching areas.

Ethiopia in 1951 established the Imperial Highway authority with responsibility for planning, repairing and maintaining the national road system to be developed under a loan of $5,000,000 from the International Bank for Reconstruction and Development.

Asia and Europe.—Road construction throughout the far east, except in the Philippines, progressed rather slowly during 1951 because of international tensions or internal disturbances.

In the Philippines, the large-scale road, street and bridge rehabilitation program begun in 1946 was drawing to a close. Only a few of the 490 bridges and more than 500 mi. of highway initiated under this program remained to be completed at the year's end.

In India and Pakistan, throughout the middle east and in Europe highway work continued in a rather normal manner, with demand for highways continuing to exceed the production of new highways and the extension of highway services. In Turkey, the large-scale highway development program initiated in 1947 continued apace. During 1951 the country began to reap the benefit of previous construction through drastically lowered hauling charges for produce and goods and in lowered passenger fares on intercity buses and trains. (*See* also Motor Transportation.) (T. H. MacD.)

Rockefeller Foundation: *see* Societies and Associations, U.S.

Rockets: *see* Jet Propulsion; Munitions of War.

Rodeos: *see* Shows.

Roentgen Ray: *see* X-Ray and Radiology.

Roller Derby. The 15th year for this popular U.S. sport saw a continued growth in attendance. The third campaign of organized league competition reached a climax May 27–June 3, when more than 70,000 persons attended the round-robin series for the world's championship in New York city's Madison Square garden.

Five of the nation's top teams, the New York Chiefs, New Jersey Jolters, Washington Jets, Chicago Westerners and Brooklyn Red Devils were chosen to compete in the title playoffs, and the honours went to the Chiefs for the second season in a row when the New Yorkers defeated Chicago, 26–25, in the last round.

A record roller derby gathering of 18,861 saw the Chiefs and the Westerners wage the top battle of the year, with New York winning in the last minute on a point by Billy Bogash after trailing, 14–12, at the intermission. Fred Noa's five-point grand slam had given the winners a 19–16 edge but the rivals skated along to a 25–25 deadlock in the closing three minutes and set the stage for the deciding point.

Captains Sam Skobel and Midge (Toughie) Brasuhn of Brooklyn and player-coach Russ Massro of Chicago were selected as the most valuable players in the tourney. The Chicago Westerners won the National Roller league championship in the regular 1950–51 campaign with 102 triumphs and 82 losses. Chicago's Bert Wall, with 643 points, captured individual scoring honours. Gerry Murray of the New York Chiefs, who had taken the award in the previous season, again led the women with 614 tallies. (T. V. H.)

Roman Catholic Church. In 1951 the College of Cardinals was reduced to 49 members by the deaths of Francesco Cardinal Marchetti-Selvaggiani, vicar of Rome, secretary of the Holy Office, Dennis Cardinal Dougherty, archbishop of Philadelphia, Pa. and dean of the Roman Catholic hierarchy in the United States, and Adam Stefan Cardinal Sapieha of Cracow, Poland.

Five saints were canonized during the year: St. Maria Domenica Mazzarello, founder of the Daughters of Mary Help of Christians, St. Emilia de Vialar, founder of the Institute of the Sisters of St. Joseph of the Apparition, St. Antonio Maria Gianelli, Bishop of Bobbio, St. Francesco Saverio Maria Bianchi of the Barnabites, St. Ignatius Laconi of the Minor Capuchins. In June Pope Pius X was beatified, the eighth pontiff in the history of the Catholic Church to be so honoured.

An encyclical, *Ingruentium Malorum,* appealed to Catholics to recite the rosary for peace. The 15th centenary of the Ecumenical Council of Chalcedon was commemorated in an encyclical letter, *Sempiternus Rex,* which expressed a hope for the return of those separated from the apostolic see and declared again the doctrine of the two natures in Christ. Missionary progress during the prior 25 years was praised by Pope Pius XII in the encyclical, *Evangelii Praecones*. The number of missions was increased from 400 to 600 and the number of native and foreign priests from 14,800 to 26,800.

Addressing the fourth annual congress of the World Movement for Federal Government, his holiness told members that their aims to bring about an effective political organization of the world were in "conformity with the traditional doctrine of the Church." He warned, however, that it must not become a mere superficial and mechanical arrangement based on what the pope terms a "mechanical unitarianism." He stressed the need of harmonizing the political organization of the world with "the whole of the natural relations and with the normal and organic order that rule the particular relations between men and between different nations."

In March the Sacred Consistorial Congregation declared excommunicated all persons in Czechoslovakia who were in any way connected with the banishment of Archbishop Josef Beran of Prague. In June Vatican sources reported Archbishop Josef Matocha of Olomouc, Moravia, was a prisoner in his residence. The archbishop was highest ranking member of the hierarchy after Archbishop Beran.

Hungary sentenced Archbishop Josef Groesz of Kalocsa to 15 years in prison after a trial similar to that of Joseph Cardinal Mindszenty. A State Office of Church Affairs was set up under Istvan Kossa, Politburo member, and all parish church lands were ordered turned over to the Communist state.

In China 1,240 foreign-born missionaries were expelled and at least 300 foreign-born and native bishops, priests, brothers and sisters were imprisoned. Of those expelled 18 were bishops, 530 priests, 40 brothers and 650 sisters. Of 216 Catholic hospitals, only 12 were still functioning. Most of the 800 dispensaries no longer existed. Practically all Catholic educational institutions had closed or disappeared completely.

War Relief Services of the National Catholic Welfare conference assisted directly in the immigration of 30,202 persons to the United States during the year. Food, clothing and medicines weighing 76,757,786 lb. and valued at $21,892,800.68 were sent for distribution in the areas of greatest need throughout the world; 3,811,407 lb. of relief material valued at almost $5,000,000 was sent to Korea.

In 1951 the Roman Catholic population for the United States, Alaska and the Hawaiian Islands was 28,634,878. There were 23 archdioceses, 102 dioceses and 1 vicariate apostolic, Alaska. There were 4 cardinals, 24 archbishops, 156 bishops, 40 abbots, 43,899 priests, 7,620 brothers and 152,178 sisters.

The 48th annual convention of the National Catholic Educational association was held in Cleveland, O. and the National Catholic Conference on Family Life met for its 19th convention in St. Louis, Mo., in March. The 37th annual convention of the National Conference of Catholic Charities was held in Detroit, Mich.; the 29th convention of the National Catholic Rural Life conference in Boston, Mass., and the 69th annual meeting of the Knights of Columbus in Pittsburgh, Pa.

Among the awards given during the year were the Magnificat medal, honouring an outstanding Catholic college alumnus, awarded to John H. Daly of Washington, D.C.; the Laetare medal, presented by Notre Dame university, Notre Dame, Ind., to a distinguished Catholic layman, was received by John Henry Phelan, Beaumont, Tex., businessman and philanthropist; the Rerum Novarum award of St. Peter's college, Jersey City, N.J., given annually to a layman furthering labour-management relations based on papal teaching, was received by Frederick W. Mansfield, attorney and former mayor of Boston; the James J. Hoey awards for interracial justice were given to Mrs. Roger L. Putnam, of Springfield, Mass. and Francis M. Hammond, of Seton Hall college, South Orange, N.J.

Bishop John F. O'Hara of Buffalo, N.Y., was made archbishop of Philadelphia, Pa., and Msgr. John L. Paschang of Omaha, Neb., was named bishop of Grand Island. Msgr. Joseph P. Dougherty of Seattle, Wash., was made the first bishop of the new diocese of Yakima, Wash.; Rev. Robert Dermot O'Flanagan of Anchorage, Alsk., was made first bishop of the new diocese of Juneau, Alsk.; Bishop Hugh L. Lamb was made first head of the new Greensburg, Pa., diocese; Msgr. John B. Franz of Springfield, Ill., became first bishop of the new Dodge City, Kan., diocese.

The bishops of the United States, in a statement on Nov. 17, declared that men in public life were bound by the same laws of justice and charity as those which bind individuals; and that dishonesty, slander, detraction and defamation of character are as truly transgressions of God's commandments when resorted to by men in political life as they are for all other men.

The Holy Year, which had been extended through 1951, was formally closed at the shrine of Our Lady of Fatima near Lisbon, Port. (*See* also CHURCH MEMBERSHIP; RELIGIOUS EDUCATION; PIUS XII; POLAND; SOCIETIES AND ASSOCIATIONS, U.S.; VATICAN CITY STATE.) (J. LaF.)

Rosenberg, Anna M.

(1902–), U.S. assistant secretary of defense, was born on June 19 in Budapest, Hung., the daughter of Mr. and Mrs. Albert Lederer. She was taken to the U.S. in 1912 and naturalized in 1919. She was married to Julius Rosenberg, New York businessman, in 1919.

Mrs. Rosenberg became a public relations consultant and after 1935 served in a succession of important government positions, including: regional director of the National Recovery administration; regional director of the Social Security administration; regional director of the Office of Defense, Health and Welfare Services; regional director of the War Manpower commission, and a member of the Advisory Committee on Policy of the Office of the Co-ordinator of Inter-American Affairs.

As personal representative of Pres. Franklin D. Roosevelt in 1944, and of Pres. Harry S. Truman in 1945, Mrs. Rosenberg visited the European theatre of war during World War II. From 1942 to 1945 she served as secretary of President Roosevelt's Labor Victory board. From 1944 to 1947 she served as a member of the Advisory board of the Office of War Mobilization and Reconversion.

She was appointed assistant secretary of defense by President Truman, at the request of the secretary of defense, Gen. George C. Marshall, in Nov. 1950.

One of her tasks during 1951 was the preparation of the draft of a measure known as the Universal Military Service and Training bill, which she helped present before congress as being a means of providing equitable distribution of manpower among the armed forces, agriculture and industry. Its chief provision called for the training of 18-year-olds. In August she made a two-week tour of U.S. bases in Europe and North Africa, and in October visited U.S. forces in Korea.

Rotary International: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Rowing.

Cambridge university of England went to the U.S. for the first time for an invitation regatta in April 1951 and defeated Yale on the Housatonic river, Darby, Conn., at $1\frac{3}{4}$ mi. by 4 lengths on smooth water with a following wind. The times were Cambridge 8 min. 22.4 sec., Yale 8 min. 36 sec. Five days later, the Cantabs beat Harvard, Boston university and the Massachusetts Institute of Technology at the same distance with head winds and rough water. The times were Cambridge 9 min. 38 sec.; Harvard 9 min. 43.5 sec.; Boston university 10 min. 1 sec.; M.I.T. 10 min. 4 sec.

In other important college races of the year, Rutgers beat La Salle college of Philadelphia, Pa.; Princeton defeated Navy; Penn won from Rutgers and a week later won the Childs cup

HARVARD UNIVERSITY CREW (left) finishing first in the eight-oared scull event at the Schuylkill river skimmer races in Philadelphia, Pa., May 12, 1951, and winning the Adams cup for the tenth consecutive time

from Princeton, Columbia and Rutgers; Columbia beat Brown; Yale won from Penn by 4 ft. and Syracuse upset Cornell; M.I.T. defeated Rutgers.

Yale won the Blackwell cup from Penn and Columbia and also won the Carnegie cup from Princeton, Cornell and Syracuse. Princeton regained the Compton cup from Harvard after 15 years. Navy retained the Stevenson cup from Cornell and Columbia. Yale beat Wisconsin at Madison, Wis., and Rutgers outrowed Brown by 4 lengths. Wisconsin beat Columbia and Rutgers. Harvard kept the Adams cup over Navy and Penn on the Schuylkill river, Philadelphia.

In the lightweight division, Penn won the Hammond trophy. Yale retained the Goldthwait cup over Harvard and Princeton. Pennsylvania won the lightweight sprint championships and the Wright cup in 6 min. 43 sec. Yale was second at 6 min. 45.3 sec., followed by M.I.T., Columbia, Princeton and Cornell.

At Seattle, Wash., the Washington Huskies swept a regatta from California and Stanford at $2\frac{3}{4}$ mi. on Lake Washington in 15 min. 38.4 sec. to 15 min. 47 sec.

California beat Wisconsin at Oakland, Calif., at 3 mi. in 14 min. 26 sec. to 15 min. 3.2 sec. and Harvard beat Cornell.

Yale under Coach Jim Rathschmidt defeated Harvard and nine other college crews in the Eastern sprints by $\frac{2}{3}$ length at 2,000 m.: Yale 6 min. 18.4 sec.; Harvard 6 min. 20.6 sec.; Princeton 6 min. 28.4 sec. Following the leaders were Penn, Syracuse, Cornell, Navy, Columbia, Rutgers, M.I.T. and Boston University. In this same regatta Harvard retained the Rowe cup, scoring 14 points to Yale's 10.

In the ninth Dad Vail Rowing association regatta at Boston, Mass., La Salle college of Philadelphia won the varsity race in 6 min. 49 sec. Washington and Lee was second, 6 min. 50.8 sec., followed by Florida Southern college, Dartmouth, American International, Rollins, Tampa university and Amherst. Dartmouth won the junior varsity in 6 min. 52 sec. with La Salle second; and American International won the Brett bowl for freshmen in 7 min. 15 sec. with Dartmouth second.

In the 17th annual Schoolboy championships at Philadelphia, La Salle High School of Philadelphia won the eight-oared championship by $\frac{1}{2}$ length from Ecorse High School of Michigan. Walter M. Hoover, Jr., won the championship senior singles for Grosse Point High School of Michigan.

The 49th Intercollegiate Rowing Association regatta was held for the second successive time at Marietta, O., and again flood conditions marred the program. Distances were cut from 3 to 2 mi. and the order of events was changed because of the swift current. In the varsity race the Wisconsin Badgers, coached by Norman Sonju, covered the abbreviated course in 7 min. 50.5 sec. followed by Washington, Princeton, California, Penn, M.I.T., Stanford, Cornell, Syracuse, Boston University, Columbia and Navy. California won the junior varsity race, and Washington took the freshman event.

The 1952 regatta was to be held on Lake Onondaga at Syracuse, N.Y.

In the 86th Harvard-Yale classic at 4 mi. Harvard overwhelmed Yale's sprint champion crew. Yale led to the halfway mark when one of the crew was taken ill. Thereafter Harvard won going away. Harvard also won both the junior varsity and the freshman events.

The 77th championships of the National Association of Amateur Oarsmen were held on Lake Quinsigamond, Worcester, Mass. The Detroit Boat club won the Julius H. Barnes point trophy followed by Vesper Boat club of Philadelphia and the West Side Rowing club of Buffalo, N.Y. The West Sides won the eights with Detroit second and Vesper third. Robert Williams of Hamilton, Ont., won the singles sculling event; Harold Finigan of the Malta Boat Club, Philadelphia, won the heavy dash; and James Barker of the Undine Barge Club, Philadelphia, the light dash. The New York Athletic club took the pairs with coxswain and the Fairmounts of Philadelphia the pairs without coxswain.

In England, Cambridge university defeated Oxford in its 97th race on the rough, rain-swept Thames $4\frac{1}{4}$ mi. course. The times were Cambridge 20 min. 50 sec., Oxford 21 min. 28 sec.

Thirteen countries were represented at the Henley Royal regatta. British crews won all the events except the Thames Challenge cup, which went to Pennsylvania's 150-lb. championship crew. Penn defeated Florsheim-Russelsheim, a German heavyweight crew, by one length. Lady Margaret Boat club won the Grand Challenge cup. J. G. P. Crowden and C. B. M. Lloyd, Cambridge, won the silver goblets for pairs from Belgium. P. Bradley and R. D. Burnell, Leander, won the double sculls, and T. A. Fox, Pembroke college, Cambridge, beat Erik Larsen of Denmark for the diamond sculls.

The Maple Leaf trophy for points in the Royal Canadian Henley regatta at Port Dalhousie, Ont., and the Ned Hanlan cup for eights went to the West Side Rowing club of Buffalo, N.Y. Jack Guest, Jr., of the Don Rowing Club, Toronto, Ont., won the championship of Canada for single sculls. Ten of the championship events went to U.S. crews.

The European championships were held at Macon, Fr. The eights were won by England with the famous Cambridge crew, which nosed out Denmark by 20 in. Italy took the fours and the pairs with coxswain. Switzerland won the doubles and Erik Larsen won the singles. (C. L. Bt.)

Ruanda and Urundi: *see* BELGIAN COLONIAL EMPIRE; TRUST TERRITORIES.

Rubber. The unsettled conditions in the world's principal natural rubber producing areas continued throughout 1951. In Malaya, guerrilla warfare and terrorist activities were unabated and much the same could be said for Indonesia excepting the east coast Sumatra district where definite improvement was reported. Despite these unfavourable conditions, Malayan production at the end of August was 409,573 long tons, compared with 445,539 long tons for the same period of 1950; that for Indonesia at the end of July, 498,735 long tons (357,408 long tons at end of July 1950); and that for French Indochina at the end of July, 23,862 long tons (22,275 long tons for same 1950 period). The sharp rise in Indonesian production over 1950 figures was the result of native output, derived in part from illicit tapping of trees on European estates and in part from the activities of small holders whose great potential producing capacity is revealed only when rubber prices are high. The price of natural rubber declined from a high of about 81 cents (U.S.) in February to 48 cents per pound at mid-December. The sharpest drop was registered in the April to June period. Several factors contributed to this change: (1) the U.S. government became the sole purchaser of rubber in that country by an order terminating on March 31 all rubber activities on the New York commodities exchange except for liquidation of contracts; (2) General Services administration announced that the U.S. stock pile goal had nearly been reached; (3) the Malayan government on April 9 set up a licensing system over rubber exports and in May banned further rubber shipments to Communist China; (4) production of U.S.-made rubber rose sharply. World production of natural rubber through August was 1,267,500 long tons (1,167,500 long tons through Aug. 1950) and world consumption for the same period was 1,017,500 long tons (1,077,500 long tons for same 1950 period).

Natural Rubber.—World production of natural rubber in 1950 was 1,850,000 long tons, exceeding world consumption of 1,705,000 long tons by 145,000 long tons. Consumption of natural rubber in the U.S. through October, reduced as compared with 1950 figures by government allocation, was 385,793 long tons and of synthetic for the same period 634,561 long tons. Consumption of natural rubber over the same period in 1950 was 624,197 long tons, of synthetic 436,536 long tons. Imports of natural rubber latex into the U.S. through October were 50,353 long tons dry rubber content, and into the United Kingdom through August 14,354 long tons dry rubber content. In the U.S. about half of this tonnage went into foamed latex products such as mattresses and chair cushions. In the field of technology, additional experimental sections of asphalt roads were laid in the U.S. incorporating a percentage of natural and synthetic rubber powders in the surface coating. Evidence that rubber growers were aware of the need for greater uniformity of product appeared in small-scale production, primarily for test purposes, of specification rubbers technically classified (T.C. rubbers) at the plantation and so marked on the containers as to Mooney viscosity and rate of vulcanization. Laboratories in consuming countries were co-operating in these tests.

Synthetic Rubber.—The U.S. government-owned general-purpose synthetic rubber (GR-S) plants, reopened in Sept. 1950, showed a steadily rising production throughout 1951 (November and December production estimated) for a total output through December of 698,527 long tons. Of this amount about 300,000 long tons were cold rubber (polymerized at 41° F. instead of 122° F. used for ordinary GR-S). Production of other synthetic rubbers in the U.S. through December was: Butyl rubber 73,105 long tons; N-type rubbers 15,879 long tons; Neoprene 59,500 long tons; for a grand total of 847,011 long tons (November and December production estimated). Plans were made for minor modification of existing equipment to raise the total annual capacity of these plants to 860,000 long tons of which 640,000 long tons would be available for cold-rubber production.

Table I.—*World Consumption of Natural Rubber*

(in long tons)

Last 1950	U.S.	U.K.	France	Germany	U.S.S.R.*	Canada	China*	Grand Total*
July	62,173	17,123	8,577	6,833	7,500	3,626	3,000	142,500
Aug.	65,036	14,471	5,198	7,169	5,000	3,079	6,250	137,500
Sept.	60,973	18,898	9,977	8,003	13,250	3,788	9,500	160,000
Oct.	68,572	23,585	10,347	8,517	13,000	4,402	11,750	172,500
Nov.	51,447	19,372	9,656	8,290	10,500	4,397	19,500	157,500
Dec.	44,624	18,071	9,605	6,351	5,750	4,506	14,500	137,500
First 1951								
Jan.	44,586	22,400	10,156	8,267	2,500	4,323	17,000	145,000
Feb.	37,572	19,482	9,576	7,418	1,500	4,339	10,000	122,500
March	35,335	17,519	10,419	8,544	2,000	4,626	21,000	135,000
April	39,508	23,364	10,344	6,646	9,500	4,769	13,750	145,000
May	42,445	18,617	9,883	6,096	2,500	4,538	6,000	122,500
June	39,998	19,713	10,528	7,041	10,500	3,334	50	127,500

*Estimated.

Table II.—*World Consumption of Synthetic Rubber*

(GR-S or Buna S, Neoprene, Butyl, Nitrile rubbers, in long tons)

Last 1950	U.S.	U.K.	France	Germany	Other Europe*	Canada	Grand Total*
July	43,905	211	585	350	400	1,682	47,500
Aug.	50,715	216	366	400	350	1,947	55,000
Sept.	49,322	227	732	336	400	2,271	52,500
Oct.	52,933	281	765	352	450	2,260	57,500
Nov.	48,651	235	754	294	500	2,114	52,500
Dec.	53,102	233	797	229	500	2,169	57,500
First 1951							
Jan.	59,584	285	865	287	500	2,227	62,500
Feb.	53,308	248	721	248	500	2,225	57,500
March	65,587	239	766	283	500	2,264	70,000
April	58,787	347	730	365	500	2,417	62,500
May	65,027	315	655	361	500	2,140	70,000
June	64,718	287	667	392	500	1,828	67,500

*Estimated.

The relatively new synthetic, silicone rubber, appeared in increasing quantities, production for the year being about 2,000,000 lb. Made by hydrolysis of dimethyl dichloro silane followed by elimination of water by condensation to build up the molecular weight sufficiently, it is vulcanized by heating with organic peroxides. The vulcanized material has unusually low compression set rather than high tensile. Its resistance to change over wide temperature ranges is equalled by no other known rubber. Stocks can be prepared which will withstand continuous service at 400° to 500° F. and will remain flexible at −120° F. The selling price of this rubber was about $5 per pound.

Oil-extended synthetic rubber, while not new in principle, received extensive attention. This type of rubber is prepared by adding specially selected petroleum oil, as an aqueous emulsion, to the latex of high viscosity cold rubber or other especially tough rubbers and jointly coagulating the mixture. The industry refers to this as cocoagulation. Production of oil-extended synthetic rubber through September amounted to 15,146 long tons. The oil-enriched rubber is used as though it were all-rubber hydrocarbon and tires made exclusively with this rubber showed excellent performance. This process in effect increases synthetic rubber plant capacity and reduces production cost per pound.

Reclaimed Rubber.—World production of reclaimed rubber in 1950 was 380,293 long tons. In the U.S., consumption of reclaimed rubber through Oct. 1951 was 299,897 long tons as compared with 1950 figures for the same period of 243,290 long tons. More than half of this increased consumption of 56,600 long tons was primarily caused by the shortage of natural rubber

Table III.—*World Consumption of Reclaimed Rubber*

(in long tons)

Last 1950	U.S.	U.K.	Germany	Australia	Canada	Total
July	22,498	1,911	1,709	729	1,062	27,909
Aug.	26,272	1,703	2,163	729	975	31,842
Sept.	28,498	2,187	2,314	729	1,167	34,895
Oct.	32,783	2,661	2,382	731	1,300	39,857
Nov.	30,288	2,510	2,349	732	1,379	37,258
Dec.	29,934	2,044	1,919	731	1,381	36,009
First 1951						
Jan.	32,455	2,698	2,033	606	1,463	39,255
Feb.	28,792	2,555	1,883	606	1,487	35,323
March	32,678	2,409	2,141	606	1,609	39,443
April	32,428	2,868	2,137	697	1,669	39,799
May	34,148	2,551	1,858	697	1,638	40,892
June	30,999	2,575	1,888	697	1,239	37,398

Table IV.—*U.S. Reclaimed Rubber Consumption: Transport and Nontransport Ratio to New Rubber Consumption*

(in long tons)

Year	Transport New rubber	Transport Reclaimed	Transport Per cent	Nontransport New rubber	Nontransport Reclaimed	Nontransport Per cent
1939	442,668	71,477	16.7	151,082	98,523	65.2
1940*	457,500	73,280	16.0	193,560	116,920	60.4
1941*	525,000	84,000	16.0	256,259	167,231	65.3
1942	269,950	90,736	33.6	124,492	164,084	132.0
1943	348,796	118,792	34.1	139,729	172,290	123.2
1944	491,064	76,875	15.7	219,719	174,208	79.4
1945	590,221	96,798	16.4	208,788	144,238	69.1
1946	777,058†	107,930	13.9	262,238	167,480	63.8
1947	830,593	116,581	14.0	291,614	171,814	58.9
1948	744,581	112,408	15.1	324,823	148,705	45.8
1949	659,533	111,038	16.9	329,370	111,641	33.9
1950	818,219	143,180	17.5	440,338	160,553	36.4
1950 (8 months)	544,640	88,108	16.2	284,656	94,210	33.1
1951 (8 months)	524,198	117,470	22.4	283,916	128,128	45.2

*Estimated.
†Includes a year-end adjustment of 5,384 tons of GR-S.

resulting from government allocations.

Tires and Tubes.—Total U.S. shipments of pneumatic tire casings for the year ending July 31, 1951, were 96,477,630 (73,444,561 passenger car, 16,320,699 truck and bus; and 6,712,370 farm, industrial and aeroplane). Total U.S. shipments for the first nine months of 1951 were 66,161,226 (80,923,707 for same 1950 period) distributed as follows: passenger car 48,418,791 (64,815,922 for same 1950 period); truck and bus 12,543,729 (11,232,230 for same 1950 period); farm, industrial and aeroplane 5,198,706 (4,875,555 for same 1950 period). (*See* also RAYON AND OTHER SYNTHETIC FIBRES.)

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Rugby: *see* FOOTBALL.
Rulers: *see* PRESIDENTS, SOVEREIGNS AND RULERS.

Rumania. A people's republic of southeastern Europe, Rumania is bounded north and northeast by the U.S.S.R., east by the Black sea, south by Bulgaria and west by Yugoslavia and Hungary. Area: (1939) 113,889 sq.mi.; (1947, without Bessarabia, northern Bukovina and southern Dobruja) 91,671 sq.mi. Pop.: (1939 est.) 19,933,800; (1950 est.) 16,094,000. Language (1948 census): Rumanian 85.7%; Hungarian 9.4%; German 2.2%; Yiddish 0.9%; other 1.8%. Religion (1947 est.): Greek Orthodox 81%; Greek Catholic 9%; Roman Catholic 7%; other 3%. Chief towns (pop., 1945 est.): Bucharest or Bucureşti (cap., 1948 census, 1,401,807); Cluj (110,956); Jassy or Iași (108,987); Timișoara (108,296); Ploești (105,114); Brăila (97,292); Galați (93,229). Chairman of the presidium of the grand national assembly in 1951, Constantin Parhon; prime minister, Petru Groza.

History.—Rumania was the last of the people's democracies to introduce the soviet type of national plan. In 1949 and 1950 one-year plans were published, and in due course it was declared that they had been fulfilled by an appropriate percentage. In 1951, however, a five-year plan came into force. This plan was on the scale of the "revised" plan of Rumania's northern and western people's democratic neighbours rather than on that of their original plans. Considering that Rumania had always been economically more backward than Hungary, let alone Czechoslovakia or Poland, it might be argued that its new plan was the most ambitious of all the satellite states. Total investment in the five-year period was to be 1,330,000,000,000 lei. Of this sum 51% was to go to industry, 16% to communications, 10% to agriculture and 13% to miscellaneous building and social service purposes. The last category, as in the other people's democracies, would of course include construction of government and Communist party premises and the cost of propaganda and political agitation. Among specific figures given for output in the last year of the plan period were 8,500,000 tons of coal (including lignite); 1,250,000 tons of steel; 4,700,000,000 kw.hr. of electric power; 10,000,000 tons of crude oil and 5,000 tractors. The coal target was nearly two and a half times the output of 1950. Tractors had not hitherto been produced in Rumania. The oil target was extremely high. Even if, as might be expected, the most rapacious methods were used to extract for the soviet masters of Rumania the maximum amount to the irreparable detriment of the industry in the future, it was doubtful whether this figure could be achieved. Under the plan the industrial labour force was to increase by 38%. The planners also maintained that the productivity of labour would be increased by 75% and the standard of living by 80%. The plan laid stress on the creation of new industries in regions that had hitherto been almost exclusively agricultural —Moldavia, Dobruja, Oltenia and the northern part of Transylvania.

In collectivization of agriculture Rumania was still far behind the other people's democracies, including even Poland. In September there were 1,083 collective farms in the country, with 73,000 member families, only a small increase over 1950. In September the Workers' (Communist) party published a statement on the situation. It claimed that collective farms were achieving yields on the average of 25% higher than those of individual peasant holdings, but admitted that they were not always faithfully executing official instructions on organization. The party urged further efforts by its members to convince and persuade peasants to join collectives. It announced the creation of a new type of organization, the agricultural association, which it described as a lower form of co-operative farm. The experience of the Soviet Union and the other people's democracies suggested that this was a bait to induce peasants to join by making far-reaching concessions in theory to the principle of private property, concessions which could later be abolished at the convenience of the authorities. It was not a defeat of government policy by Rumanian peasant resistance. Rather it was a small tactical retreat which would make possible a much larger advance. Information on subsequent developments was not available. A statement in the Workers' party daily paper *Scânteia* of Oct. 10 that there were 4,000 associations, with 354,000 peasant members and controlling 428,000 ha. suggested, however, that "conviction and persuasion" were used to good effect.

Polemics against Yugoslavia continued throughout the year. They reached a climax at the time of the Aug. 23 anniversary celebrations in Bucharest, when soviet Marshal Klimenty Voroshilov made a menacing speech. From Aug. 9 to Aug. 13 a trial was held of persons alleged to have spied on behalf of Great Britain. There were four death sentences. On Sept. 10 another spy trial ended, the accused in this case being allegedly instructed by the Vatican. Four persons were condemned to life imprisonment.

Rumanian official figures claimed that of 1,800,000 children at elementary schools, 61% were of working-class or peasant origin. The number of secondary school pupils was 3.8 times larger than in 1938–39. Teaching in languages other than Rumanian was given in 3,339 schools and 17 faculties. The quality of the teaching might be indicated by a report from the Rumanian official news agency of July 5 of a session of the literature and art section of the Rumanian academy when a paper was read on the "Importance of the Works of Stalin in the Development of Literature in Rumania." The minister of education, Nicolae Popescu-Doreanu, then declared: "No other conception may be taught in all elementary, junior and senior high schools than the Marxist-Leninist one, based on Generalissimo Stalin's teachings. Only thus shall we be able to give value to our national language, created by the people." (H. S-W.)

Education.—Schools (1950): primary 14,000, pupils 2,079,357; secondary, pupils 365,310; institutions for higher education 7, universities 4. Illiteracy (1948): 23.1%.

Finance and Banking.—Budget: (1951 est.) revenue 433,900,000,000 lei, expenditure 429,900,000,000 lei. Currency circulation (July 1948): 32,000,000,000 lei. Monetary unit: leu (pl. lei) with an official exchange rate of 153 lei to the U.S. dollar.

Foreign Trade.—(1948): Imports U.S. $96,000,000; exports U.S. $116,000,000. Main sources of imports (1947): U.S.S.R., U.S., Czechoslovakia and Hungary. Main destinations of exports (1947): U.S.S.R., Czechoslovakia, Bulgaria and Hungary.

Transport and Communications.—Roads (1945): 43,163 mi. (modernized roads, 1947, 1,150 mi.). Licensed motor vehicles (Dec. 1950): cars 14,000, commercial 12,000. Railways (1949): 7,363 mi. Shipping (1948): merchant vessels 15, total tonnage 32,962. Telephones (1949): 135,000. Radio receiving sets (1949): 226,000.

Agriculture.—Main crops (metric tons, 1947): wheat (1948) 2,600,000; maize 5,279,000; barley 360,000; oats (1946) 280,000; rye 66,000; millet (1948) 18,000; potatoes (1949) 1,090,000; sugar, raw value (1950–51 est.) 110,000; hemp fibre (1948) 27,000; cotton seed (1948) 6,000; tobacco (1948) 16,800. Livestock: sheep (Dec. 1948) 7,300,000; pigs (1950 est.) 2,300,000; cattle (1950 est.) 4,950,000; horses (Dec. 1948) 939,000.

Industry.—Industrial establishments (Oct. 1947): 28,295; persons employed 462,305. Fuel and power (1947): coal 162,000 metric tons; lignite and brown coal 2,108,000 metric tons; natural gas 2,106,000,000 cu.m.; electricity 712,000,000 kw.hr.; crude oil (1950) 4,300,000 metric tons. Raw materials (metric tons, 1947): pig iron 91,000; steel 183,000; lead 3,000; zinc 2,000; iron ore 115,000; gold (kg.) 2,231; silver 481 fine troy oz. Manufactured goods (metric tons, 1947 est.): refined petroleum products 3,450,000; cotton yarn 11,300; cotton fabrics 3,200; cement 418,000; sulphuric acid (1946) 24,700; sawed timber 1,359,000 cu.m.; paper 47,500.

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Running: *see* TRACK AND FIELD SPORTS.

Rural Electrification.

The Rural Electrification administration estimated that 4,522,637 U.S. farms, or 84% of all those in the U.S., had central station electric service as of June 30, 1951. This estimate was based on preliminary 1950 census reports.

At the start of the federal rural electrification program in 1935, the percentage was 10.9; on April 1, 1940, 30.4.

The cumulative total of REA loans passed the $2,450,000,000 mark in 1951, and REA-financed lines in operation reached 1,150,000 mi. The borrowers had added about 68,000 mi. of line and 208,000 consumers to their systems in the first three quarters of 1951. At that time the borrowers were serving a total of 3,611,791 consumers.

REA's rural telephone lending program was two years old on Oct. 28, 1951, with assurance to 175,000 farms and other rural establishments of new or improved telephone service. Under an amendment to the basic REA legislation, congress authorized REA to undertake a rural telephone loan program to provide for the expansion and improvement of telephone service. As in the electrification program, the loans were to bear 2% interest and be amortized over a period of 35 years.

At the close of the second year of this program, REA had approved nearly $49,000,000 in loan allocations to 83 commercial companies and 50 co-operatives for area coverage telephone service in rural areas of 35 states.

Under the electrification program, REA borrowers in 1951 included 986 rural electric co-operatives, 41 public power districts, 24 other public bodies and 25 commercial power companies. They had 1,010 rural power systems in operation, 3 more than in 1950. During the first nine months of the year, REA had approved $143,563,710 in electrification loans to its borrowers, increasing the cumulative total to $2,455,199,314. Loan funds advanced to borrowers from Jan. 1 to Sept. 30, 1951, to pay for completed construction, totalled $179,026,808. This brought loan funds advanced to a cumulative total of $1,885,434,084.

REA borrowers increased their financial stability during 1951 by increasing their advance repayments of REA loans to $36,650,000. Their debt-service payments of principal and interest cumulatively totalled $309,879,582, which was nearly $15,000,000 more than the total amount advanced by REA during its first six years of existence.

REA borrowers distributed about 25% more power in 1951 than in 1950. They sold almost 8,750,000,000 kw.hr. of electric energy, exceeding sales of fiscal 1950 by 1,750,000,000 kw.hr. The average annual consumption of electricity per consumer on REA-financed lines increased 222 kw.hr. from 1,988 kw.hr. to 2,210; for 1950 the increase was 141 kw.hr.

As the year ended, the contribution of rural power lines to the nation's mobilization effort grew more important daily. Farmers beset with the problem of dwindling manpower were depending more and more on electricity for their defense work of providing vitally needed food and fibre. (R. SD.)

Canada.—At the end of World War II there were 21,569 mi. of rural lines bringing electricity to farms of Ontario; by Sept. 1951 the mileage had increased to 37,239. During the period the horsepower demand went from 132,551 to 314,681. That expansion of demand indicated not only more buoyant Ontario farm revenues during the postwar years but also a more active acceptance of electrical conveniences on the part of the 313,285 farmers buying power (157,285 in 1945).

The autumn session of the Quebec legislature placed an additional $5,000,000 at the disposal of the Rural Electrification bureau (which in the 1945–51 period spent $15,000,000 building 13,287 new rural lines to serve about 100,000 new customers) to be used to help put up transmission lines through electricity co-operatives. In 1945 20% of Quebec's farms were electrified; in 1951, 52%.

In Saskatchewan, amendments to the Rural Electrification act permitted the crown-owned Saskatchewan Power corporation to make three-year loans to farmers unable to pay for construction costs. (C. CY.)

Rural Rehabilitation Loans: *see* FARMERS HOME ADMINISTRATION.

Russell, Richard Brevard

(1897–), U.S. senator from Georgia, was born on Nov. 2 in Winder, Ga. He studied at the Agricultural and Mechanical school at Powder Springs, at Gordon institute in Barnesville, and at the University of Georgia, where he took his law degree in 1918. After serving in the U.S. naval reserve in World War I, he began practising law in Winder, was elected county attorney and in 1921 was elected to the Georgia assembly. He remained there for 10 years, serving as speaker from 1927 until his inauguration as governor for the 1931–33 term. In 1932 he was elected to fill the unexpired term of U.S. Sen. William J. Harris, and he was re-elected in 1936, 1942 and 1948. He was a leader of the senate States' Rights group, chiefly southerners, and opposed such measures as the Fair Employment Practices bill, the anti-lynching bill, and the anti-poll tax bill. He was well-known as a proponent of economy in government, and as early as 1943 he was on record as saying that the U.S. post-World War II policy was ill-defined, and that a closer check should be kept on materials going to the Allies. At the 43rd annual governors' conference held in Gatlinburg, Tenn., in September and October 1951, Gov. James F. Byrnes of South Carolina named Senator Russell as his choice for the presidential nomination, as an alternative to Sen. Harry F. Byrd (Va.). The intimation was that Russell would be the southern bloc's choice against the renomination of Pres. Harry S. Truman in the 1952 election race.

Russell Sage Foundation: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Russia: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Russian Literature. The writers of the Soviet Union drew their inspiration in 1951 from the same sources as in the years before: the struggle of the "innovators" against routine in industry and agriculture; the transformation of nature by great enterprises; the "great patriotic war"; the history of Russia; the peace movement. The best-known members of the Union of Writers in fact published nothing of importance, and there was no masterpiece to hail.

The poets Evgheny Dolmatovsky, Margarita Aligher, Nikolay Gribachev and Mikhail Isakovsky, *inter alios,* had new poems in the leading periodicals (*Znamia, Novy Mir, Zvezda Oktiabr*). Serghey Mikhalkov made a volume of his collected *Fables.* Novels included *On the Way,* by Hans Leberecht, about the progress of agricultural collectivization in Estonia; *The Height,* by Evgheny Vorobiev, on the builders of a giant metallurgical plant; *The Conquerors,* by Sharaf Rashidov, on the irrigation of desert areas in Uzbekistan; *The Red Flag,* by A. Kalinin, on patriotic resistance in the Don and Volga regions, 1942–43; *Peaceful Town,* by G. Berezko, on the struggle of the Tula patriots against the invader at the end of Oct. 1941; *In a Distant Harbour,* by L. Zaitsev and G. Skulsky, on the naval forces in a Pacific port after World War II; *On the Volcanoes of Manchuria,* by P. Daletsky, exalting the heroism of the Russian people during the Russo-Japanese War of 1904–05 and laying the blame for defeat on the tsarist regime; *The Heart,* by the Ukrainian writer V. Sobko, on the creation of a democratic Germany after the soviet victory over Hitlerism; and *Stenka Razin,* by S. Zlobin, a long historical novel about the 17th-century peasant revolts on the Don and the Volga.

In the sphere of literary criticism new books were: *Nikolay Novikov and Russian Culture in the 18th Century,* by G. Makogonenko; *Lermontov* (2nd ed., enlarged), by I. Andronikov; *A. N. Tolstoy,* by Mme. V. Shcherbina, on the 40-year literary activity of the novelist Alexey Tolstoy, author of *Peter the Great.*

The phenomenon most typical of soviet literary life in 1951 was the new edition, in a very much altered form, of *The Young Guard,* a celebrated novel on the exploits of young Communists in the Ukraine during the German occupation, by Aleksandr Fadeyev, president of the Union of Writers. The author had entirely rewritten his book in the light of the criticism of it by the Communist party and by *Pravda,* so as to bring into prominence the party's directing role in the clandestine operations of the heroes of Krasnodon.

Rewriting was the fashion, and the novelist V. Katayev imitated Fadeyev in revising his *For the Power of the Soviets,* in which the scene is set in wartime Odessa. Katayev recast the whole book and demonstrated in the new version that all the credit for the people's resistance to the German invaders was due to the Communist party.

The year 1951 was also remarkable for two literary occasions: ten-day congresses were held for writers and artists of the Ukraine (June 15–25) and of Uzbekistan (Nov. 17–27). At the Ukrainian congress in particular several novelists and poets (Vladimir Sosyura, Aleksandr Korneychuk, Wanda Wasilewska) were gravely reproached for "nationalist deviations."

The press devoted much space to articles on the second Congress of Young Writers, held in Moscow from March 15 to 20, 1951 (the first had been in 1948). About 300 novices were assembled in the capital and introduced to their seniors. (A. Pr.)

Rye. The 1951 U.S. harvested rye crop of 21,395,000 bu. approximated the 21,264,000 bu. of 1950, but was significantly smaller than the 30,173,000-bu. average for the decade of 1940–49. Of 3,558,000 ac. planted for all purposes in the autumn of 1950, 1,718,000 ac. were harvested, about the same as in 1950 but far below the 2,448,000 ac. average for 1940–49. The yield was 12.5 bu. per acre—slightly above average for the decade. As usual, three-fifths of the harvested grain was in South Dakota (6,656,000 bu.), Minnesota (2,850,000 bu.), North Dakota and Nebraska. The price to farmers, which stood at a low of $1.48 per bushel in January, late in the year reached the highest levels since 1948 as the fear of heavy Canadian imports diminished. The rye production goal for harvest in 1952 was officially announced as 1,828,000 ac. and 22,000,000 bu. The December report indicated a decline of about 30% in the acreage planted for all purposes, including harvest in 1952, in the most important rye-grain producing states.

Rye Production of the Principal Producing Countries

(In thousands of bushels)

Country	1951	1950	Average, 1935–39
U.S.S.R.	...	910,000	885,000
Western Germany	119,500	119,000	119,000
Czechoslovakia	...	...	62,078
Turkey	25,780	20,830	14,301
Spain	22,500	20,000	19,205
United States	21,395	21,264	44,917
France	20,500	24,000	29,993
Austria	19,000	16,500	20,611
Canada	18,014	13,333	9,191

World rye production in 1951 was estimated at 1,680,000,000 bu., about the same as in 1950 but slightly below the prewar average. Argentina raised the price on rye from about $1.19 per bushel to $1.42¼. (J. K. R.)

Saar. A German state (*Land*) united with France by monetary (from Nov. 20, 1947) and customs (from April 1, 1948) union, the Saar has an area of 991 sq.mi. Pop. (1950 est.): 943,000. Language: German. Religion: Roman Catholic 75%, Protestant 24%. Capital: Saarbrücken (pop., 1939 est.) 135,000, (June 1947 est.) 97,752. High commissioner of the French republic, Gilbert Granval; prime minister in 1951, Johannes Hoffmann.

History.—The two principal events in the internal life of the Saar in 1951 were the breakup of the coalition and the dissolution by the government of the Democratic party. The two Socialist members of the government—Heinz Braun, minister of justice, and Richard Kirn, minister of labour—resigned on April 9, 1951, over issues connected with social and economic policy. Hoffmann, the prime minister, decided to reduce the size of the government. Later he announced that he himself had taken over the ministry of labour, while Erwin Müller, the new minister of cults, also became minister of justice. Franz Ruland of the Employers' association took over the ministry of economic affairs from a member of the Christian Democratic party. The political life of the Saar gained in liveliness, now that for the first time there was a serious opposition in the *landtag.*

In May the government took the serious step of dissolving the Democratic party. This party had originally had three deputies who resigned from it as it gradually changed character and became the main expression in Saar political life of the wish to return to Germany. The government claimed that it had come under near-nazi control and at any rate conducted its campaigns on an anticonstitutional basis.

There was disappointment in the Saar that by Dec. 1951 there was still a French high commissioner instead of a French diplomatic representative at Saarbrücken as had been promised. Meanwhile, on April 18, the French government had solved the problem of getting both Germany and the Saar into the European Steel and Coal community, by declaring that the French foreign minister's signature covered both France and the Saar. That France was entitled to sign on behalf of the Saar under the Franco-Saar agreement of March 1950 was undisputed, but it had been expected that the French foreign minister would sign twice, once for France and once for the Saar. Hoffmann hurried to Paris to put the Saar point of view to Robert Schuman but the nature of their conversation was not disclosed. Thus the Saarlanders were not only aware of a growing campaign in Germany for the return of the Saar but saw that in certain circumstances the German government could induce the French government to express its claims in the Saar in at least a very cautious manner. This seemed to have had a discouraging effect on the supporters in the Saar of the French connection. On the other hand this connection continued to provide in the Saar full employment throughout the year in striking contrast to the situation in Germany. Both the Christian Democrats and the Socialists had declared against holding another plebiscite in the Saar. (D. R. Gi.)

Economy.—Production in thousand metric tons:

	1950	1949	1948	1936–38
Pig iron	1,692	1,584	1,128	2,280
Steel	1,896	1,756	1,216	2,418
Coal	15,096	14,236	12,474	12,500
Cement	207.6	206.4	159.6	218.4
Gas (million cu.m.)	1,320	1,344	1,164	...
Electricity (million kw.hr.)	1,500	1,524	1,200	1,260

Safety: *see* Accident Prevention; Railroads.
St. Christopher: *see* Leeward Islands.
St. Croix: *see* Virgin Islands.

St. Helena.

British colony in the South Atlantic with dependencies of Ascension (34 sq.mi.; pop., 1949, 159) and Tristan da Cunha (13.5 sq.mi.; pop. 231). Colony: area 47.3 sq.mi.; pop. (1949) 4,664. Language: English. Religion: Christian (90% Anglican). Capital: Jamestown (pop. 1,547). Administration: governor; executive council; advisory council. Governor: Sir George Joy.

History.—The flax industry prospered during 1951 and two of the three flax undertakings were taken over from their local owners by a British firm. The growing of lily bulbs suffered a setback from disease but a successful remedy appeared to have been found and it was hoped to resuscitate the industry. On Tristan da Cunha a new fish cannery was brought into operation and the arrival of a new and more suitable fishing vessel improved its prospects. In addition to an administrator, employment and a cash economy, the islands were due to acquire a doctor and an agricultural officer.

Education.—Schools (1949): 11 primary and 1 secondary, 1,242 pupils; 1 domestic science centre.

Finance and Trade.—Currency: sterling. Budget (1951 est.): revenue £103,393; expenditure £107,256. Foreign trade (1950): imports £120,000; exports £140,000 (mostly flax). Production: hemp 1,200 tons. Livestock: 2,357 sheep, 2,140 goats and 870 cattle. (K. G. B.)

St. John: *see* Virgin Islands.
St. Kitts-Nevis: *see* Leeward Islands.

St. Laurent, Louis Stephen

(1882–), Canadian statesman, was born on Feb. 1 at Compton, Que.; he was educated at St. Charles college, Sherbrooke, and Laval university, Quebec, Que., and practised law until Dec. 10, 1941, when he entered federal politics as minister of justice and attorney general. He was later secretary of state for external affairs, and on Nov. 15, 1948, became the 17th prime minister of Canada, successor to W. L. Mackenzie King. He was first elected to parliament as Liberal member for Quebec East on Feb. 9, 1942, and was returned in the 1945 and 1949 general elections.

During 1951 St. Laurent led the government in a regular session of parliament and in a special autumn session. In January he attended a meeting of the commonwealth prime ministers in London, Eng.; in September he visited Washington, D.C., to discuss with Pres. Harry S. Truman the deepening of the St. Lawrence seaway; in October he welcomed to Canada Princess Elizabeth and Prince Philip on the occasion of their tour of the country; in December, upon the tenth anniversary of his entry into federal politics, there were parliamentary and other expressions of appreciation transcending political lines, which was unique in Canadian affairs. (*See* Canada.) (C. Cy.)

St. Louis.

St. Louis, Mo., had a population of 856,796 by the 1950 census, with an additional 824,485 in the greater metropolitan area. Mayor in 1951: Joseph M. Darst, Democrat.

At a city election April 3, 1951, the Democratic party strengthened its hold on municipal government by gaining two additional seats on the 29-member board of aldermen, increasing its majority from 15–14 to 17–12, but failed to unseat the Republican board president.

At a special election May 3, 1951, voters increased the school tax 12 cents (from 89 cents to $1.01 on $100 valuation), but narrowly rejected a $17,230,000 school bond issue. Five weeks later the citizens reversed themselves and passed the bond issue; work began on building or improving 17 schools.

St. Louis found its fiscal problems increasing in 1951. A $2,804,995 deficit was reduced to $1,391,671 by the end of the 1950–51 fiscal year (April 10), but during the next eight months governmental costs outran revenues, prompting estimates of a $3,500,000 deficit by April 1952. To increase revenues substan-

YOUNG VISITOR to the St. Louis museum shaking hands with an attendant fitted out in knight's armour during the museum's 1951 exhibit of the Vienna Habsburg art collection tially, the administration was seeking a 1% city earnings tax, authority for which was pending before the Missouri legislature at the close of 1951.

The 1951–52 budget was fixed at $51,977,806, the highest on record, with $41,496,954 for municipal operating expenses. The general tax rate was set at $2.85 on $100, an increase from the previous $2.74 occasioned solely by the additional school tax. The city's real estate and personal property assessed valuation through revisions and new building construction reached an all-time high of $1,324,388,722.

St. Louis became a two-newspaper city (the evening *Post-Dispatch* and morning *Globe-Democrat*) when the *Post-Dispatch* bought and closed its evening competitor, the *Star-Times.*

The Public Service company, privately owned bus and streetcar system, was seeking $2,600,000 added annual revenue through fare increases, though fares had last been increased near the close of 1950. Mayor Darst called the mass transportation system inadequate and proposed some kind of public ownership. At the same time he urged a $75,000,000 modernization program covering a long list of needed public improvements.

(E. L. R.)

St. Lucia: *see* WINDWARD ISLANDS.

St. Pierre and Miquelon.

This group of eight small islands off the south coast of Newfoundland was a former French colony the status of which was changed in 1946 to that of overseas territory. Area: 93 sq.mi. Pop.: (1950 est.) 5,000. Language: French. Religion: Roman Catholic. Chief town: St. Pierre (pop. [1945] 3,636). Administrator: Alain Alaniou.

History.—A company was set up to take advantage of the cold storage available on St. Pierre and to restore the fishing fleet. The fishing industry had in fact declined in importance: 400 of the 5,000 inhabitants were fishermen, and there were 200 boats. Silver-fox breeding went on, though the animals' food, which had to be imported from the mainland, was expensive; the annual output was 2,000 skins. It was suggested that the more lucrative mink could be acclimatized. A geological map was drawn up. An electric generating station was built at St. Pierre. A Socialist was elected deputy on June 17, 1951.

Education.—Schools (1951): pupils, primary 1,123, secondary and technical 70; bursaries in France, 9.

Finance.—Budget (1951 est.): balanced at 283,000,000 fr. C. F. A. Monetary unit, franc C. F. A. (Colonies Françaises d'Afrique) = 2 metropolitan francs. The exchange rate in 1951 for the metropolitan franc was 350 fr. to U.S. $1.

Foreign Trade.—(1950) Imports 347,000,000 fr. C. F. A.; exports 142,000,000 fr. C. F. A. including cod, mainly for the French Antilles, 113,000,000 fr. C. F. A.

(HU. DE.)

St. Thomas: *see* VIRGIN ISLANDS.
St. Vincent: *see* WINDWARD ISLANDS.
Salary Stabilization Board: *see* DEFENSE MOBILIZATION AGENCIES, U.S.
Sales, Retail: *see* BUSINESS REVIEW.
Salt: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Saltonstall, Leverett

(1892–), U.S. senator, was born on Sept. 1 at Chestnut Hill, Mass. He took his bachelor's degree (1914) and his law degree (1917) from Harvard, then served as an artillery officer in France during World War I. Admitted to the Massachusetts bar in 1919, he began practice in Boston. He was assistant district attorney of Middlesex county, Mass., in 1921–22 and a member of the state house of representatives from 1923 to 1936, acting as speaker from 1929 to 1936. From 1939 to 1944 he was governor of Massachusetts. He was elected U.S. senator from Massachusetts as a Republican in 1944 to fill an unexpired term and was re-elected in 1948 for the term 1949–55. On Jan. 3, 1951, he was re-elected senate minority whip.

Saltonstall, mentioned as a possible Republican candidate for president, continued in 1951 to support the bipartisan U.S. foreign policy. He opposed cutting economic aid to Europe and upheld Pres. Harry S. Truman's dismissal of Gen. Douglas MacArthur (though disagreeing with the manner of dismissal). Following the MacArthur hearings, he issued a statement urging that the United States maintain a united front in foreign policy, so that it might keep "the confidence of our friends."

Salvador, El.

A republic on the Pacific coast of Central America, the smallest but most densely populated country on the isthmus, El Salvador has an area of 13,176 sq.mi. and a population (preliminary figures, 1950 census of the Americas) of 1,858,656. The capital is San Salvador (pop., 1948, 124,266). Other principal cities are: Ahuachapán (14,666), Chalchuapa (10,300), Cojutepeque (16,210), Nueva San Salvador (25,684), San Miguel (19,339), San Vicente (14,623), Santa Ana (51,351), Sonsonate (18,898), Suchitoto (10,619), Usulután (9,590) and Zacatecoluca (11,684). Language: Spanish. Religion: predominantly Roman Catholic. President in 1951: Lieut. Col. Oscar Osorio.

History.—Continuing its ambitious reform program, the Osorio administration secured in Jan., 1951, the adoption by the national legislative assembly of fairly comprehensive labour legislation. The measure, which did not apply to agricultural, domestic, contract or self-employed workers, provided for a 44-hour week (8-hour day) for day workers and a 42-hour week (7-hour day) for night workers, with rates of pay 25% higher for night than for day work, and time and a half to be paid for overtime. All workers covered by the law were to have one paid day of rest per week. Child labour provisions limited employment for persons under 16 years of age to a 6-hour day or a 36-hour week.

Constitutional government was interrupted on March 9, when President Osorio declared a state of siege, alleging that a Communist plot to overthrow the government had been unearthed. On March 15, 23 Salvadoran opposition leaders deported by Osorio were granted sanctuary by Nicaragua.

The Salvadoran foreign office issued invitations in September to the foreign ministers of Costa Rica, Guatemala, Nicaragua and Honduras to meet at San Salvador for the purpose of providing for periodic meetings of the Central American foreign ministers, establishing specific commissions to deal with particular problems and creating an international organization of Central American states. The conference opened on Oct. 8 and adjourned several days later after the delegates signed a "Charter of Salvador," providing for a new Organization of Central American States "to promote fraternal bonds by group action and to study solutions for common problems." The instrument pledged each signatory state to maintain friendly relations with the others. Panamá, which was not represented at the conference, was invited to adhere to the charter.

Southeastern El Salvador was rocked by earthquakes on May 6–7. The disaster affected 11 towns, the hardest hit being Jucuapa (pop., 14,000), where every building was rendered uninhabitable. The death toll, at first feared to reach 1,000, was eventually put at 375, and about 25,000 were left homeless.

(G. I. B.)

Education.—In 1949 there were 1,980 primary schools with 4,763 teachers and 110,901 pupils. Secondary schools numbered 48 in 1950 with about 6,500 students. The national university had 1,120 students and 147 faculty members in 1949. About 14% of the 1951 budget was allocated to public education. In 1951 there were 30 motion-picture theatres with seating capacity of 40,782.

Finance.—The monetary unit is the colón, valued at 40 cents U.S. currency in 1951. In 1950 ordinary governmental expenditure was $35,395,579; revenue, $35,347,019. Because of surpluses in previous years the fiscal surplus as of Dec. 31, 1950, was $2,380,193. The 1951 budget was placed at $44,000,000. The public debt as of Dec. 31, 1950, was $10,381,805, all of which was external. On Oct. 31, 1951, currency in circulation totalled 73,490,000 colones; demand deposits 62,640,000 colones; time deposits 1,860,000 colones; government deposits 19,870,000 colones; gold reserves $25,760,000; foreign exchange $22,120,000. The cost-of-living index (food, San Salvador) stood at 239 in Dec. 1950 (1937=100).

Trade and Communications.—Exports in 1950 totalled $69,501,512; imports, $47,230,966. Leading exports were coffee (88%), gold, sugar and silver. Principal customers were the U.S. (86%), Italy (3%), Guatemala (2%) and the United Kingdom (2%). The U.S. supplied about 65% of the imports; other important suppliers were Honduras, the United Kingdom and Canada.

The two principal railroads have 385 mi. of main line track, all narrow gauge. In 1950, 3,403,261 passengers and 458,760 short tons of freight were carried. National highway mileage (1950) was 1,693, of which 934 mi. were all-weather. The two international air lines made 3,535 flights into El Salvador in 1950.

Agriculture.—In the 1950–51 season coffee production totalled 1,111,855 bags of 132 lb. each; exports in 1950 were 1,107,979 bags, of which 1,039,226 bags went to the U.S. Centrifugal sugar production (plantation) was 29,000 short tons in 1950–51; sesame seed 4,600 tons; maize 156,000 tons; cotton (ginned) 6,500 tons. Production of balsam, of which El Salvador is the chief source, was estimated at 165,000 lb. in 1950. There were an estimated 800,000 cattle, 350,000 pigs and 22,000 sheep and goats in 1950.

Mineral Production.—In 1950, 32,470 troy oz. of gold and 460,496 oz. of silver were exported. (J. W. Mw.)

Salvation Army.

The Salvation Army, a world-wide religious and charitable organization, had corps and outposts in 89 countries and territories throughout the world in 1951. Its 17,119 corps (local units) included 26,803 commissioned officers, 99,952 local officers (laymen) and thousands of soldiers (members) and adherents.

The International Salvation Army was commanded in 1951 by Gen. Albert Orsborn, the sixth general, elected on June 21, 1946, with headquarters in London. In the United States, Commissioner Ernest I. Pugmire was the national commander, with headquarters in New York city.

With the reactivation of the United Service Organizations (U.S.O.) in May 1951, the Salvation Army, one of its seven member agencies, resumed its work of providing religious, recreational and welfare assistance to the members of the armed forces, many of whom were accompanied by their families. Sixteen U.S.O. clubs were operated by the Salvation Army during 1951.

The Salvation Army's disaster service units in the midwest were quickly pressed into action when the rising waters of the Missouri overflowed in July 1951 to cause one of the costliest and most destructive floods in the nation's history. Quick and effective help was rendered to hundreds of homeless victims by the Salvation Army's specially trained workers and volunteers.

Operation of the rural and extension service plan, a development of a Salvation Army activity instituted more than 25 years earlier, was announced toward the latter part of the year. The program was geared especially to meet the needs of small communities and rural areas, and the types of service ranged from medical and dental care, summer camp benefits and care for unwed mothers, to the supplying of fuel, food and clothing for the destitute.

In the United States during 1951 the Salvation Army held 98,417 meetings on street corners. In its social service program, 20,475 patients were treated in 7 clinics and dispensaries; 1,349 missing persons were located; 34 maternity homes and hospitals for unwed mothers cared for 11,884 women and children; 48,683 mothers and children were sent to summer camps. A total of 105 men's social service centres provided shelter and work for 30,814 men.

In the field of prison work, 9,266 prisoners were assisted on discharge and given employment; 2,129 prisoners were paroled in care of the Salvation Army, whose officers devoted 6,962 hours to prison visitation. (*See* also CHURCH MEMBERSHIP.)

(E. I. P.)

Samoa, American.

The Samoan Islands extend from lat. 13° 26′ to 14° 22′ S. and from long. 168° 10′ to 172° 48′ W., and are about 2,700 mi. E. of Australia and 2,200 mi. S. of the Hawaiian Islands. American Samoa consists of the inhabited islands of Tutuila, Tau, Olosega, Ofu and Aunuu and the uninhabited coral atoll Rose Island. Swain's Island, 210 mi. N.W. of Tutuila, was made a part of American Samoa in 1925. Total area of American Samoa is 76 sq.mi. and total population as of June 30, 1951, was estimated at 19,000 with about four-fifths of the population on the main island of Tutuila. Pago Pago, on Tutuila, is the capital.

History.—American Samoa, an unorganized U.S. possession, was administered until July 1, 1951, by the U.S. navy. Capt. Thomas F. Darden, Jr., appointed governor in 1949, was the last naval officer to hold that post. By order of Pres. Harry S. Truman, administration of American Samoa was transferred to the jurisdiction of the department of the interior on July 1, 1951. In contemplation of this change, the U.S. naval station at Tutuila was disestablished on Dec. 31, 1949, and replaced by a naval government unit. On Jan. 22, 1951, Phelps Phelps, former New York state legislator, was appointed governor.

Education.—Education is compulsory for all children from 7 to 15 years of age, inclusive. It was estimated in 1950 that 93% of all persons 10 years of age or older were literate. As of June 30, 1951, there were 5,301 children enrolled in 53 public and 6 private schools with a total of 208 teachers. Of the public schools 46 were elementary, 5 junior high, 1 senior high and 1 vocational.

Production and Trade.—The economy of American Samoa is basically on a subsistence level. The main products of American Samoa are copra and native handicraft, principally pandanus mats and rugs woven from grass. Principal crops, with estimated 1950 production, were copra (2,403 metric tons), breadfruit (7,700 metric tons), bananas (19,492 metric tons) and taro (2,900 metric tons). There were approximately 200 to 250 cattle and 200 to 250 horses in American Samoa in 1951. Imports in the fiscal year ending June 30, 1951, totalled $790,978; the major imports by volume were preserved meat and textiles. Exports totalled $197,655; two-thirds of the exports were copra. Total revenues collected during the 1950–51 fiscal year amounted to $397,009, in addition to a U.S. government appropriation of $21,000; expenditures amounted to $632,001. The difference between revenues and expenditures represented funds taken from a surplus fund that had accumulated during World War II. The Bank of American Samoa, which is operated by the American Trust company of California, is American Samoa's only banking institution.

Transportation.—Tutuila has 65 mi. of roads, 51 mi. of footpaths and a 6,000-ft. coral-surfaced air strip, no longer in use.

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Samoa, Western: *see* NEW ZEALAND; TRUST TERRITORIES.

San Francisco.

Population of the city of San Francisco, Calif., on April 1, 1950 (U.S. census) was 775,357, compared to 634,536 in 1940. Mayor Elmer E. Robinson was re-elected for another 4-year term beginning January 8, 1952.

General business activity in San Francisco during 1951 exceeded that of any other year on record, based on the 11 months activity which showed substantial growth, with general business 13.8% above 1950. Financial transactions were up 18.6%; industrial production 10%; retail department store sales 5%; electrical energy sales 8.8%; freight car movements 8.9%; port revenue tonnage 7.8%; cargo ship arrivals 11.8%; San Francisco airport traffic, planes 24% and passengers 20%; vehicle crossings on Bay bridge 4.5% and Golden Gate bridge 11.2%. Placements in San Francisco for the 11 months rose 28.5% to a total of 37,499, based on reports from the California state employment service. Bank debits attained a new high of $32,837,465,000 or $5,100,000,000 above 1950; postal receipts rose $4,300,000; and shares traded on the San Francisco stock exchange increased 3,700,000; market value, however, was down $19,300,000.

During the first 11 months, 7,436 building permits were issued amounting to $50,802,260. Under restricted credit and material regulations, the total value of building permits dropped 25%

with residential off 52% and nonresidential 20%. Additions, alterations and repairs, however, increased 25%. New residential permits provided 1,594 dwelling units.

Retail sales were approximately the same as the 1950 total of $1,351,651,000. Wholesale trade reflected the Pacific coast trend which was up 11% compared to 9% in the nation.

The consumers' price index three-quarterly average for San Francisco of 188.5 (1935–1939=100 base) was 8.6% above a similar period of 1950. About 95 new industries and expansions in San Francisco during 1951 made outlays of $10,000,000, and about 500 in the bay area outlays of $160,000,000.

The San Francisco tax rate for the fiscal year 1951–52 was $6.19 per $100. The assessment roll amounted to $1,730,572,685. Estimated fiscal year revenues amounted to $161,328,430, of which $70,224,644 was to come from city taxes. The bonded debt limit as of Dec. 31, 1951, amounted to $207,668,722. Bonds outstanding and not matured on Dec. 31, 1951, amounted to $173,017,000.

The margin for future bond sales amounted to $113,014,722. Bonds authorized but unsold as of Dec. 31, 1951, amounted to $69,500,000. (R. B. Kr.)

San Marino. A small republic in central Italy, San Marino is surrounded by the province of Emilia and is situated on the slopes of Mt. Titano, 14 mi. S.W. of Rimini. Area: 38 sq.mi. Pop. (June 30, 1951, est.): 12,969. Language: Italian. Religion: Roman Catholic. San Marino is governed by two *capitani reggenti* appointed every six months by a grand and general council of 60 members elected by universal suffrage every four years.

Regents: (April–Sept. 1951) Alvaro Casali and Giordano Giacomini; (Oct. 1951–March 1952) Domenico Forcellini and Giovanni Terenzi.

History.—The two-year-old quarrel between San Marino and Italy was partly settled during 1951. In Aug. San Marino closed its gaming house, which, incidentally, was a competitor to similar establishments at Venice and San Remo; the Italian government agreed to pay San Marino 150,000,000 lire of which one-third was provided immediately.

Although a new election was not due until 1953, the *consiglio grande e generale* on June 30 unanimously voted its own dissolution. The voting took place on Sept. 16 and the results were as follows: People's Democrats (Communists and Socialists), 2,297 votes and 31 seats; Christian Democrats 1,922 votes and 26 seats; Neo-Fascists 248 votes and 3 seats. Although the Communist-controlled majority was reduced from 10 to 2, it retained the control of the administration.

By the end of the year there were still questions outstanding between Italy and San Marino including the establishment of businesses by Italians in the republic to avoid Italian taxation.

Education.—During the scholastic year 1950–51 there were 1,431 pupils in primary schools and 190 in secondary.

Finance.—Budget (1951–52 est.): provisionally balanced at 570,411,538 lire. San Marino uses Italian currency.

Santo Domingo: *see* Dominican Republic.
São Tomé: *see* Portuguese Colonial Empire.
Sarawak: *see* British Borneo.

Saskatchewan. Central of three prairie provinces of Canada, Saskatchewan was created in 1905. Area: 251,700 sq.mi. of which 13,725 are water. Pop. (1941) 895,922; (1951 preliminary census) 829,175. Capital: Regina (pop. 1951) 69,928.

History.—The 3rd session of the 11th legislature prorogued on April 5, after passing 108 bills, including a redistribution act which added a new northern constituency and raised legislature membership to 53. An upswing of support for Premier Thomas Douglas' Co-operative Commonwealth Federation (Socialist) government was found in the loss by the Liberals of the Gravelbourg seat in a provincial by-election, and in the growth of C.C.F. provincial party membership after a loss of 10,000 in the 1949–50 period. A special session of the legislature in December was called to permit a federal-provincial means test pension of $40 to the 65–69 age group. When J. M. Uhrich died in June, former premier W. J. Patterson became the province's tenth lieutenant governor.

Education.—Revised statistics for provincially controlled schools were for 1948: total enrolment 168,605; average daily attendance 135,927; teachers 7,141; total revenue $20,919,385.

Public Welfare.—On Jan. 1, 1951, there were (under the provincial health services plan) 6,398 hospital beds, the highest per capita (6.5) in Canada. In 1950 the hospital service plan cost $11,948,620; total revenue from the hospitalization tax was $6,015,905. New minimum wage rates were set at $24 per week (instead of $21) for full-time workers, higher than in any other province.

Transportation.—The department of highways undertook a $13,380,000 improvement program for 1951, to include 223 mi. of black topping (compared to 118 mi. for 1950). In 1950 there were 735 mi. of such improvement. The Saskatchewan government airways reported a 50% improvement in operations for 1950 over 1949.

Finance.—Estimated revenues for the 1951–52 fiscal year were $58,221,810, and expenditures $57,911,850. There were no new taxes or increases in rates. Net provincial debt on Dec. 31, 1950, was $147,943,674 ($169 per capita, compared to $254 per capita in 1944).

Agriculture.—Faced with a depletion of tillable land, the provincial government spent more than $500,000 clearing and draining land for new farm units; about $2,600,000 of treasury money was earmarked for the development in 1951–52 of the agriculture industry, plus $750,000 for capital expansions. Statistics for 1950 were: total field crops $440,472,000 from 21,383,000 ac.; wheat 260,000,000 bu.; total livestock products $130,303,000; total farm cash income $407,604,000.

Fisheries.—After being closed to commercial fishing for five years, Lake Athabasca was opened to a catch limit of 1,500,000 lb. The provincial government moved to encourage the creation of fish co-operatives in the north country.

Forestry.—Total value of timber production for the year ending March 31, 1951, was $9,758,000, compared with $4,089,000 for the previous year.

Industry.—Best indication of the erratic, yet progressive, expansion of industry was comparison of annual manufacturing investment figures for the 1948–51 period, as follows: $6,000,000, $11,000,000, $8,000,000, $14,000,000. The 1951 figure was 5.8% of the total planned $240,100,000 investment for all purposes. To some extent industrial expansion in Saskatchewan was modified by the Socialist government's operation of 13 business corporations, of which about half were active in wool, power, forest products, sodium sulphate, brick and leather production. In the year ending March 31, 1950, the crown corporations made a net profit of $3,815,859.

Minerals.—About $25,000,000 was spent on oil explorations; 45 geophysical crews were active; more than 140 wells were sunk; and more than 200 core holes drilled. Most of the activity was in the Williston basin and in the Kindersley area. Under new regulations the provincial government reserved as much as 60% of the oil area involved (previously 25%), and took control of all natural gas sales. A rich uranium find on Lake Athabasca was slated for 1953 production, and Uranium City was being built at Beaverlodge lake for exploitation of the uranium find there. About 30 companies combed the north country for more uranium deposits. Top quality feldspar was found near Lac la Ronge. Development of a 100,000 ac. potash deposit near Unity was begun. (C. Cy.)

Saudi Arabia: *see* Arabia.
Savings Banks: *see* Banking.

Sawyer, Charles (1887–), U.S. secretary of commerce, was born on Feb. 10 in Cincinnati, O. He studied at Oberlin college, Oberlin, O., and at the University of Cincinnati, and was admitted to the bar in Ohio in 1911. The same year he was elected to the Cincinnati city council. From 1921 on he was a member of the law firm of Dinsmore, Shohl, Sawyer and Dinsmore. He served as lieutenant governor of Ohio beginning in 1933, and won the Democratic nomination for governor in 1938, but was defeated in the election by John W. Bricker. In 1944–45 he served as U.S. ambassador to Belgium and minister to Luxembourg. He became secretary of commerce on May 6, 1948.

In 1951 Secretary Sawyer was under the fire of Sen. Herbert R. O'Conor (D. Md.) on charges that Sawyer had not halted exports to red China until O'Conor's senate commerce subcommittee had virtually forced him to do so. He was also the centre of legal action to force him and other U.S. officials to return the American President Lines to the R. Stanley Dollar interests, he having been instructed by Pres. Harry S. Truman not to do so on grounds that there was doubt as to the propriety of the move. On July 22 Secretary Sawyer, commenting on Sen. Paul Douglas' proposal to set up a commission on ethics in the federal government, wrote: "Any man who must look up his code of ethics to find out what is proper or improper for him to do is too innocent to be around Washington."

Schuman, Robert (1886–), French foreign minister, was born at Luxembourg, June 29, of a Lorraine family. Called to the bar in Metz before World War I, he was elected a deputy for the recovered Moselle *département* in 1919 and was afterward continuously re-elected. In the Paul Reynaud government of March 1940 he was made undersecretary responsible for refugees from Alsace-Lorraine. His activities on behalf of Lorrainers led to his arrest by the gestapo in April 1941 but he escaped from imprisonment in Germany in Aug. 1942 and went into hiding in France. Schuman attended the conference of French and Italian prime ministers and foreign ministers at Santa Margherita, It., Feb. 12–14, 1951, which discussed relations between the two countries. He arrived in Washington, D.C., with Pres. Vincent Auriol on March 28 and had talks with Dean Acheson, secretary of state; he accompanied Auriol to Canada and returned to Paris on April 10. He signed in Paris on April 18 the treaty on the European coal and steel pool which had been known as the Schuman plan since he launched the proposal in May 1950. He went to San Francisco, Calif., to sign the Japanese peace treaty on Sept. 8 and on Sept. 11–14 had meetings in Washington first with Acheson and then with Herbert Morrison, the British foreign secretary, and Acheson together. He went on to Ottawa for the North Atlantic council meeting which started on Sept. 15 and returned to Paris on Sept. 23.

Scotland: *see* Great Britain & Northern Ireland, United Kingdom of.

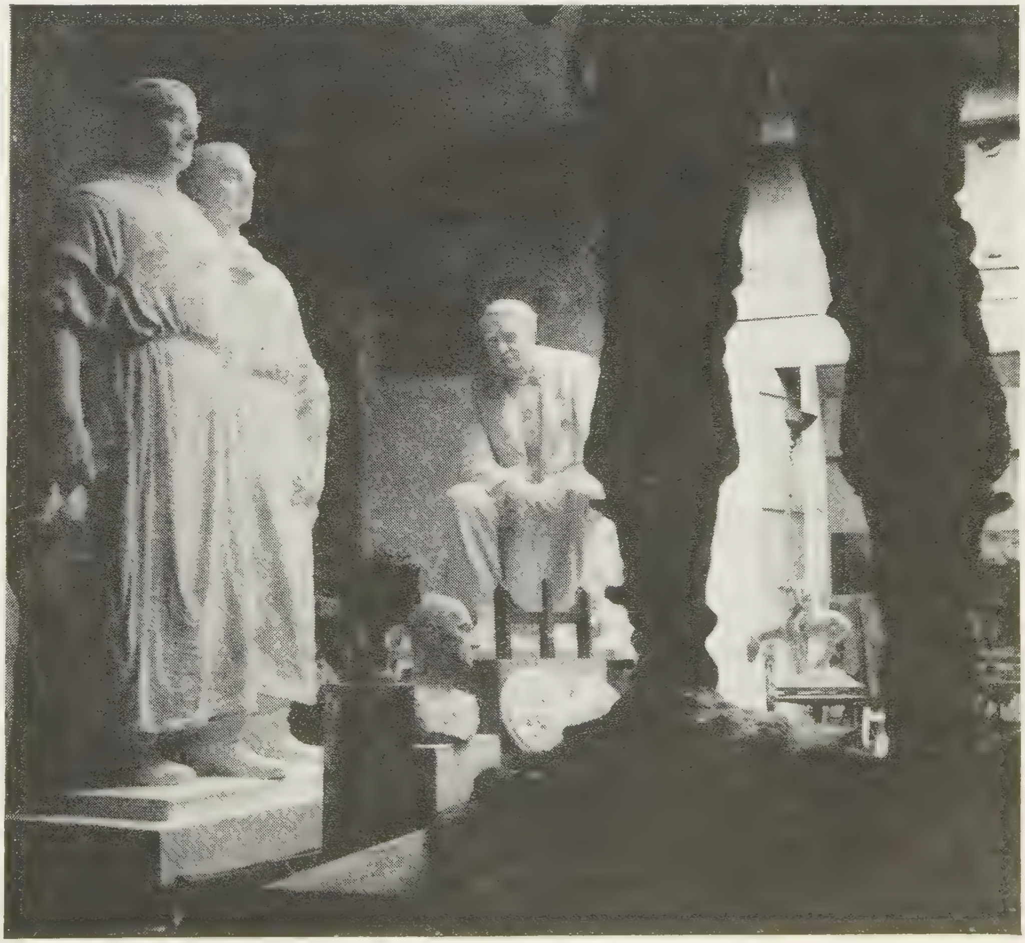
Scrap: *see* Secondary Metals.

Sculpture. The condition of sculpture, sometimes cynically described "the orphan of the arts," continued healthy in 1951, with production most active in the hands of artists working in the creative sphere, aiming to have their work exhibited and recognized for its vital contribution to contemporary art. Change in over-all status is not as perceptible in the arts as in other fields of production, and one year's trends run more or less in sequence with those of the preceding year. Sculpture was affected by a larger concerted effort toward promotion and popularization, a nation-wide roundup of work for exhibition being an important event of the year.

In the United States, as elsewhere, continuance of production in two main courses—the experimental and abstract on one hand, and classical and humanist on the other—determined vital differences. Besides aesthetic concern, concern with promotional and economic factors—following protest and demand for contemporary recognition from even the most conservative institutions—was shown by the Metropolitan Museum of Art in the organization of a new, extensive sculpture survey, and was continued by other museums in New York and other U.S. cities. The greatest disappointment was that these surveys showed too little from a national competition which was drastically pared down in final form from hundreds of submissions to a relatively few exhibits. Except in their local milieu sculptors in general found it difficult to reach the public with their work.

Jacques Lipchitz, whose "Sculpture in Progress" exhibit was notably well received, showed a monumental "Birth of Venus" design for a New York collector illustrated by models and photographs of the details of the work in progress. Theodore Roszak demonstrated by work in the expressionist field that he was one of the craft's more inventive figures. Recognition was accorded to the achievements of Gerhard Marcks in Germany, and a comprehensive group of his work was shown in New York city, centring around his monumental "Maja" figure earlier acquired by the Philadelphia museum.

In South America, the international exchange of exhibits was furthered with U.S. co-operation. Especially notable was the contribution of U.S. sculptors to the newly established Brazil biennial exhibition of paintings and sculpture in São Paulo. Theodore Roszak's design was second among the prize winners, while first prize was taken by Max Bill, Swiss sculptor.



PLASTER MODELS in the crowded studio of James Earle Fraser, who was awarded the gold medal of the American Academy and National Institute of Arts and Letters on May 25, 1951. Left to right: the Mayo brothers in surgeons' gowns, Thomas Edison (seated), part of a gigantic figure of Gen. George S. Patton, Jr., and, right background, "The End of the Trail"

In the U.S., progress with relief sculpture was shown by the "advance guard" in works no longer created in close unity with the architectural setting, as often in traditional practice, but in free standing objects of decoration considered suitable to modern buildings when functioning as a screen. Designs involved new techniques and constructions in steel, aluminum and other materials in harmony with modern architecture.

Less emphasis on the wall, "no longer figuring as a supporting element, but an enclosing screen" was demonstrated by Isamu Noguchi in his design for a ceiling decoration for a building in St. Louis, Mo., together with abstract designs by Naum Gabo for one in New York, and Jean Arp for a dormitory dining room at Harvard.

Possibilities in the use of fused, brazed and forged metal concepts for symbolical sculpture were exploited further by David Smith, David Hare, Ibrim Lassaw and Leo Amino, the latter also employing plastic materials. A question arose regarding the future availability of copper for bronze sculpture as the result of restrictive action by the National Production authority. After investigation by the National Sculpture society, the profession was reassured by an interpretation of a ruling which showed that copper for bronze work was off the list of controls and in the forseeable future would not be curtailed.

In the field of monumental sculpture, four heroic equestrian groups designed by James Earle Fraser and Leo Friedlander for the plaza of the Arlington Memorial bridge, Washington, D.C., were cast in bronze in Italy as the gift of the Italian government and were put in place, the groups representing the arts of war and peace. Fraser, noted as a traditionalist sculptor for his "End of the Trail" and noted Buffalo nickel designs, received the gold medal award for achievement from the American Academy and National Institute of Arts and Letters, and together with Friedlander the medal of honor of the National Sculpture society.

In Israel, Jo Davidson, internationally known portrait sculptor, completed busts of Israeli leaders, including Pres. Chaim Weizmann, Prime Minister David Ben-Gurion and four of the Israel cabinet, as well as types of immigrants to that country. Paul Manship completed his monumental realist group of two young soldiers, "Buddies," which shortly was to be seen on display in the Metropolitan museum's competitive sculpture show.

First Metropolitan sculpture prize was awarded to Minna Harkavy, Esthonian-born American sculptress for her "Two Men." The exhibit of her work struck a style midway between the nonobjective and the realistic work which marked the extremes of the exhibit. (*See* also ART EXHIBITIONS.)

FILMS OF 1951.—*From Tree Trunk to Head* (A. F. Films, Inc.); *How to Make a Plaster Cast, Sculpture, Thorvaldsen* (Almanac Films, Inc.); *Looking at Sculpture* (British Information Services and Brandon Films, Inc.); *Sculpture from Life* (Allen-Moore Productions); *Works of Calder* (Museum of Modern Art Film Library). (C. BU.)

Seaborg, Glenn Theodore

(1912–). U.S. scientist, was born on April 19 at Ishpeming, Mich. He received his B.A. degree from the University of California at Los Angeles in 1934 and his Ph.D. from the University of California, Berkeley, in 1937. Appointed research associate in chemistry at the University of California in 1937, he advanced to the rank of full professor in 1945. From 1942 to 1946 he was on leave at The University of Chicago Metallurgical laboratory, where the atomic bomb was developed. Seaborg had a major role in its development, as head of the laboratory's chemical separation section.

With Edwin M. McMillan (*q.v.*), Seaborg in the 1930s had conducted the basic research which led in 1940 to the discovery of plutonium (element 94). He and his associates later went on to discover elements 95 (americium), 96 (curium), 97 (berkelium) and 98 (californium). It was reportedly at the insistence of Seaborg and Arthur H. Compton that plutonium rather than uranium was selected as the source of power for the first experiments on production of the atomic bomb. Seaborg was named a member of the general advisory committee of the U.S. Atomic Energy commission in 1946. In the same year, upon his return to the University of California, he was appointed director of chemical research at the university's radiation laboratory.

On Nov. 15, 1951, Seaborg and McMillan were named corecipients of the 1951 Nobel prize in chemistry.

SEC: *see* SECURITIES AND EXCHANGE COMMISSION.
Secondary Education: *see* EDUCATION.

Secondary Metals.

The recovery of secondary nonferrous metals in the United States is reported by the U.S. bureau of mines as shown in Table I.

Table I.—*Secondary Nonferrous Metals Recovered in the U.S.*

(In thousands of short tons or fine ounces)

	1945	1946	1947	1948	1949	1950
Copper—tons						
As metal	112.9	136.9	303.1	284.0	250.1	260.7
In alloys	875.0	647.4	639.8	671.2	448.2	699.1
In compounds . . .	18.7	19.2	18.8	17.6	14.8	17.4
Total	1,006.5	803.5	961.7	972.8	713.1	977.2
From old scrap*. .	497.1	406.5	503.4	505.5	383.5	485.2
Lead—tons						
As metal	61.1	73.7	111.5	131.9	152.6	129.3
In alloys	301.9	319.1	400.5	368.2	259.6	353.0
Total	363.0	392.8	512.0	500.1	412.2	482.3
From old scrap*. .	309.8	344.5	444.6	432.7	364.1	427.5
Zinc—tons						
As metal	83.9	81.4	97.1	102.2	84.2	104.1
In alloys	234.6	174.2	158.2	173.5	116.2	178.2
In compounds . . .	41.9	45.0	55.5	49.0	37.4	43.7
Total	360.4	300.7	310.8	324.6	237.8	326.0
From old scrap*. .	91.3	77.2	75.0	74.2	51.7	74.1
Tin—tons						
As metal	3.7	2.9	3.2	3.5	3.9	4.0
In alloys	30.9	24.3	26.4	26.0	20.7	30.7
In compounds . . .	0.5	0.4	0.5	0.6	0.6	0.7
Total	35.1	27.7	30.1	30.1	24.9	35.5
From old scrap*. .	24.0	17.6	19.0	20.1	16.5	24.2
Aluminum—tons						
As metal	2.1	2.1	5.1	2.4	0.3	2.1
In alloys	295.4	275.4	339.3	283.9	180.0	241.2
Total	298.4	278.1	344.8	286.8	180.7	243.7
From old scrap*. .	27.3	90.5	163.8	95.6	44.6	76.4
Magnesium—tons						
Total (in alloys) . .	9.2	5.1	9.5	7.6	6.0	7.3
From old scrap*. .	0.8	1.2	4.6	4.2	2.9	5.0
Nickel—tons						
Total	6.5	8.2	9.5	8.9	5.7	8.8
From old scrap*. .	2.2	2.7	2.8	2.9	1.9	4.8
Antimony—tons						
Total	17.1	19.1	23.0	21.6	18.1	21.9
From old scrap*. .	15.1	16.1	19.2	18.0	15.0	18.8
Platinum—ounces . . .	58.9	40.4	54.2	58.5	41.7	33.9
O.P.M.†—ounces . .	37.2	32.3	32.9	35.4	41.8	24.2
Gold—ounces	886	1,314	1,407	1,290	1,147	1,050
Silver—ounces	58,361	36,647	27,866	23,897	22,660	45,247

*Secondary metal recovered from old materials, the remainder having come from the reworking of new plant scrap. †Other platinum group metals.

There were heavy increases in recoveries in 1950, but it must be remembered that only recoveries from old scrap add to the current supply.

Iron and Steel Scrap.—Scrap is an essential constituent of the charge in the modern steel furnace, and whenever the demand for steel is high the scrap supply runs short. There had been a chronic shortage of scrap since 1939, and as a result there was a growing trend toward decreased consumption. In

Table II.—*Scrap in the U.S. Iron and Steel Industry*

(In thousands of short tons)

	Pig iron output	Steel output	Scrap consumption		
			Plant	Purchased	Total
1939	34,895	46,079	19,622	16,705	36,327
1945	53,224	79,702	30,861	25,230	56,091
1946	44,842	66,603	26,134	23,350	49,484
1947	58,327	84,894	31,579	29,285	60,864
1948	60,073	88,640	32,420	32,544	64,964
1949	53,323	77,978	29,166	25,172	54,338
1950	65,484	96,836	32,094	29,403	61,497

1939 1 ton of scrap made 1.27 tons of steel, but by 1950 the yield of steel per ton of scrap had increased to 1.575 tons.

(G. A. Ro.)

Secret Service, U.S.

During 1951 the powers and duties of this treasury department bureau were defined in permanent law for the first time since the agency was established in 1865. Basic authority for secret service functions was derived from annual appropriation acts until July 16, 1951, when the president approved public law 79, 82nd congress, amending title 18 U.S. code, section 3056, authorizing the secret service to protect the person of the president of the United States and members of his immediate family, the president-elect, and the vice president at his request; to detect and arrest any person committing any offense against the laws of the United States relating to coins, obligations and securities of the United States and of foreign governments; to detect and arrest any person violating any laws of the United States directly concerning official matters administered by and under the direct control of the treasury department; and to perform other stated duties.

During the year, Oscar Collazo, Puerto Rican nationalist, who was wounded Nov. 1, 1950, in a gun battle when he and Griselio Torresola attempted to shoot their way into the Blair house, temporary home of the president, was convicted of the murder of a White House police officer and sentenced to death.

The uniformed force of the secret service safeguarded more than $227,000,000,000 of currency, stamps and other obligations in transit, and more than $549,000,000,000 of securities in production and storage.

Increased activity in the forgery of Government checks was caused partly by the fact that drug addicts were stealing and negotiating checks to buy narcotics. During the year the secret service received for investigation 32,738 forged checks and 5,975 forged bonds. Special agents arrested 2,288 forgers and investigated 38,102 forged government checks worth $2,752,493.94.

Secret service agents captured $1,430,931 in counterfeit bills and $8,505.35 in counterfeit coins, a total of $1,439,436.35. Of this amount, $918,249.15 was seized before it could be passed on the public. The balance represented losses to merchants and others. Special agents arrested 307 persons charged with counterfeiting offenses and captured seven plants for the manufacture of 101 issues of new counterfeit bills. There were 144 new counterfeit note issues during the year, 94 of which were of foreign origin.

Arrests for all offenses totalled 2,772 and there were 2,507 convictions in cases of all types, representing 98.8% of convictions in the cases which went to trial. Prison sentences totalled 2,878 years and additional sentences of 2,590 years were suspended or probated. Fines in criminal cases totalled $141,485.88.

(U. E. B.)

Securities: *see* STOCKS AND BONDS.

Securities and Exchange Commission.

A bipartisan, quasi-judicial agency of the U.S. government, the Securities and Exchange commission (SEC) administers several laws in the general field of securities and finance enacted for the protection of the investing public.

Securities Act of 1933.—This law prohibits fraud and deceit in the sale of securities generally, and requires disclosure of financial and other information concerning securities offered for public sale.

Prior to such public offering of securities, they must be registered with the commission through the filing of a statement containing prescribed data; and a prospectus summarizing the salient information must be delivered to investors. By the close of 1951, $65,900,000,000 of securities had been so registered, $6,500,000,000 during the fiscal year ended June 30, 1951.

Registration of securities does not guarantee against loss in their purchase. It merely seeks to provide investors with information upon which they can exercise an informed judgment as to the worth of the securities and thus avoid imprudent investments. Nor is registration a warranty of the accuracy of the facts disclosed; but investors who suffer losses in the purchase of registered securities have important recovery rights if material facts are proven false.

Securities Exchange Act of 1934.—Issuers of securities listed for public trading on the national securities exchanges are required by this law to register and file annual and other periodic reports with the commission and the exchanges providing disclosure of data essential to investment analyses. At the year's end, 3,523 security issues of 2,188 listed companies were so registered. The volume of trading therein during the year was $24,000,000,000.

Holders of listed securities also must be provided with pertinent information when their proxies are solicited on corporate matters. Management officials and large stockholders of listed companies must report their holdings of and transactions in listed and other equity securities of their companies and are accountable to the issuer for short-term trading profits therein—measures designed to curb misuse of "inside" information. During the year, 1,788 proxy statements and 22,118 insiders' trading reports were filed.

The law further provides a system for the regulation of securities markets designed to eliminate all impediments to free and open markets truly reflective of the law of supply and demand and the composite judgment of investors as to the worth of securities. Exchanges as well as persons or firms engaged in an over-the-counter securities business must register and conform their business practices to standards designed for the protection of investors. Sixteen exchanges and 3,954 brokers and dealers were so registered at the close of 1951, as was one association of brokers and dealers organized for self-policing purposes in the over-the-counter markets. Exchanges and the association have disciplinary powers over their members for malpractices.

Provisions of this law and the Securities act prohibiting fraud and deceit, manipulation and other abusive practices in the purchase and sale of securities are buttressed by SEC powers of investigation and enforcement (which include the right to subpoena witnesses and documentary evidence). Sanctions include injunctions and criminal prosecution, as well as commission orders temporarily or permanently barring persons or firms from the securities business if, after hearing, the commission finds that the respondent has defrauded customers or otherwise wilfully violated the securities laws.

The securities laws and their administration on the one hand and, on the other, improved standards of business conduct both in the securities business and among corporate officials, operate to restore investor confidence in securities which is essential to a strong and healthy capitalistic economy.

Public Utility Holding Company Act of 1935.—This law provides for regulation of the financial and related practices of electric and gas public utility holding company systems. It further calls for major readjustments in the corporate and capital structures of system companies to the end: (1) that their operations shall be confined to an integrated group of utility properties within a limited area; and (2) that pyramided corporate and complicated capital structures shall be simplified and voting power redistributed among security holders on an equitable basis.

These readjustments have generally taken the form of commission-approved plans for the sale of securities of nonretainable companies or of their underlying assets, or the distribution of such portfolio securities to security holders; or plans of reorganization, merger, consolidation, dissolution and similar actions. Initially, 54 holding company systems were registered, consisting of 177 holding companies, 751 utility companies and 644 nonutility companies. Some of the larger systems had properties scattered throughout the country. In 1951 the 40 remaining systems were composed of 64 holding companies, 195 electric and gas utility companies and 185 nonutility companies; and their combined assets were only $1,000,000,000 less than the $14,000,000,000 figure for the original 54 systems, a fact attesting not alone to the unprecedented growth of the utility industry in recent years but also to the pattern of integration which permitted particular systems to acquire and integrate with their own those properties found not retainable as part of another's integrated system.

Many who opposed passage of the law predicted that it would cause a demoralization of the market for utility securities. The exact reverse was true. Commission studies showed increases of 117%, 439% and 478% in the average market value of all securities of particular holding companies, as against a corresponding increase of from 40% to 45% in the Dow Jones industrials average, while the market for the common stocks of the three companies increased 226%, 483% and 914%. Although there were other contributing factors, much of the improvement might fairly be ascribed to the salutory effects of the Holding Company act.

To safeguard investors in new security issues of system companies, the law specifies certain minimum standards which must be met in their issuance and sale, including reasonable underwriting and other fees, and requires the maintenance of balanced security structures. During 1948–51 alone, the commission passed upon the issuance and sale of $4,400,000,000 of utility securities, the bulk of the proceeds of which were applied to construction. The commission's jurisdiction also extends to sales of portfolio securities; purchases and sales of utility assets; intercompany transactions; service contracts; accounting; dividends; and similar matters.

The commission also administers: (1) the Trust Indenture act of 1939, governing the terms of indentures under which debt securities are issued and prescribing minimum qualifications of the indenture trustee who is to serve as the investors' representative; (2) the Investment Company act of 1940, containing regulatory provisions governing certain phases of the operations of investment companies (of which 368 were registered in 1951); and (3) the Investment Advisers act of 1940, which prescribes certain minimum standards of conduct applicable to those who are engaged in the business of advising others with respect to their investments (of which 1,057 were registered in 1951). The commission also serves as adviser to federal courts in corporate reorganization proceedings under chapter x of the Bankruptcy act, particularly with respect to the fairness and feasibility of plans for reorganization of debtor corporations. (O. L. Ds.)

Seeing Eye, Inc.: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Seismology.

The most destructive earthquake of 1951 occurred in El Salvador on May 6 when at least 375 persons in the towns of Jucuapa, Chinameca and nearby villages were killed, and about 25,000 made homeless. Many countries sent aid. In Cankiri, Turk., 44 were killed on Aug. 13, and on Oct. 22 a casualty list of 28 dead and 100 injured was reported from the Hualien area of Formosa. At Terminal Island near Long Beach, Calif., a light seismic disturbance on Aug. 15 caused $2,000,000 damage to oil wells—about one-fourth the damage caused by a similar disturbance in Nov. 1949. Mechernich, Ger., reported $300,000 damage from a shock on March 15 that ruined many war-damaged buildings. In the Hawaiian Islands a strong submarine disturbance southwest of the island of Hawaii wrecked many houses and tumbled cliffs on the Kona coast. In the United States activity outside the seismic areas of the Pacific coast was marked by a widespread shock in western Texas and several in New England and New York state that broke windows and glassware. Seismograph recordings revealed that one of the strongest earthquakes of the year occurred in eastern Tibet on Nov. 18 not far from the scene of the great 1950 shock that was among the three greatest recorded on modern seismographs. A slightly stronger submarine shock was located southeast of Madagascar on Dec. 8. A series of strong shocks off the east and southeast coasts of Formosa indicated a major readjustment of basement rock in that area.

In the United States new seismograph stations were established at the University of Arkansas in Fayetteville and at Nelson, Nev. near Lake Mead. Five new stations were established in foreign countries. Progress in engineering research was highlighted by completion of a comprehensive mathematical analysis of strong-motion seismograph records at the California Institute of Technology that would greatly facilitate the prediction of earthquake stresses in structures—a problem still in the research stage. All important instrumental records of destructive earthquake motions obtained by the U.S. coast and geodetic survey over an 18-year period were processed on the electrical analogue computer of the institute. Survey seismologists advanced new concepts of the nature of destructive earthquake motions.

The aerological branch of the navy continued its field and laboratory investigations of microseismic phenomena as related to the tracking of hurricanes and other low pressure areas. New instrumental and analytical techniques were advanced to improve accuracy. A seismological research group of Columbia university expanded its seismic surveys of the ocean bottom off the Atlantic to outline the extent and depth of the ocean sediments and the structure of the rock beneath. The U.S. coast and geodetic survey through the international exchange of seismological telegrams was enabled to make immediate and reliable announcements of the locations of all important earthquakes. (*See* also COAST AND GEODETIC SURVEY, U.S.; DISASTERS.)

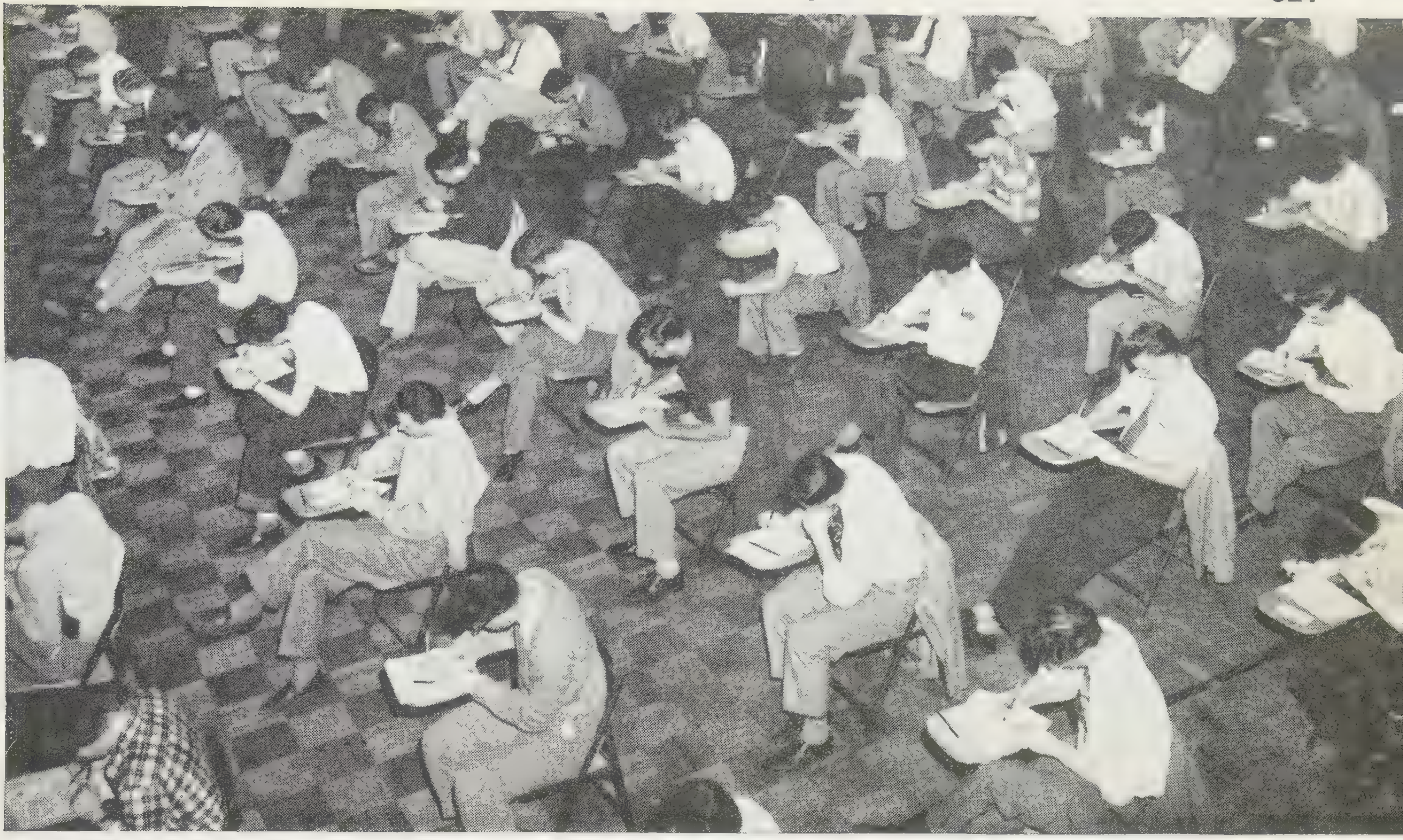
(F. NEU.)

Selective Service, U.S.

Selective Service produced 525,000 men for the armed forces during the calendar year 1951; of these, 42,000 went to the marines.

The Universal Military Training and Service act was approved June 19, 1951. The report of its five-man commission, submitted Oct. 28, proposed six months of compulsory military training for all youths upon reaching 18. Congressional hearings were scheduled to begin early in 1952.

Other drastic changes in the law extended the age of liability from 19 to 26 to 18½ to 26; extended the period of active service for those inducted under the 1948 act as well as the 1951 act to 24 months, with a maximum eight-year obligation for combined active duty and subsequent reserve obligation; established the physical standards as those that prevailed in Jan. 1945, and lowered the mental requirements; provided that registrants who were conscientious objectors and opposed to both combatant and noncombatant military service must perform civilian work contributing to the maintenance of the national health, safety or interest for a period of 24 months; and provided that aliens admitted for permanent residence in the



EXAMINATION PAPERS being filled out in May 1951 under the U.S. selective service ruling that made college students eligible for draft deferment if they scored passing grades

United States were liable for training service. The new act extended authority to extend enlistments involuntarily in the regular and reserve components of the armed forces until July 1, 1953.

The president again was authorized by the act to issue regulations providing for deferment of persons whose occupation, including activity in study, was found to be necessary to the national health, safety or interest; and also for those whose dependents would make it inadvisable to call them to service, except where the wife is the sole dependent, in which case extreme hardship must be shown.

Re-employment rights were extended to enlistees who entered service after June 24, 1948, who served not more than four years, plus any additional period imposed pursuant to law, and to those entering active duty after June 24, 1948, whether or not voluntarily, in response to call and who were relieved within four years or as soon thereafter as they were able to obtain orders.

The definition of veterans was the same as in the 1948 act, and those meeting the requirements were made exempt, married or single. Generally, this requirement was 90 days' service, or more, between Dec. 7, 1941, and Sept. 2, 1945, or a year or more between Sept. 16, 1940, and June 24, 1948. The act also provided for at least one Selective Service appeal board in each federal judicial district within each state, territory and possession.

The act provided that high school students, providing work was satisfactory, were to be deferred until they graduated or until they reached the age of 20, whichever occurred first. This provision was much the same as in the 1948 act. Deferments for college and university students fell in two classes: (1) those provided for by the act and which could be changed only by act of congress; and (2) those provided for by regulations issued by the president under authority of the act and which could be modified or abolished if and when the president considered it advisable.

In considering college students for deferment, three points were emphasized: first, that the standards of deferment were not mandatory for the local boards; second, that the liability for service of a deferred student was not cancelled and that his induction was merely postponed; third, that the test scores and class standing criteria were variables, which might be raised or lowered, either to increase or decrease the number of deferred students. There was nothing compulsory about taking the test.

The deferment criteria were based either upon capacity to learn as demonstrated by the results of nation-wide aptitude tests, or upon performance in the student's study as evidenced by his standing in his class—either, not both.

The first test, conducted by the Educational Testing service, was held in March 1951 at about 1,000 testing centres throughout the country. Four subsequent tests were given during the year. Between 60% and 65% of the students taking the tests received marks of 70 or better. A mark of 70 or better—75 or better for graduate students—was required to qualify a student for consideration for deferment.

Local board reclassification of married men who were not fathers started after passage of the 1951 act. A large number of these men, however, were deferrable for other reasons, such as activity in essential occupation, including agriculture.

Gen. Lewis B. Hershey, director of Selective Service, expressed grave concern over the high rates of rejection for physical and mental reasons. In Jan. 1951 there was a low 28.9% pre-induction rejection rate; in February it dropped further to 27.7%, but then began to climb rapidly and before the end of 1951 was not far from 50%.

On Dec. 21 the director of Selective Service announced that local boards would start in Jan. 1952 to order for re-examination an estimated 300,000 men previously found unacceptable for mental reasons only. The 1951 amendments to the Selective Service law had lowered the minimum mental score from a percentile score of 13 to a percentile score of 10.

Availability and Classification of Registrants, United States and Territories

	Number	Per cent
Total classified registrants—all ages	11,546,329	100.0
Classifications		
I-A and I-A-O, examined and acceptable	174,100	1.5
I-A and I-A-O, not examined†	970,754	8.4
I-A and I-A-O, postponed—high school	178	*
I-A and I-A-O, postponed—college	1,678	*
I-A and I-A-O, postponed—other reasons	20,487	.2
I-S, statutory deferment—high school	14,440	.1
I-S, statutory deferment—college	9,031	.1
IV-E, conscientious objector	532	*
I-O, conscientious objector examined and acceptable	9	*
I-O, conscientious objector not examined	56	*
I-O	548	*
IV-E and I-O	7,083	.1
I-C (inducted)	710,438	6.2
I-C (enlisted)	1,125,261	9.8
I-C (discharged)	106,773	.9
I-C (reserve)	62,659	.5
I-W (at work)	3	*
I-W (released)	——	——
I-D, member of reserve component	275,617	2.4
II-A, occupational deferment (except agricultural)	27,519	.2
II-A(S), occupational deferment (student)	1,238	*
II-C, agricultural deferment	84,970	.7
II-S, occupational deferment (student)	4,249	*
II-A(S) and II-S	201,143	1.7
III-A, dependency deferment	908,707	7.9
IV-A, completed service; sole surviving son	2,051,695	17.8
IV-B, official	20	*
IV-C, aliens	8,981	.1
IV-D, minister, divinity student	56,900	.5
IV-F, unfit for service	1,224,140	10.6
V-A, over age of liability	3,497,120	30.3

*Less than 0.05%.
†Include those registrants in reserve components classified "I-A, postponed."

General Hershey revealed that of the 1,828,000 men examined by the armed forces between July 1950 and Nov. 1951 approximately 45% were rejected by the armed forces doctors. It was estimated that about 300,000 of these were rejected solely for failure to meet the minimum mental standards.

The accompanying table shows classifications as of Dec. 1, 1951. (*See* also Law.)

Films of 1951.—*What It's All About, Your Plans* (Coronet Films).
(I. W. H.)

Selenium: *see* Mineral and Metal Production and Prices.
Senate: *see* Congress, United States; Elections, U.S.
Senegal: *see* French Union; French West Africa.

Seventh-day Adventists.

The world membership as of Dec. 31, 1950, was 756,712, a gain of 40,174 over 1949. Total funds raised in the churches in the United States and Canada in 1950, for all purposes, were $36,000,000. The membership in the United States and Canada as of Sept. 30, 1951, was 256,845. At the 1951 autumn council, held in Cleveland, O., Oct. 19 to 29, the following important actions were taken: to establish a dental college, which would be located on the campus of the denomination's medical school at Loma Linda, Calif.; to enlarge the Los Angeles division of the medical school at its present location, rather than move to a new one as previously planned, and to expend for such enlargement about $6,000,000; to hold a Bible conference in 1952 to which Bible teachers from the church's colleges throughout the world would be invited; to conduct during 1952 an evangelistic crusade which would be distinguished by the holding of a public meeting in every major city in the United States and Canada, to which would be especially invited all those who listened to the church's national radio and television programs; and to raise the weekly mission offering goal for the North American membership from 70 cents per week to 80 cents, this in addition to tithe. The budget voted at the autumn council for 1952, which did not include the regular operating costs of the church's work in North America, but would be largely sent overseas for mission work, totalled a little more than $17,000,000, the largest annual budget ever voted. Action was also taken to hold the next quadrennial session of the general conference in San Francisco, Calif., in 1954. The international offices at Washington, D.C., were being enlarged in 1951 to double their size at a cost of about $500,000. (*See* also Church Membership.)
(F. D. N.)

Seychelles.

British colony and dependencies, 92 islands (Mahé being the largest) in the Indian ocean. Area: 156 sq.mi. Pop. (1950 est.): 36,000, mainly Negro. Capital, Victoria (pop. *c.* 7,000). Language: English; creole patois. Religion: Christian (*c.* 66% Roman Catholic). Administration: governor; executive council; legislative council.

Governors (1951): J. D. Bates; (from May 14) Frederick Crawford.

History.—High copra prices continued during 1951 and the establishment by the Colonial Development corporation of a fishing base on St. Anne gave another fillip to local development. Three vessels were employed and the export of dried fish to east Africa was started. Elections were held for the legislative council and the restriction of the life of the new council to one year suggested that some measure of constitutional reform was likely.

Education.—Schools (1950): 31 primary (4,756 pupils); 3 secondary; 1 technical training centre.

Finance and Trade.—Currency, Seychelles rupee, valued in 1951 at 21 cents U.S. Budget (1951 est.): revenue Rs. 3,900,000; expenditure Rs. 3,400,000. Foreign trade (1950): imports £441,000; exports £609,000. Production (1950): copra 5,959 tons, cinnamon oil 97,000 kg., cinnamon bark 265 tons, guano 9,847 tons.
(K. G. B.)

Sheep: *see* Livestock.

Shipbuilding.

The world tonnage of merchant vessels of 1,000 gross tons or more, as of June 30, 1951, was distributed as follows among the principal maritime nations:'

Country	Number of vessels	Gross tonnage (in thousands)	Country	Number of vessels	Gross tonnage (in thousands)
United States*	3,477	25,769	Greece	213	1,195
British Commonwealth	3,083	19,054	Finland	183	486
Norway	965	5,293	Brazil	170	616
Sweden	556	1,895	China	146	416
France	534	3,019	Argentina	133	824
Panama	530	3,518	Turkey	111	387
Netherlands	501	2,859	Portugal	91	390
U.S.S.R.	465	1,457	Belgium	80	440
Italy	459	2,646	Honduras	80	415
Japan	411	1,713	Liberia	62	626
Denmark	308	1,200	Yugoslavia	51	217
Spain	268	951	Other Countries	370	1,390
Germany	219	648			
			Total	13,466	77,424

*Excludes vessels operating on the Great Lakes.

The total of 77,424,000 gross tons of vessels in the world fleet was an increase of 2,425,000 gross tons since June 30, 1950. However, the U.S. fleet during the same period decreased by 39 vessels, aggregating 345,000 gross tons. The remainder of the world gained approximately 2,770,000 gross tons of shipping.

The Shipbuilders Council of America reported as of Oct. 1951 that 1,593 vessels (each of 1,000 gross tons or over), aggregating 12,918,149 gross tons, were under construction in the various maritime countries of the world.

The gross tonnage total of 12,918,149 was an increase of 5,731,386 since Oct. 1950. Practically every country showed a proportional increase except Germany, where reported construction rose from 280,793 gross tons to 1,251,668 gross tons in the one-year period, an increase of more than 400%.

This abnormal increase might readily be traced to the decision of the foreign ministers of the U.S., Great Britain and

THE U.S.S. "UNITED STATES," largest and fastest U.S. passenger liner at the time of its christening at Newport News, Va., in June 1951

France in Sept. 1950 to remove all restrictions on size, speed and number of commercial vessels that might be built in Germany for export. This permitted the opening up of German shipyards, with ready facilities to construct almost any type or size of vessel.

United States.—On Jan. 1, 1951, 15 seagoing commercial vessels, each of 1,000 gross tons or more, aggregating 406,070 gross tons, were under construction or under contract for construction in private seaboard shipyards of the United States, as follows: three passenger vessels, three cargo vessels (including two seatrains), three transports, five tankers and one bulk ore carrier.

At the same time there were contracted for or under construction in the Great Lakes shipyards 14 vessels (1,000 gross tons or over), aggregating 153,370 gross tons. These consisted of 2 passenger railway ferries, 1 passenger auto ferry, 11 bulk ore carriers (including 2 self-unloaders).

Ten vessels were delivered in the United States during 1951, as follows: two passenger vessels, one prototype cargo vessel, two seatrains, four tankers and one ore carrier.

Contracts for 77 vessels were awarded during 1951. These contracts were for 35 Mariner type cargo vessels, 36 tankers, and 6 ore carriers. However, work on 14 of the Mariner type cargo vessels was suspended temporarily by the Maritime administration because of a reduction in steel allocations by the Defense Production administration.

As of Dec. 31, 1951, there were 96 merchant vessels (of 1,000 gross tons or over), aggregating 1,251,190 gross tons, under contract for construction in the United States, of which 16, aggregating 176,870 gross tons, were for construction in the shipyards on the Great Lakes, the balance in seaboard shipyards.

Merchant Ships under Construction in the World, Oct. 1951

Country of Building	Number of vessels	Gross tonnage
Great Britain	623	5,502,379
Sweden	170	1,496,173
Germany	210	1,251,668
United States	85	1,082,990
Netherlands	105	928,765
Japan	73	577,325
Norway	79	490,663
France	68	487,462
Denmark	54	315,739
Italy	40	307,250
Belgium	23	158,281
Canada	18	114,150
Spain	30	102,834
Trieste	4	67,000
Australia	10	34,170
Eire	1	1,300
	1,593	12,918,149

During the year 1951, the U.S. navy inaugurated a program of reactivation, modernization, some reconversions and new construction, which covered principally the construction in private yards of one large aircraft carrier, an antisubmarine destroyer escort ship, one nuclear-powered submarine, several landing ships tank, a number of barges, harbour tugs, control boats and other service boats. Contracts for these vessels were awarded to many yards widely distributed throughout the United States.

The volume of repair work in the U.S. yards rose sharply in the early part of the year, with a corresponding increase in employment. After that time, a fairly even rate was maintained. The added volume was occasioned by the withdrawal from the U.S. Maritime administration reserve fleets of approximately 500 vessels for operation under the National Shipping authority, and the rehabilitation of them. (*See* also SHIPPING, MERCHANT MARINE.) (H. G. S.)

Great Britain.—The shipbuilding industry in Great Britain was active throughout 1951, with prices still tending upwards because of rises in wages and the cost of steel. The yards in Great Britain worked to capacity, and the order books of British firms were well filled with contracts. The completion of all these would keep the industry busy for some years, although yards concentrating on smaller craft were not so actively employed as those able to build the largest ships. In Europe, shipbuilding continued to recover from the dislocation caused by World War II and the removal of restrictions influenced building in Germany and Japan. The work in Great Britain continued greatly to exceed that in other countries. The British construction in hand represented, throughout the year, about 40% of the total volume of building in the world.

The construction of oil tankers formed a large part of both work in hand and orders. In the U.K. it amounted to about 55% of the total. As the year proceeded, anxieties about supplies of steel became evident in the United Kingdom and other shipbuilding countries; rearmament threatened to accentuate the shortage of steel in the shipbuilding industry. For this and other reasons shipowners and shipbuilders claimed that the rebuilding of the merchant navies could fairly rank as a form of rearmament, since in the event of war sea transport would again be vitally important.

The total contracts concluded by British builders during the 12 months ended Sept. 1951 totalled 4,000,000 tons gross, which was a record. All the orders entered accounted for 6,250,000 tons gross, of which export work amounted to one-third. Orders were placed during the 12 months for more cargo liners and cargo tramps, as owners expected continued remunerative freight rates in the markets. (CT. M.)

Shipping, Merchant Marine.

There were 1,951 seagoing vessels of 1,000 gross tons and over in the active United States merchant marine on Nov. 1, 1951, including those under military control. Of these, 1,424 were dry cargo vessels, 69 were combination passenger and cargo and 458 were tankers. The total exceeded by more than 550 vessels the number in service at the end of 1950. The number of privately owned vessels had risen during the year from about 1,100 to nearly 1,300; the government-owned fleet had increased from about 300, two-thirds chartered to the military sea transportation service, to more than 650, of which about one-third were in military service.

The vessels laid up in reserve fleets had decreased from about 2,000 to about 1,430.

The reasons for the large increase in the number of vessels in active service were the need for shipping to carry men and military supplies to support the United Nations forces fighting in Korea and the need to transport huge quantities of coal and grain for the relief of the people of Europe and India. While some privately owned vessels were available to meet the most urgent needs of the military services when war broke out in Korea, the continued and increasing requirements of the military and relief programs made it necessary to withdraw large numbers of ships from the reserve fleets.

The reserve fleets were established after World War II by the Merchant Ship Sales act of 1946 for just such emergencies. Surplus vessels of the government's war-built fleet were preserved in these fleets; the best of the vessels were sold to private operators in the United States and abroad, so that they might help to restore war-depleted merchant fleets. At the time the sales provisions of the Merchant Ship Sales act expired on Jan. 15, 1951, a total of 1,956 ships had been sold, 843 to United States operators and 1,113 to foreign operators.

When it became necessary to withdraw more and more vessels from reserve, a new government agency was set up to direct the operation of government-owned vessels in programs required in the national interest. This was the National Shipping authority, established on March 13, 1951, within the Maritime administration of the U.S. department of commerce. Private operators were appointed to serve as general agents in handling the actual operation of the ships. From its establishment to Nov. 15, 1951, the NSA directed the shipment of 6,500,000 tons of coal and grain to Europe and India and the return shipment of strategic ores.

Government and privately owned vessels chartered to the military sea transportation service carried a large share of the 14,000,000 tons of cargoes transported during the first year of fighting in Korea.

Only 9 large merchant vessels were built in United States shipyards from Jan. 1 to Oct. 1, 1951, but the government placed orders early in the year for a total of 35 ships of a new type, the 20-knot "Mariner" cargo ship, although a shortage of steel forced the suspension of contracts on 14 of the ships in the fall of 1951. This vessel was designed to serve as a military auxiliary if necessary, for a serious deficiency in the postwar United States merchant fleet was the lack of cargo vessels fast enough to serve in forward areas in wartime. Most of the 15- to 17-knot Victory ships left in reserve were taken by the military sea transportation service for military service to Korea, and many of the 11-knot Liberty ships were used to carry coal and grain for the Economic Cooperation administration program, but these vessels were no longer considered adequate for modern high-speed warfare.

Another deficiency in the postwar fleet was the lack of large fast passenger vessels suited to both peacetime competitive service and quick conversion to military transports. Late in the year 1950 three passenger-cargo ships being built for round-the-world service were taken over by the department of defense for completion as troop ships. Two other passenger vessels, the "Independence" and "Constitution," were completed in the spring of 1951 and put into operation in the Mediterranean service. The transatlantic superliner S.S. "United States" was floated on June 23, 1951, and was about 85% complete by Dec. 1, with delivery scheduled for the early summer of 1952. Other passenger vessels were under consideration but had not been contracted for. Plans were also under way for high-speed tankers suited to military service.

On Nov. 1, 1951, there were 86 large vessels under construction in United States shipyards, of which 76 were for United States flag operation. Of the latter, 39 were for government account and 18 were for Great Lakes operation.

(E. L. Co.)

Other Countries.—All the main sections of shipping continued to be influenced throughout 1951 by the fighting in Korea and by rearmament among the United Nations and arrangements for the stock-piling of essential foodstuffs and materials. British shipping was particularly affected by the need to import coal and timber on a large scale, and the requirements of India for imported grain, of which about 2,000,000 tons were sent, was one of the chief factors in a persistent, well-spread demand for tramp tonnage.

More than 1,000,000 tons of coal were imported to the United Kingdom from the United States, which meant more than 100 voyages of large cargo ships, whereas in the past the U.K. had been a large exporter of coal. Its inability to meet the needs of European countries for coal, as it had done in the past, implied that these countries also had to import coal, and they looked, mainly, to the U.S. for supplies. Late in the year, it was announced that the National Coal board had obtained further limited supplies of coal in the U.S.

At the same time large quantities of timber were bought on the Pacific coast of North America for export to the United Kingdom. In order to provide transport, ships were taken on time charter at various ports throughout the world and were directed in ballast to the Pacific coast, there to load timber and other commodities.

Many trades were in urgent need of tonnage. The transport of ore from Mediterranean ports to the United Kingdom and the United States, for example, absorbed much shipping. Under keen competition, freight rates advanced sharply. Shippers seemed to be concerned only to secure tonnage irrespective of the cost.

Another demand for cargo tonnage resulted from the expansion of British exports. These far exceeded the carrying capacity of the regular liners, and the liner companies chartered additional cargo ships to supplement their own sailings. This chartering was particularly heavy in the export trade from the U.K. to Australia. Many ordinary cargo ships were also chartered for voyages to New Zealand and for round voyages to west Africa.

The prolonged interruption of work in New Zealand ports, resulting from labour trouble, immobilized a large volume of specialized, refrigerated liner shipping from the middle of February until mid-June. At one time more than 50 oversea liners, representing 500,000 tons gross, were lying idle in New Zealand ports or were being worked by ships' officers or by members of the armed forces. Slower work in many other ports, especially in Australia, seriously reduced carrying capacity because, over a given period, fewer round voyages could be made. This created a demand for more shipping and was one of the factors that caused the demand to exceed the supply.

There was further evidence that the demand for travel which had to be postponed during World War II had been largely satisfied, and that traffic by sea was again assuming some of the seasonal character which was apparent before the war.

There were a number of important additions to the liner fleets. Among the first of these to appear was the turbine steamship "Ocean Monarch" of 14,000 tons gross, which was built to undertake cruises from New York to the West Indies and Canadian rivers and to share at times in the Furness line's service between New York and Bermuda. The ship left the U.K. to begin sailings in May. The cost of the vessel was estimated at £2,500,000.

On May 15, the Orient liner "Oronsay," of 28,000 tons gross, left London on her maiden voyage to Australia; the ship cost £4,000,000. A contract for a similar ship had been placed with the builders, Vickers-Armstrong, of Barrow-in-Furness. Two months later, the British India Steam Navigation company's passenger and cargo liner "Kenya," of about 15,000 tons, entered the Thames preparatory to making her maiden voyage. The cost of the vessel was about £2,000,000. A sister ship, the "Uganda," was also under construction.

The Union-Castle liner "Rhodesia Castle," of 17,000 tons gross, built for the Union-Castle's round Africa service also entered the Thames, where she loaded cargo for her maiden voyage. The cost of the ship was about £2,000,000.

In November rising costs were reflected in increases in the fares of the British shipping companies serving India, Australia and New Zealand. The minimum first-class fare from London to Sydney was raised from £110 to £120 and the corresponding first-class rate from London to New Zealand was increased from £131 5*s.* to £140.

The interruption of oil supplies from the large refinery at Abadan, Iran, involved the diversion of a certain amount of tanker tonnage to other routes and longer voyages. This diversion would have been greater had there not been a large increase in the output of crude oil from Kuwait in the Persian gulf.

Rates gradually advanced and in November amounted to more than 300% above the scales of the ministry of transport at the end of World War II. A large amount of tonnage was being built by the independent owners of tankers, much of which was chartered for several years ahead.

FILMS OF 1951.—*The Sea, My Native Land* (United Nations, Film Division). (CT. M.)

Shoe Industry. Shortages in the U.S. shoe industry were freely predicted early in 1951 and the public responded with multiple purchases of shoes. However, these shortages did not actually materialize and with the second quarter of 1951, consumers slowed their buying activity. This started a chain reaction. Many retailers, in anticipation of continuing good business, had overextended their purchases and were soon concerned with extensive inventories and how to reduce them. Their orders for future commitments were trimmed, as to the number of pairs and for shorter delivery dates.

Manufacturers, in turn, had expected that consumer demand and military orders would keep them at full capacity of production; but orders for military shoes did not amount to more than 20,000,000 pairs and civilian demands tapered off. Shoe manufacturers, therefore, were obliged to curtail production with the result that total production figures for the year represented a decrease of about 30,000,000 pairs from the 1950 totals—a post-World War II low. The decline was not limited to any one category and was reflected in men's, women's and children's lines. The output of casual shoes, however, increased by approximately 3,000,000 pairs.

Manufacturers and retailers introduced some new styles and types in 1951. The tapered toe in women's shoes occasioned new interest and acceptance and there was a revival of interest in the Louis or French heel (covered wooden heel which pitches well forward under the foot with a gracefully curved outline). Women became increasingly aware of foot comfort and were offered attractive shoes that combined style and comfort—for example, the soft toe, flexible types, medium platforms—one-fourth to one-half inch—and medium or midway heels. In men's shoes, the laceless slip-on, the rubber-soled (synthetic) fabric-upper oxford and nylon mesh were important developments.

Leather.—There was a wide range in U.S. hide and skin prices in 1951. Starting with peaks in early January and followed by governmental regulations and price freezes, there were spurts of activity at full ceiling prices until August, when poor leather business brought a halt to demand at ceiling prices. A period of decline set in which reached its low point at the end of November, when peak packer prices had declined considerably from their ceilings. Reaction upward set in at the end of the year, when hides and skins were stabilized under ceiling prices and prospects for tanners seemed brighter for 1952.

Producers of substitutes and synthetics promoted their products extensively, stressing durability, attractiveness and price; and they became a considerable competitive challenge to tanners of leather.

Foreign manufacturers continued to look to the United States as a necessary outlet for their shoes. They concentrated their energies and creative abilities on designing shoes that would appeal to Americans and sent groups and missions to the United States to learn more about the U.S. methods of production. More and more were making shoes over American lasts and were improving the fitting qualities of their shoes through a wider range of sizes and widths. (*See* also LEATHER.)

(E. G. AN.)

Comparative Statistics of U.S. Shoemaking

		Women's	Men's	Misses' and children's	Youths' and boys'	Infants'	All other	Total
	Production of shoes by major types (000's omitted)							
1950	All leather	187,323	101,732	56,585	16,514	35,259	23,898	421,311
	Other	30,770	302	2,375	2	1,367	34,720	69,536
	Total	218,093	102,034	58,960	16,516	36,626	58,618	490,847
1951*	All leather	169,000	105,500	49,000	14,300	31,000	18,700	387,500
	Other	34,300	1,200	4,400	...	1,700	30,900	72,500
	Total	203,300	106,700†	53,400	14,300	32,700	49,600	460,000†
	Per capita production of shoes by major types (pairs per capita)							
1950	All leather	3.32	1.85	4.46	1.25	2.22	0.16	2.75
	Other	0.55	0.01	0.18	...	0.08	0.22	0.46
	Total	3.87	1.86	4.64	1.25	2.30	0.38	3.21
1951*	All leather	2.97	1.91	3.77	1.05	1.90	0.12	2.50
	Other	0.60	0.02	0.34	...	0.10	0.20	0.47
	Total	3.57	1.93†	4.11	1.05	2.00	0.32	2.97†
	Estimated consumption of shoes by major types (000's omitted)							
1950	All leather	184,300	99,700	55,200	15,900	34,900	24,000	414,000
	Other	30,200	300	2,300	...	1,300	34,900	69,000
	Total	214,500	100,000	57,500	15,900	36,200	58,900	483,000
1951*	All leather	179,900	110,600	52,300	14,900	32,800	20,700	411,200
	Other	35,400	1,200	4,600	...	1,700	31,900	74,800
	Total	215,300	111,800†	56,900	14,900	34,500	52,600	486,000†
	Estimated consumption of shoes by major types (pairs per capita)							
1950	All leather	3.26	1.81	4.35	1.20	2.19	0.16	2.71
	Other	0.54	0.01	0.18	...	0.08	0.23	0.45
	Total	3.80	1.82	4.53	1.20	2.27	0.39	3.16
1951*	All leather	3.16	2.00	4.02	1.10	2.01	0.13	2.65
	Other	0.62	0.02	0.35	...	0.10	0.21	0.48
	Total	3.78	2.02†	4.37	1.10	2.11	0.34	3.13†

*Preliminary. †Includes military footwear (estimated at 20,000,000 pairs).

Shooting. A field of about 2,000 marksmen took part in the 52nd Grand American tournament, blue-ribbon event of trapshooting, at Vandalia, O., Aug. 17–25, 1951. E. Michael Wayland, 18-year-old student from Washington, Kan., became the first from his state to win the Grand American handicap when he broke 99 out of 100 in the first round. Mrs. Ruth Winterrowd, Chicago, Ill., scored 94 out of 100 for the women's trophy; Ronald Mosier, Fresno, Calif., shot 96 out of 100 for junior laurels; and Cliff Doughman, Morrow, O., topped the professionals with 91 out of 100.

Arnold Reigger, Seattle, Wash., stole the show on the closing day by capturing the over-all and all-around championships. Reigger shattered 388 out of 400 in the all-around which included 200 targets at 16 yd., 100 at handicap and 100 doubles. Art Finney of Mankato, Minn., was runner-up. Reigger scored 966 out of 1,000 in the 16-yd., doubles and handicap tests for the over-all title. Joe Hiestand, Hillsboro, O., was second with 965.

North American Clay Target championship honours went to Ralph Smith of Vandalia; Corrine Farrell, Yakima, Wash., took the women's crown and Rudy Etchen, Seattle, Wash., led the professionals. Ned Lilly, Stanton, Mich., and Mrs. William Isetts, Kenosha, Wis., were other major victors at Vandalia, leading their respective groups for champion of champions' honours.

Howard Lewis, Uhlerstown, Pa., won the distance title in the U.S. amateur meet at Travers Island, Pelham Manor, N.Y., May 11–13. Elbert Johnson, Wingdale, N.Y., broke 25 straight in a shootoff for the 200-target crown. Other winners included R. A. Baldwin, Danbury, Conn., junior; E. E. Gardner, Bernardsville, N.J., senior; Mrs. Van N. Marker, Evanston, Ill., women's; Col. J. B. Grier, Rockland, Del., doubles.

Sgt. G. W. Van Buren of Carswell air force base at Fort Worth, Tex., annexed the all-gauge laurels for the third time in four years in the National Skeet association championships at Dallas, Tex. Recording a perfect score of 250 out of 250 in the three-day competition, Van Buren, who also won the service title for the third time, led a field of 399. Francis L. Ellis, Jacksonville, Fla., won the high over-all and subsmall-gauge honours while Mrs. R. H. Hecker, Tucson, Ariz., starred among the women, taking the over-all, all-gauge and subsmall-gauge tests. Other skeet champions included the following: Grant Ilseng, Houston, Tex., champion of champions; Tony Roth, Northwestern university, Evanston, Ill., intercollegiate; J. V. Eliot, Jr., Pasadena, Calif., industry all-gauge; D. Lee Braun, San Mateo, Calif., industry over-all and industry subsmall-gauge.

National rifle title winners were: Mason Kline, San Francisco, small-bore; Second Lieut. Remes De La Hunt, Camp Lejeune, N.C., high-power (service rifle M1); Thomas R. Barnes, Billings, Mont., match rifle; Elinor Bell, Santa Monica, Calif., women's small-bore; Helen Orme-Johnson, El Paso, Tex., women's match rifle.

Sgt. Huelet Benner of Fort Knox, Ky., took the national pistol championship for the third time with 2,629 out of 2,700 at San Francisco. The women's crown was annexed by Gloria Norton, Woodland, Calif. Mark Walsh, New York city, won the William Randolph Hearst trophy in the international police pistol championships at Teaneck, N.J., with 294 out of 300. The Joseph W. Girard trophy, for the high individual scorer, was taken by William Crawford, White House guard, who tallied 299 out of 300. Mrs. Florence Hendricks, Franklin Lakes, N.J., scored 293 out of 300 for women's laurels in the tournament that attracted marksmen from the United States, Canada, Mexico and Cuba. (T. V. H.)

Shows.

This article covers horse and dog shows, livestock exhibitions and such travelling shows as circuses, carnivals, ice skating shows and rodeos. For musical, dramatic, and terpsichorean events of 1951, *see* the articles MUSIC, THEATRE and DANCE. (*See* also MOTION PICTURES.)

Horse Shows.—Among the hundreds of horse shows held annually throughout the United States, the largest and most representative one in all divisions was the 1951 International Horse show, held from Nov. 24 to Dec. 1 in Chicago, Ill., in connection with the International Live Stock exposition. The International Horse show is one of the longest established horse shows in the country and is particularly outstanding in the entry it draws of saddle horses, harness horses, roadsters and hunters. It also includes representatives of the draft breeds. Of near matching rank is the American Royal Horse show in Kansas City, Mo., held in 1951 from Oct. 13 to 20.

The year's two largest shows of quarter horses were at the National Western Stock show in Denver, Colo., Jan. 12–20, 1951, and the Southwestern Exposition and Fat Stock show in Fort Worth, Tex., Jan. 26 to Feb. 4. The Fort Worth show was outstanding for its cutting horses—competitions that feature horses trained in the quick manoeuvres required for range work.

The Grand National Livestock exposition in San Francisco, Calif., Oct. 26 to Nov. 4, was the year's outstanding show of stock horses that are trained in response to rein signals.

Another show of national import was the five-gaited saddle horse show at the Kentucky state fair, Sept. 7 to 13. The Kentucky show ranks at the top as a competition of American saddle horses. Another Kentucky showing of saddle horses, of major rank, was held at Lexington in mid-July.

The year's top show of hunters was at the National Horse show, held Oct. 30 to Nov. 6, 1951, in Madison Square Garden in New York city.

Other leading horse shows in the general class were the Harrisburg, Pa., show and those held in conjunction with the Illinois, Indiana, Minnesota, Missouri, Ohio and Wisconsin state fairs.

Livestock Shows.—The National Western Stock show in Denver, held in 1951 from Jan. 12 to 20, traditionally starts the livestock show year in the United States. It ranks as the top annual livestock event of the mountain states. It was the largest show of purebred Hereford cattle held in the United States during 1951. The show is an important supplier of Whiteface bulls for range service. The 1951 Denver show also featured large classes of quarter horses and Palominos, both popular types in ranch work.

The oldest established livestock show in the United States is the Southwestern Exposition and Fat Stock show, which took place in Fort Worth, Tex., Jan. 26 to Feb. 4, 1951. The Fort Worth show was distinguished principally for its excellent exhibits of Herefords and, to a lesser extent, the other two beef breeds—Aberdeen-Angus and Shorthorns. It also featured large exhibitions of purebred Brahman cattle, a breed that had had great influence in recent years in improving beef production of the south when crossed upon beef breeds of British origin. Immediately following the Fort Worth show was another Texas show, known as the Houston Fat Stock show.

The earliest state fair to be held in 1951 was the North Dakota state fair, which was held in Minot July 30 to Aug. 4. The state fairs continued in consecutive weeks through the late summer and early fall. Many exhibitions of cattle, horses, sheep and swine were seen at these shows, the largest of which were the Illinois, Indiana, Ohio, Iowa, Minnesota and Wisconsin state fairs. The National Hereford Cattle show was held in conjunction with the Texas state fair, held in Dallas Oct. 6 to 21, 1951. The Wisconsin state fair was held in Milwaukee, Aug. 18 to 26. In recent years it had been the country's largest showing of the dairy breeds.

Two shows of national rank exclusively devoted to the dairy breeds were held in Iowa and Indiana: the long-established National Dairy Cattle congress in Waterloo, Ia., Sept. 29 to Oct. 6, 1951 and the International Dairy exposition which took place at Indianapolis immediately following.

The first of the sectional livestock exhibitions during 1951, which attract top herds and flocks from states within their areas, was the Eastern States exposition, held in Springfield, Mass., Sept. 16 to 22; emphasis was on the dairy breeds from the eastern states. Another in this class was the Ak-Sar-Ben

Live Stock and Horse show in Omaha, Neb., Sept. 28 to Oct. 6, held in conjunction with the National Shorthorn Cattle show.

The leading show of the northwest was the Pacific International Livestock exposition in Portland, Ore., Oct. 5 to 13 and, shortly after, the Grand National Live Stock exposition in the new Cow Palace in San Francisco, Oct. 26 to Nov. 4.

A new eastern show, particularly strong in its exhibits of Aberdeen-Angus and Hereford cattle, was the Eastern National Livestock show, held in Timonium, Md., Nov. 10 to 15.

The American Royal Livestock show in Kansas City, Mo., held in 1951 from Oct. 13 to 20, is a long-established mid-continent fixture. Its horse show ranks among the country's best.

In its perennial position at the close of the livestock show year was the 52nd annual International Live Stock exposition, held Nov. 24 to Dec. 1 in the International amphitheatre at the Union Stock Yards, Chicago. With exhibits from 36 states and 5 Canadian provinces, it again ranked as the country's leading livestock and farm crops show. Its entry comprised 11,967 head of livestock, representing 26 different breeds of meat animals and draft and pleasure horses.

Chicago was also the locale of the country's largest feeder cattle show of 1951, when the seventh annual Chicago Feeder Cattle show and sale was held in the pens of the Chicago stockyards, Oct. 25 and 26, 1951. The exhibitors were western producers and, following the judging of the carlot units, corn-belt feeders were the purchasers in an auction of all the offerings. New record prices for cattle of this class were paid in a sale setting an all-time high of $1,050,633.26.

The Calgary Exhibition and Stampede was the principal event in Canada in the early summer, held July 9 to 14, 1951. The largest Canadian summer show was the Canadian National exhibition in Toronto, Ont., Aug. 24 to Sept. 8. The principal livestock event each year in Canada is the Royal Agricultural Winter fair, which in 1951 took place in Toronto, Nov. 13 to 21.

South America's foremost livestock show is the Palermo, held in Buenos Aires, Arg., in August. It is famed as the world's largest showing of purebred Shorthorn cattle.

Scotland's oldest show—that of the Highland and Agricultural society—marked its 112th annual renewal in June, and the British Royal show in early July commemorated its 103rd anniversary under the sponsorship of the English Royal Agricultural society. (W. E. O.)

Dog Shows.—Competition both in the show ring for conformation and in the field for hunting excellence was active in 1951. There were 624 championship dog shows held, of which 367 were for all breeds and 257 were for one breed each.

Again the largest dog show in the U.S., a one-day outdoor show, was that of the Morris and Essex Kennel club at Madison, N.J., May 26, with 2,224 dogs present and competing. Top honours at this event were won by the English setter male Champion Rock Falls Colonel owned by W. T. Holt.

The field trial group had approximately 820 events in the various classifications—8 greyhound trials on live rabbits, 165 foxhound and coonhound trials; 29 spaniel trials; 220 beagle trials—on rabbits; 54 retriever trials—both land and water work; 285 bird dog trials for setters and pointers; 2 basset hound trials; 1 dachshund trial; 18 Brittany spaniel trials (pointing trials on feathered game); and 38 miscellaneous trials. All these trials simulated actual hunting conditions so far as possible.

There are almost a dozen major bird dog trials but the winner at the Grand Junction, Tenn., trial is considered the national champion; in 1951 it was the liver and white male pointer Paladin, owned by A. G. C. Sage. The pointer had predominated over the setter in bird dog trials for 20 years.

The national field trial champion in springer spaniels was Flier's Ginger of Shady Glen owned by Mahlon Kline, the trial being run near Herrin, Ill., in December.

The national retriever field trial champion was chosen at the Carnation, Wash., trial Nov. 29, and was Mahlon Wallace's golden retriever Ready Always of Marianhill.

Formal dog training again received prominent attention, 264 formal obedience trials being held.

In registrations in the various stud books, approximately 290,000 dogs were included. The leading registry agency, the American Kennel club, registered a total of 264,415 dogs in 107 breeds. The first ten in order were as follows: (1) cocker spaniel 52,644; (2) beagle 36,075; (3) boxer 27,271; (4) collie 20,450; (5) dachshund 15,181; (6) Boston terrier 11,914; (7) Chihuahua 10,810; (8) German shepherd dog 8,585; (9) Pekingese 8,227; (10) Pomeranian 5,992. (W. Ju.)

Circuses, Carnivals, Rodeos and Other Travelling Shows.—With few exceptions, outdoor showmen found the going rough in 1951. In Europe, where numerous restrictions had hampered travelling shows after World War II, conditions were slightly improved, but in the U.S. and Canada shows not only encountered more than the usual amount of unfavourable weather in the first half of the season, but also were confronted with increased railroad rates, more stringent licensing regulations and a manpower shortage resulting from more favourable wages and working conditions being offered in other lines of work. In the U.S. the number of circuses on rails dropped from four to two in 1951. Both of the rail shows reported a profitable season. Truck circuses increased in number but most of them, insufficiently financed and not too well managed, made little profit. In all there were about 45 American circuses on the road in 1951. Indoor circuses, whose main season is the winter months, continued to prosper. The three large operators, Orrin Davenport, Hamid-Morton and Polack Bros., reported business equal to that of 1950. Many small truck shows, playing under canvas, encountered difficulties with local chambers of commerce and better business bureaus because of unscrupulous telephone ticket campaigns, which resulted in passage of ordinances restricting telephone solicitation.

In England and continental Europe circuses fared better in 1951 than in the previous year, and there was an increase in number of shows. The Bertram Mills show and Tom Arnold's Harringay circus were England's leading shows. About 40 or more other circuses, mostly small truck outfits, toured England and the continent. Leading continental circuses were Circ Medrano, Paris, Fr., and the Circus Knie, Switzerland. Other shows touring all of the European countries outside the "iron curtain" territory were Circus Schumann, Circus Belli, Circus Miehe, Circus Bruun, Circus Louis Schmidt and Circus Moreno. Trolle Rhodin's Zoo circus played Iceland. Circuses of varying sizes also operated in Egypt, China, Australia, South Africa, the Hawaiian Islands and the Latin-American countries. Santos and Artigas toured Cuba; Circo Nelson operated in Venezuela and the West Indies; Circo Royal in Puerto Rico; Boswell Bros. circus in South Africa; E. K. Fernandez in Hawaii; Circo Buffalo Bill and Grand Circo Americano in South America.

There was little change in number, size and operation of carnivals in Canada. The first half of the season, when "still dates" (no auspices) are played, was disastrous for most shows because of inclement weather. The last half, played mainly at fairs, enabled many shows to recoup part or all of their early season losses. Three shows operating on rails, Royal American in the midwest and James E. Strates and World of Mirth in the east, reported exceptionally good business.

Western rodeos had a fair season in 1951, drawing excellent attendance when weather was favourable. The leaders, as usual, were those at Calgary, Alta., Cheyenne, Wyo., Salinas, Calif., and Sidney, Neb. In the eastern half of the country the smaller rodeos had only moderate appeal. The Madison Square Garden event, in New York city, with the Lone Ranger and Tonto as features, fell considerably short of its attendance record of 1950. A championship rodeo held at the International amphitheatre in Chicago, with Harpo Marx featured, drew small attendance and operated at a substantial loss.

Ice skating shows, which mushroomed during the decade 1940–50, found the going rough in 1951. Few of the newer shows made a profit. The *Sonja Henie Ice Show,* long a leader, had a marked falling off in attendance. Disagreements between the owners, Arthur R. Wirtz of the Chicago stadium and Sonja Henie, resulted in dissolution of their partnership and a decision of Miss Henie to operate the show herself, while Wirtz organized a new show. The huge roller skating spectacle, *Skating Vanities,* operated for a number of years with little profit, had a spotty season. Automobile thrill shows, in which autos were crashed, rolled over and catapulted over ramps, continued popular but were hampered by inclement weather.

Although the heyday of the stock and repertoire shows had passed many years before, there were scores of repertoire and novelty shows still touring the smaller towns, with varying success. Many of them were two- and three-people shows playing under auspices of local clubs, church and social groups and offering drama, comedy, puppet shows, magic and illustrated lectures. Brunk's Comedians, one of the oldest of the travelling tent shows, continued to do good business in the southwest. Minstrel shows were popular in the south, where the Silas Green show, the Rabbit Foot Minstrels and the Georgia Minstrels had operated for many years. The Sun Players, operating in Iowa, was one of the few remaining stock companies, playing what is known as "circle stock," a circuit of six or more Iowa towns which were played consecutively. J. W. Menke, who had toured Mississippi and Ohio river ports for 20 years, continued to operate his Goldenrod Showboat on the Mississippi river during the 1951 season. Grimaldi Family Players in New England, Gale Players in the state of Washington and Florian Players in Indiana were others which continued operation in 1951. (NA. G.)

Siam: *see* THAILAND.
Sierra Leone: *see* BRITISH WEST AFRICA.

Sikkim.

An Indian-protected state, Sikkim is bounded north by Tibet, east by Bhutan, south by India and west by Nepal. Area: 2,745 sq.mi. Pop. (1941 census): 121,520, mostly Nepalese, also Bhotias of Tibetan extraction (10,980) and Lepchas or Rongpa (13,060) of Indochinese origin. The state religion is lamaistic Buddhism but most Nepalese are Hindu. Capital: Gangtok. Maharaja (from 1914): Tashi Namgyal, of the Tibetan ruling family.

History.—To ease the strain on his father, the maharaj kumar (crown prince) Pallen Thondup Namgyal, undertook the ordinary state business including the arrangements necessitated by the new protectorate treaty with India which was signed on Dec. 5, 1950. His assurance that Sikkim would remain within India regardless of events in Tibet recognized India's responsibility for Sikkim's defense. (On May 30, 1951, the Moscow *Pravda* remarked that the two Himalayan states, Bhutan and Sikkim, were "unlawfully" seized by the British from Tibet.)

India lent to Sikkim an experienced political officer, J. S. Lall, who was appointed dewan (chief minister) with an advisory council. For local administration more than 50 elected panchayats (village councils) were set up. Pending the creation of an elected council to form the state parliament, on India's advice, a cabinet, composed of six members chosen by the Sikkim Congress party, six by the National and Kishan Proja party and five nominated by the maharaja, was formed and took office in November, J. S. Lall remaining as adviser. Out of the five nominated members, one was a plainsman, one a Sikkim lama, two were Tibetans and one a Nepali. As the revenue (Rs. 600,000 plus the subsidy of Rs. 300,000 from India) was insufficient to develop Sikkim's mineral resources, India announced its intention to consider giving help. Copper, graphite, soapstone and iron were the chief minerals concerned. The copper mines were abandoned during World War II. (E. HD.)

Silk.

Despite an optimistic condition at the beginning of 1951, the silk industry did not maintain the rate of recovery which it had shown in 1950. In the United States, consumption of raw silk dropped by one-third, and less than half as much fibre was imported. Japanese exports to other countries showed a similar decrease. On the basis of ten months' reports, Japan's four best silk customers, the United States, United Kingdom, France and Switzerland, took only 60% of the total exports, compared with 80% in 1950. The estimate for the year was a total export of 67,800 bales, compared with 94,621 bales in 1950.

At the third International Silk congress at London in September it was proposed by the important consuming nations that the Japanese stabilize the price of raw silk. In the United States, the price of raw silk in Jan. 1951 was $5.18 per pound, and in December was $4.70. The low for the year was $4.05 in August, and the high was $5.96 in February. The Japanese were agreeable to stabilization but did not accept the buyers' proposal that the stabilized price be at $3.80, with a tolerance of 10% either way. Instead, they proposed a price of $4.50. An enabling law to put a stabilization plan into effect was passed after lengthy discussion on Nov. 13, 1951, by the Japanese diet with the expectation that it would be operative by Feb. 1952 at a price of about $4.45 per pound, and to continue until May, 1952.

Production of silk fabrics in the United States reflected the decreased raw silk consumption. From 1950's record of 29,300,000 yd., the mills reduced their output to 27,200,000 yd. Imports of silk fabrics totalled 32,000,000 yd., compared with 41,700,000 yd. in 1950.

Promotion and publicity to increase the use of silk was accelerated with the announcement that a fund of $600,000 would be available during a two-year period, among the principal consuming nations of the world. Of this sum, $225,000 would be spent in the United States, United Kingdom, France and Switzerland during the fiscal year July 1951–July 1952, and $75,000 among other countries. In addition, each country would set up its own publicity committee for administration of its separate campaign, but it was understood that all publicity and promotion would be cleared through the international secretariat in Lyons, Fr. In the United States, the local committee under the name of International Silk association (U.S.A.) Inc., announced in December that its plans were being formulated, and appointed an advertising agency for their administration. (*See* also RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY.)

(I. L. BL.)

Silver.

World silver production took a sharp upward turn in 1950, to the highest level since 1943.

United States.—Domestic production had been gradually improving since 1946, but had reached only 60% of the 1941 record of 71,075,932 oz.

During the first half of 1951, the mine production rate remained at the 1950 level, but a decline in the third quarter cut the total for the nine months to 29,776,128 oz., 6% below the average rate for 1950. The reduction was in the by-product silver from base metal mines closed by strikes.

Table I.—*World Silver Production*

(In millions of fine ounces, smelter output)

	1944	1945	1946	1947	1948	1949	1950
United States . .	35.65	29.05	21.10	38.58	39.23	34.94	42.31
Canada	13.63	12.94	12.54	12.50	16.11	17.64	22.39
Newfoundland . .	1.16	1.08	1.11	0.96			
Mexico.	65.46	61.10	43.26	58.84	57.52	49.45	49.14
Honduras. . . .	3.12	3.00	2.68	2.41	3.17	3.43	4.05
Argentina. . . .	1.70	2.76	3.09	2.44	1.20	1.25	1.15
Bolivia.	6.80	6.68	6.11	6.23	7.56	6.63	6.57
Chile.	1.00	0.83	0.56	0.75	0.86	0.80	0.75
Peru	15.83	13.00	12.33	10.78	9.29	10.63	13.05
Sweden	1.29	1.14	1.29	1.09	1.14	1.14	1.29
Belgian Congo. .	2.61	4.14	5.05	4.06	3.81	4.55	4.46
South Africa. . .	1.21	1.24	1.20	1.15	1.17	1.16	1.12
Japan	5.03	4.29	1.28	1.79	2.19	2.89	3.68
Australia	9.37	8.08	9.05	9.53	10.06	9.86	10.68
Total.	184.6	162	135	168	172	174	192

Table II.—*Silver Industry in the United States*

(In thousands of fine ounces or of dollars)

	1945	1946	1947	1948	1949	1950
Mine production . .	29,024	22,914	35,824	38,096	34,675	42,459
Imports	$27,278	$57,578	$68,140	$70,884	$73,536	$110,035
Exports	$90,937	$36,455	$30,649	$12,400	$23,281	$6,202
Industrial use. . . .	184,661	123,647	126,366	129,186	110,660	155,257
Secondary recovery .	58,361	36,647	27,866	23,897	22,660	45,257
Net consumption. . .	126,300	87,000	98,500	105,289	88,000	110,000

Canada.—Silver production in Canada increased from 17,641,493 oz. in 1949 to 22,386,456 oz. in 1950, of which 8,355,183 oz. was exported as refined silver and 3,494,107 oz. in ores and concentrates. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Singapore: *see* MALAYA (FEDERATION OF) AND SINGAPORE.
Skating: *see* ICE SKATING.

Skiing.

Ernie McCulloch, Canadian star competing in the colours of the Sun Valley Ski club, swept to downhill honours in the North American championships held at Aspen, Col., in Feb. 1951. Negotiating a course made slow by fresh snow in 2 min. 53.5 sec., McCulloch triumphed by little more than one-tenth of a second. The runner-up was Guttorm Berge of Norway, a student at Whitman college, Walla Walla, Wash., who carried off the combined laurels by virtue of a victory in the slalom and his second place in the downhill contest.

Michael Anne Healey of Aspen gained her first major title in the women's downhill event in which Imogene Opton and Salley Neidlinger of Sun Valley, Ida., placed second and third, respectively. Miss Neidlinger carried home the slalom prize and Miss Opton, with another second to her credit, led in the combined scoring.

The North American title jump at Ishpeming, Mich., was won by the Swedish national champion, Evert Carlsson, with Art Devlin of Lake Placid, N.Y., defending champion, second. Carlsson led the field with leaps of 238 ft. and 230 ft. for 210.1 points. Devlin soared 223 ft. and 219 ft. for 205.9 tallies. Arthur Tokle of Brooklyn, N.Y., jumped 231 ft. and 220 ft. to place third.

United States championships were conducted in different sections, the jumping competition at Brattleboro, Vt., in mid-February drawing the most colourful field. Arthur Tokle annexed the class A title after twice breaking the record of 230 ft. set by his brother Torger in 1942. Tokle made leaps of 239 ft. and 237 ft. and scored 239.1 points. M. Barber of Brattleboro was runner-up with 237.1 tallies and Devlin was third with 233. Keith Zuehlke of Eau Claire, Wis., was the class B leader.

Sun Valley stars dominated the national downhill events at Whitefish, Mont., in March. McCulloch added to his North American prizes by annexing the downhill event over an icy course in 2 min. 07.4 sec. Katy Rodolph was first in the women's race in 1 min. 37.4 sec. for her third United States title of the campaign, as the Sun Valley miss also took the slalom and combined honours. Suzy Harris Rytting of the Alta (Utah) S.C. won the women's giant slalom.

McCulloch retained his U.S. giant slalom honours while Ted Farwell of Montague, Mass., triumphed for both the cross-country and combined titles. Jack Nagel of Sun Valley scored in the closed downhill test and the open-closed slalom to gain the combined open-closed championship.

Jack Reddish of Salt Lake City, Utah., and George Macomber of West Newton, Mass., headed the squad chosen at Sun Valley on March 19 for the 1952 winter olympic games in Norway. Andrea Mead Lawrence of Hanover, N.H., Jeannette Burr of Seattle, Wash., and Miss Opton and Miss Neidlinger were among the feminine stars chosen to represent the United States.

FILMS OF 1951.—*Skiing in the Swiss Mountains* (Films of the Nations Distributors, Inc.); *Ski Wings* (Telefilm Inc.). (T. V. H.)

Skin Diseases: *see* DERMATOLOGY.
Sleeping Sickness: *see* TROPICAL DISEASES.
Sloan Foundation, Inc., Alfred P.: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Smith, Margaret Chase

(1897–), U.S. senator, was born on Dec. 14 at Skowhegan, Me. Graduated from the Skowhegan high school in 1916, she taught school in 1916–17 and later worked for a country newspaper. From 1928 to 1930 she was treasurer of a waste process company in Skowhegan and was connected with a textile company. After her marriage in 1930 to a former state senator, Clyde H. Smith, she became active in politics and was a member of the Republican state committee from 1930 to 1936. Her husband was elected to the U.S. house of representatives in 1936, and upon his death she was elected June 3, 1940, to fill his unexpired term. She was re-elected consecutively to the 77th-80th congresses (1941–49). In 1948 she was elected U.S. senator from Maine for the term 1949–55—the only woman member of the senate.

In the house and senate, Mrs. Smith maintained a prolabour record; she also consistently supported the administration's foreign policy and opposed Republican attacks on Secretary of State Dean Acheson. On June 1, 1950, she led six other "liberal Republican" senators in censuring Sen. Joseph R. McCarthy (*q.v.*) for his tactics in exposing alleged Communist sympathizers in the state department and other branches of the government. McCarthy, as senior Republican on the senate committee on expenditures in the executive departments, removed her from the committee's investigating subcommittee on Jan. 26, 1951, and transferred her to a subcommittee on government reorganization.

Smithsonian Institution.

This institution. located on the Mall in Washington, D.C., was established in 1846 through a bequest from James Smithson, an English scientist. Its purpose is "the increase and diffusion of knowledge among men"; this is carried out by means of scientific researches and explorations, publications and museum and art-gallery exhibits. The institution is governed by a board of regents, composed of the vice-president of the United States, the chief justice of the United States, three senators, three representatives and six citizens from various parts of the country. The executive officer is the secretary, who in 1951 was Alexander Wetmore. The institution has ten branches: United States National museum, National Gallery of Art, National Collection of Fine Arts, Freer Gallery of Art, Bureau of American Ethnology, International Exchange service, National Zoological park, Astrophysical observatory, National Air museum and Canal Zone biological area.

During 1951 the institution continued its scientific investigations, chiefly in the fields of anthropology, biology, geology and astrophysics. Several expeditions took to the field in the interests of these researches, resulting in much new information and in large collections of valuable specimens.

The National museum collections were increased by more than 303,000 objects, bringing the catalogue entries to a grand total of 32,617,298. Only a small fraction of these could be exhibited; the rest for the most part belonged to the study collections assigned to the museum's six departments: anthropology, zoology, botany, geology, arts and engineering and history. Field expeditions took National museum staff members to distant parts of the world—Cuba, Panamá, Costa Rica, Honduras, Colombia, South Africa and Southern Rhodesia, British North Borneo, Okinawa, Alaska and many sections of the United States.

The National Gallery of Art received 4,044 accessions, nearly 1,700 more than the previous year. It held eight special exhibitions during the year. On March 17, 1951, the gallery celebrated its tenth anniversary at a special exhibition of paintings and other works of art acquired since 1945 by the Samuel H. Kress foundation; more than 24,000 guests attended. Accessions to the National Collection of Fine Arts included 15 paintings pertaining to the Adams family (part of the Adams-Clement gift to the Smithsonian) and a collection of paintings and a sustaining fund in memory of Alice Pike Barney. A Centennial Exhibition of Paintings by Thomas W. Dewing was held during the year, and the Albert Pinkham Ryder room was opened, exhibiting together the 17 Ryders in the National Collection. The Freer Gallery of Art acquired choice specimens of Chinese paintings, pottery and bronzes; Japanese paintings; and Persian metalwork.

The Bureau of American Ethnology continued archaeological work in Panamá and the Canadian arctic and carried on ethnologic studies in Mexico and the western United States. The River Basin surveys, a unit of the bureau, continued its archaeological work at sites threatened by construction of dams and reservoirs in connection with river-basin projects in various parts of the country. The year's excavation work covered 20 reservoir areas in ten states, with 26 excavating parties in the field. Another unit of the bureau, the Institute of Social Anthropology, conducted co-operative field work and teaching programs in Brazil, Colombia, Guatemala, Mexico and Peru.

The Astrophysical observatory continued its studies of solar radiation at its two high-altitude stations on Mt. Montezuma, Chile, and Table mountain, California. The observatory's division of radiation and organisms began a series of biochemical investigations of photomorphogenesis in green plants.

The National Air museum received and placed on exhibition the Bell X-1, the world's first supersonic, man-carrying aeroplane, and a duplicate example of the world's first successful supersonic ramjet engine and its rocket booster.

The International Exchange service handled 1,011,000 packages (weighing 826,000 lb.) of scientific and governmental publications, serving as the United States agency for the interchange of such material with other countries.

A new laboratory building was under construction at the Canal Zone biological area on Barro Colorado Island, Pan. Thirty-three scientists used the island's facilities during the year, carrying on studies in various branches of biology.

The institution issued 61 publications during the year, especially noteworthy among them being part 11 of Ridgway and Friedmann's *Birds of North and Middle America;* volume 6 of the *Handbook of South American Indians;* another volume of Clark's *Monograph of the Existing Crinoids;* Drucker's *The Northern and Central Nootkan Tribes;* and two monographs of the Institute of Social Anthropology. The Smithsonian library, including its various branches, numbered about 932,740 volumes.

Recorded visitors to the Smithsonian group of buildings totalled 2,867,544; to the National Gallery of Art, 1,503,148; and to the National Zoological park, 3,460,400. (A. Wt.)

Snyder, John Wesley (1896–), U.S. secretary of the treasury, was born on June 21 in Jonesboro, Ark. He attended Vanderbilt university, Nashville, Tenn. (1914–15), joined the army in 1917, and after World War I entered the banking business in Arkansas and Missouri. In 1931 he joined the field service of the comptroller of the currency of the U.S. and served with this office until 1937, when he became head of the St. Louis, Mo., agency of the Reconstruction Finance corporation. During World War II he helped organize the Defense Plant corporation, an RFC subsidiary, and as its operational vice-president and director he administered the agency's commitments of more than $10,000,000,000 to finance war plants. He was vice-president of the First National bank of St. Louis from Jan. 1943 to April 1945 when he became federal loan administrator. On July 17, 1945, he was appointed director of the Office of War Mobilization and Reconversion, and in June 1946, Pres. Harry S. Truman named him secretary of the treasury.

It was his obligation during 1951 to help steer through congress the bills to implement President Truman's tax policy, including the $10,000,000,000 tax increase the president sought in January. On May 29 he was nominated for a second five-year term as U.S. governor of the International Monetary fund and the International Bank for Reconstruction and Development. He launched on Sept. 3 the biggest postwar U.S. savings bond drive, intended to reverse the trend toward more redemptions of bonds than new purchases. On Sept. 14 he advocated the lifting of international trade curbs as a prelude to more liberal use of the International Monetary fund.

Soaring: *see* GLIDING.

Soccer. International matches marked the U.S. 1951 season with England, Scotland, Sweden and Germany all sending over teams. The visitors captured the big share of

MIGUEL RUGILO (left), Argentine goalkeeper, doing a high kick during an international soccer match with British players at London, Eng., in May 1951. The British team took the match 2 to 1 the victories. The Fulham club of London took part in ten contests, winning six, losing two and tying two, and the Celtics of Glasgow compiled a record of seven triumphs, one defeat and one draw while on tour. The A.I.K. club of Stockholm won ten, lost two and was deadlocked once, and the Eintracht club of Frankfurt, Ger., annexed six decisions and lost two. An All-England squad, on its way to Australia, stopped off in New York long enough to rout the American league All-Stars, 4–0.

A team of American league stars visited Israel, where it won once and lost twice, while Penn State's (State College, Pa.) powerful eleven made a good-will trip for contests in Iran. The New York Americans played four contests in Bermuda, winning three and tying one.

The German-Hungarian Soccer Club of Brooklyn dominated the sport nationally, capturing the National Challenge cup, the National Amateur Challenge cup and the German-American league championship. The Philadelphia Nationals won the Lewis cup after taking the American league crown and the Paterson-Dover Football club of Paterson, N.J., was victor in the National league.

Army, Eastern league victor; Lehigh university, Bethlehem, Pa., Middle Atlantic States conference champion; and Penn State were among the top elevens in college competition. (*See* also FOOTBALL.) (T. V. H.)

Socialism.

Western Hemisphere.—In the United States, the Socialist party functioned primarily throughout the year 1951 as an educational force. In April the party membership approved a referendum which made possible Socialist support of non-Socialist candidates when, among other things, such non-Socialists stood as defenders of civil liberties and were advocates of improved social legislation. The party joined during the year with the Social Democratic federation in organizing a United Democratic Socialist league, which sought full membership in the Socialist International.

In Canada, the Co-operative Commonwealth federation continued its vigorous opposition to the policies of the Liberal and the Progressive Conservative parties. Its parliamentary representation was 13. In Saskatchewan the C.C.F. constituted the government party under Premier T. C. Douglas. In Latin America, Socialists' activities were restricted or prohibited in many countries. They were represented by small delegations in the parliaments of Chile, Costa Rica and Uruguay.

Great Britain.—In Europe the most important Socialist party during the year was the British Labour party. On Feb. 15, 1951, the Labour government nationalized the steel industry, and constituted the public Iron and Steel Corporation of Great Britain as a holding and policy-making body for the industry. Each of the 80 firms acquired by the government was permitted, however, to continue to work under the control of the existing directors and executives.

On account of the difficulty of functioning effectively as a government with but a slight majority of seats, Prime Minister Clement R. Attlee in the fall called for a parliamentary election to be held on Oct. 25. The election resulted in the return to parliament of 321 Conservative candidates and 294 Labourites, although Labour obtained a larger popular vote than the Conservatives. Winston Churchill succeeded Clement Attlee as prime minister, and Labour again became the country's chief opposition. On assuming office, Churchill declared that, while his government would denationalize steel, it would not attempt to turn back to private control other industries nationalized by the Labour government.

European Continent.—On the continent of Europe the Socialists in the Scandinavian countries remained as the countries' largest parties. In Norway an all-Labour cabinet served throughout the year as the nation's government. In November Oscar Torp, chairman of the Labour party, became the premier in place of Einar Gerhardsen, who had unexpectedly resigned. In the October elections, the Labour party increased its proportionate vote for council seats from 38.8% (1947) to 43.7% of the total.

In Sweden the all-Social Democratic government was reorganized on Oct. 1, and 4 seats in the cabinet were given to members of the Agrarian party, the Social Democrats retaining 12 of the important cabinet posts.

After the elections of April 3 in Denmark the Social Democrats continued to hold 33 seats out of 76 in the *Landsting*.

In Finland the Social Democrats elected 53 out of 200 seats in the July elections; the Agrarians 51; the Communist coalition 43; others 53. The Socialist-controlled Finnish Trades Union federation during the summer voted to leave the World Federation of Trade Unions, and to send observers to the Milan meeting of the anti-Communist International Confederation of Free Trade Unions.

In France the Socialist representation in the national assembly was increased, as a result of the June elections, from 99 to 104, the second largest assembly representation, while the Communist party parliamentary membership shrank to 103. General Charles de Gaulle's R.P.F. moved into first place with a parliamentary membership of 118. Socialist leader Vincent Auriol remained president of France, and Socialists during the year moved in and out of France's coalition cabinets.

In western Germany Social Democrats functioned powerfully under the leadership of Kurt Schumacher as the chief opposition. The party opposed the Schuman plan and the Allied plan for German rearmament; urged the German "reunification in a free state, based on right" and vigorously attacked all Communist attempts to dominate labour and other German organizations, while opposing the banning of the Communist party through court action. In late January Ernst Reuter, Social Democrat, was re-elected Oberbürgermeister of Berlin.

Theodor Koerner, Socialist mayor of Vienna, was elected president of Austria by a 4% majority. Adolf Schaerf, Socialist party chairman, continued during the year as the country's vice-chancellor.

The chief event during 1951 in the Socialist movement in Italy was the merger in the spring of the Socialist Party of Italian Workers, led by Giuseppe Saragat, with the Unitary Socialist party, led by Giuseppe Romita and Ignazio Silone. The representation of the merged parties in the chamber of deputies was 34. In order to effect the merger, the Saragat faction agreed to withdraw from the coalition cabinet of Alcide de Gasperi, while the Romita-Silone faction agreed to support western rearmament and the North Atlantic treaty and "to abandon systematic opposition to the government in all matters concerning a choice between democracy and dictatorship."

In the Netherlands Willem Drees, leader of the Labour party, remained as prime minister and leader of a coalition cabinet. In Belgium the Socialist party was in the opposition during the year under the leadership of former premier Paul-Henri Spaak, who served most of the year as chairman of the European Consultative assembly. The Belgian Socialists won their long battle in behalf of the abdication of King Leopold when the king on July 16 abdicated in favour of Prince Baudouin.

In Greece, Socialists in 1951 participated in the country's coalition cabinet.

Near and Far East.—In the middle east and far east the only Socialist party in control of the governmental machinery during 1951 was the Mapai party in Israel, although leaders of the government in India and other Asian countries identified themselves as believers in Socialist principles.

In the general elections of July 30 in Israel, the Mapai party again received the highest number of votes—39.1% of the total—and elected 45 out of 120 representatives to the *Knesset* (national assembly). Following the elections, David Ben-Gurion, Socialist prime minister, had difficulty during the fall in forming a government composed of Socialists and members of the country's religious parties, because of differences over the continuance of rationing and the observance of certain Orthodox religious practices.

In Australia and New Zealand Labour and Socialists remained in the opposition. In the general elections of April 28 in Australia, Labour lost control of the upper house. Following these elections Labour was represented in the senate by 28 members out of 60. In the house of representatives, Labour held 52 seats, the Liberals 52 and the Country party 17. The Labour party in September successfully opposed the referendum for the outlawing of the Communist party, on the ground that the powers given to the prime minister would be too sweeping.

In Asia the Socialist party of Japan continued to function as the third largest party. In India Socialists increased their activity and strength in industrial and agricultural centres, and became increasingly critical of many of the policies of the Congress party. In Indonesia and other countries of southeast Asia Socialists were active in combating Communist influence in the labour movement, and in urging the adoption of Socialist policies by their respective governments.

The Socialist International.—In the international field, Socialists formed a new international at a conference at Frankfurt-on-Main, Ger., June 30 to July 3, 1951. The Socialist International there formed was described by its founders as "an association of parties which seeks to establish democratic socialism . . . ; to strengthen relations between the affiliated parties and to coordinate their political attitudes and actions by consent."

The conference endorsed the principle of collective security and maintained that "free democracies cannot defend themselves against the threat of totalitarianism without arms," but insisted that arms themselves were not enough—democracies must have a constructive social and economic program aiming at the elimination of poverty, oppression, exploitation and mass employment.

In the conference's "Declaration of Aims and Tasks of Democratic Socialism," the delegates declared that, while democratic Socialists favoured public ownership of basic industries, they did not urge nationalization of all industry; under democratic socialism some industries would continue in private hands, while others would be operated by voluntary co-operative groups. Nationalization of industry was not an end in itself, but a means to an end, the satisfaction of basic human needs. "Socialists," the declaration concluded, "work for a world of peace and freedom, for a world in which the exploitation and enslavement of men by men and peoples is unknown, for a world in which the development of the individual personality is the basis for the fruitful development of mankind." (*See* also COMMUNISM; DEMOCRACY.) (H. W. L.; N. T.)

Socialist Soviet Republics: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Social Security.

The year 1951 saw new social security programs or complete new consolidated legislation enacted in Canada, which adopted a program of universal pensions for the aged, and in Bolivia, China, Greece and Haiti. The United Nations also expanded its program of technical assistance in social welfare, in which the federal agencies of the United States participated.

United States.—Large-scale changes in the social security program in the United States resulted from the 1950 amendments to the Social Security act. The amendments extended coverage and liberalized benefits under old-age and survivors insurance; they also broadened and liberalized federal grants to the states for public assistance and maternal and child health and welfare services. Amendments to the Railroad Retirement act, adopted in Oct. 1951, provided more protection for railroad workers and their families.

Social Insurance and Related Programs.—The federal program of old-age and survivors insurance, administered by the Social Security administration of the Federal Security agency, was established to provide monthly benefits related to previous earnings for insured, retired workers at age 65 and supplementary benefits to their children under age 18, to their wives if aged or having such entitled children in their care, and to the dependent, aged husbands of women workers. The program also provided survivor benefits to the widows and children, dependent parents and dependent, aged widowers of deceased insured workers, as well as lump sum death payments. Benefits were suspended for any month in which a beneficiary under age 75 had wages of more than $50 or an equivalent amount of net earnings from self-employment in covered work and had rendered substantial services in such work. At the end of Oct. 1951, monthly benefits totalling $151,825,500 were being paid to 4,290,791 individuals. About two-thirds of the beneficiaries were retired workers and their aged wives or husbands, one-fifth were young children, and the others were the widows and dependent, aged widowers and parents of deceased workers. As of June 1951 the average monthly benefit for a family consisting of a widowed mother and one child beneficiary was $75; for an aged widow $36.20; for a retired man $43.50; and for a man and his aged wife $70.40. The program was being financed by contributions from employers and employees of 1½% each on wages up to $3,600 a year and, from January 1951, by contributions of the self-employed (except farmers and members of certain professions) of 2¼% of earnings up to $3,600. The amendments extended coverage to new groups, and in June 1951 almost 46,000,000 workers were in covered jobs.

Payments were also being made under other public programs. In Oct. 1951 monthly retirement, disability and survivor benefits were being paid to beneficiaries under the railroad retirement program (414,500), veterans' programs (3,404,100) and the federal civil service (202,400). Under plans for state and local government employees, retirement, disability and survivor benefits were being paid to a large group of beneficiaries. Disability benefits under these plans and payments under the program of aid to the permanently and totally disabled were the only payments made under public programs because of permanent disability that was not work-connected. For temporary disability of nonwork-connected origin, public provision was limited to the temporary disability insurance systems in effect in four states and in the railroad industry. For work-connected disability, workmen's compensation programs were in effect for workers in all states and for federal employees.

The state-federal system of unemployment insurance pays benefits to qualified, unemployed workers. The federal aspects of the system are administered by the department of labour. Benefits are financed by employer contributions. In Oct. 1951 a weekly average of 712,800 unemployed workers drew benefits; total benefits in the month were $67,449,000. Workers in 11 states had their weekly benefits supplemented by small allowances for dependents.

Protection against wage loss from unemployment was also available to railroad employees under the Railroad Unemployment Insurance act. In Oct. 1951 about $1,376,000 was paid to an average 21,200 workers (average number in a 14-day period).

Assistance and Welfare.—The four special types of public assistance—old-age assistance, aid to dependent children, aid to the blind and, from Oct. 1950, aid to the permanently and totally disabled—are administered and financed by the states or the local communities or both, with the federal government sharing in the costs within certain maximum amounts. Federal grants to the states for this purpose in the fiscal year 1950–51 amounted to $1,202,000,000; for assistance and administration for these four programs total expenditures—federal, state and local—were $2,260,000,000. In Oct. 1951, 2,710,300 needy persons aged 65 or over were receiving old-age assistance; the average payment was $44.54; 2,056,200 persons (including 1,532,900 children) in 596,800 families were receiving aid to dependent children (average payment per family, $74.84); 97,200 were receiving aid to the blind (average payment, $47.75); and 114,200 disabled persons in 35 reporting states were receiving aid to the permanently and totally disabled (average payment, $46.13). About 312,000 cases (an estimated 597,100 persons) were receiving general assistance, financed by states and localities without federal assistance; the average payment per case was $46.21. The averages did not include payments made by the states directly to doctors or others supplying medical care to assistance recipients.

The Social Security act also authorized federal grants to the states, administered by the children's bureau, to extend and improve their maternity services for mothers and their health and welfare services for children, including services for crippled children. During the fiscal year ended June 30, 1951, about $13,000,000 was paid to the states for maternal and child health services; typical of these services, most of them designed to help mothers and children keep well, were prenatal clinics, visits to homes by public health nurses, well-child clinics for children of preschool age and health services for school children. Grants for services for crippled children totalled about $10,000,000; the programs provided diagnostic, medical and surgical services and hospital and convalescent care. Grants of about $6,000,000 were made for child welfare services.

(*See* also under article on each state.) (A. J. A.)

Canada.—The federal Old-Age Security act passed by parliament on Nov. 8, 1951, guaranteed $40 per month from the federal treasury for all Canadians over 70 without any means test. Payments started Jan. 1, 1952, with an estimated yearly cost of $342,000,000, to be raised by new taxes of 2% on personal and corporate incomes, and a 2% sales tax. At the year-end, applications for the pension were being processed at the rate of 7,000 weekly, and the estimated total number of beneficiaries for the start of the scheme was set at 730,000 (against 320,000 old-age pensioners in 1951).

The Old-Age Security act was preceded (June 23) by the federal Old-Age Assistance act, which authorized the federal government to share on a 50–50 basis with the provinces the cost of a $40 monthly pension to needy persons between 65 and 69 years. On the same date parliament passed the Blind Persons act, establishing for the first time in Canadian history separate legislation providing for assistance to the blind. The act authorized the federal government to make payments to the provinces covering 75% of $40 per month blindness allowances.

By mid-1951 family allowances were being paid at the rate of more than $27,000,000 per month to 1,934,238 families on behalf of 4,438,958 children (an average of $13.79 per family).

Provincial social security measures of importance included the following: Ontario increased mothers' allowances in cases of need, barred employment discrimination because of colour or creed or place of origin, increased workmen's compensation benefits; Nova Scotia prohibited a long list of heavy industries, hotels, restaurants and bowling alleys from employing children under 14. The Newfoundland Workmen's Compensation act went into force on April 1, 1951. (C. Cy.)

Great Britain.—An important feature of the national insurance scheme was the provision of increments of retirement pensions which could be earned by continuing work beyond the minimum pension age. The rate of these increments was increased from 1*s.* to 1*s.* 6*d.* for every 25 contributions paid on or after July 16, 1951. The increments of a wife's pension paid on her husband's insurance remained at 1*s.* during his lifetime, but if he died before her, any 1*s.* increments he had earned for her since July 16, 1951, would then be paid to her at the 1*s.* 6*d.* rate. As a result of these bigger increments, a man who continued in full-time employment until 70 years of age could earn increments of 15*s.* for himself and 10*s.* for his wife, if she was not more than five years younger than he. This meant that he and his wife could then qualify for a combined retirement pension of 75*s.* a week for life. If his wife survived him, her pension would then be 45*s.* a week.

The revised insurance regulations included amended earning rules to encourage retirement pensioners to take up part-time work. The amount which a retirement pensioner could earn without any reduction of his pension was increased from 20*s.* to 40*s.* a week. The amount which a widow drawing a widowed mother's allowance could earn without a reduction of her allowance was increased from 30*s.* to 60*s.* a week. For a widow drawing the 26*s.* widow's pension, the amount was increased from 30*s.* to 40*s.* a week. The basic rate for retirement pensions was increased by 4*s.* for men of 70 and over and for women of 65 and over. The allowance for widowed mothers was also increased, and increases were given in respect of the children of pensioners drawing benefits or pensions. The cost of the new arrangements was estimated at £39,000,000 in the first year. No increase in existing contributions was considered necessary to meet this cost, beyond the extra 4*d.* a week which was already due to come into force under the original scheme. National assistance scales were also increased, so as to provide 50*s.* a week for a married couple, plus an allowance for rent.

The rate for each dependent child was increased by 1*s.* 6*d.* a week.

Voluntary organizations played an important part in co-operating with the state and local authorities in the social services in Great Britain. This was particularly noteworthy in the field of old people's welfare. The National Council of Social Services provided an opportunity for the co-operation of voluntary organizations, and 77 voluntary bodies were represented on the central body. The government recognized the value of this organization by the appointment of representatives from ten departments and the local authorities were represented by their associations. There were also a number of individual members on the council. The co-ordination of voluntary effort for old people was the responsibility of the National Old People's Welfare committee, which worked in association with the National Council of Social Services. There were 41 national voluntary bodies represented on this committee, and there were also regional and county committees represented on the national committee. The Women's Voluntary services established a large number of old people's clubs on a part-time basis, but an increasing number of whole-time clubs were also established mainly through the stimulus given by local old people's welfare committees. There were 48 county committees and 702 local committees. Another organization concerned with the welfare of old people was the National Corporation for The Care of Old People, which was established by the governing body of the Lord Mayor's Air Raid Distress fund and the Nuffield foundation. (Jn. M.)

Social Service: *see* CHILD WELFARE; SOCIAL SECURITY.

Societies and Associations, U.S.

The following is a selected list of U.S. societies and associations, with date of founding, membership, officers and chief activities during 1951. (*See* also the separate articles on RED CROSS; VETERANS' ORGANIZATIONS; etc.)

Alcoholic Foundation, Inc. (Alcoholics Anonymous).—Alcoholics Anonymous is a fellowship of men and women organized in 1935 to help the alcoholic recover sobriety. There are no dues or fees, and the only requirement for membership is stated to be "an honest desire to stop drinking." The foundation, which was organized in 1938, is a nonprofit membership corporation serving as a general service board for the Alcoholics Anonymous movement. It publishes the book *Alcoholics Anonymous* and the monthly *The A.A. Grapevine*. There are no national officers, nor is there an endowment, the foundation being supported solely through voluntary contributions. Headquarters: P.O. Box 459, Grand Central Annex, New York 17, N.Y.

American Academy of Arts and Letters.—The purpose of the academy, founded April 23, 1904, is to protect and further literature and the arts. On May 25, 1951, the academy held a special meeting followed by a joint public ceremonial with the National Institute of Arts and Letters at which medals and honours and 15 arts and letters grants of $1,000 were awarded to artists, writers and musicians. Its publications include art catalogues; *Proceedings; Commemorative Tributes;* and *Blashfield Papers.* Officers (1951): Paul Manship, president; Archibald MacLeish, chancellor; Mark van Doren, secretary; Deems Taylor, treasurer. Headquarters: 633 W. 155th St., New York 32, N.Y.

American Academy of General Practice.—The academy was founded in 1947 to improve the professional abilities of physicians through postgraduate study, to gain for them wider opportunities for the practice of those abilities in U.S. hospitals and to assure the family doctor of a better understanding on the part of the public and the rest of the medical profession of his role in medical care. Membership, which is open to all physicians engaged in the general practice of medicine and surgery, numbered 14,000 in 1951. The Annual Scientific assembly was held in San Francisco, Calif., March 19–22, 1951. The academy has no endowment, its activities being supported by membership fees. Publication: *"GP"* (monthly). Officers (1951): J. P. Sanders, Shreveport, La., president; Fred A. Humphrey, Fort Collins, Colo., vice-president; M. F. Cahal, Kansas City, Mo., executive secretary and general counsel. Headquarters: 406 W. 34th St., Kansas City 2, Mo.

American Academy of Political and Social Science.—Founded in 1889 and incorporated in 1891, this organization acts as a forum for the discussion of social, political and economic questions through meetings and publications. Membership in 1951 was more than 16,000. Publication: *The Annals,* a bimonthly journal. Officers (1951): Ernest M. Patterson, president; J. P. Lichtenberger, secretary. Headquarters: 3817 Spruce St., Philadelphia 4, Pa.

American Association for the Advancement of Science.—Founded in 1848, this association seeks to further the work of scientists, facilitate cooperation among them and improve public understanding of the importance of science in human progress. Its membership in 1951 was 48,000; endowment, $250,000. During 1951 a new section was organized covering the industrial sciences, and a new division was formed covering science in Alaska. The annual meeting was held in Philadelphia, Pa., in Dec. 1951. Publications: *Science,* weekly, and *Scientific Monthly.* Officers (1951): Kirtley F. Mather, president; Howard A. Meyerhoff, administrative secretary. Headquarters: 1515 Massachusetts Ave., N.W., Washington 5, D.C.

American Association of Law Libraries.—Founded in 1906 to cultivate the science of law librarianship and increase the usefulness of law libraries, this association in 1951 numbered 612 members. During 1951, it began a project to prepare cataloguing rules for law books by revision of American Library association rules, and continued the preparation of a check list of American Bar association publications. Publications: *Law Library Journal; Index to Legal Periodicals; Interim Index to Legal Periodicals; Law Libraries of the U.S. and Canada.* Officers (1951): George A. Johnston, president; Elizabeth Finley, treasurer; Margaret E. Coonan, secretary. Headquarters: New Jersey State Law Library, State House Annex, Trenton, N.J.

American Association of University Professors.—This organization of college and university teachers was founded in 1915 to promote discussion and action on problems affecting education in institutions of higher learning, and to provide means for expression of its membership. Its members in Jan. 1951 totalled 40,626. Publication: the *Bulletin,* a quarterly journal. Officers (1951): Richard H. Shryock, The Johns Hopkins university, president; Ralph E. Himstead, general secretary. Headquarters: 1785 Massachusetts Ave. N.W., Washington 6, D.C.

American Association of University Women.—This organization was founded in 1882 as the Association of Collegiate Alumnae for "the uniting of the alumnae of different institutions for practical educational work." Membership in 1951 totalled 120,675. During 1951, 27 fellowships, $1,500 to $2,500 each, were awarded to women scholars for advanced research; 51 women from other countries were awarded grants covering expenses of study in the U.S. The number of approved colleges and universities whose graduates were eligible for A.A.U.W. membership totalled 314 in 1951. Publications: *Journal,* quarterly; the *General Director's Letter,* handbooks, study guides and bibliographies. Endowed funds totalled $1,089,199 in 1951. Officers (1951): Susan B. Riley, president; Mrs. Arthur J. White, treasurer; Mrs. Charles Sidney Bluemel, recording secretary. Headquarters: 1634 I St. N.W., Washington 6, D.C.

American Bankers Association.—Founded in 1875, the primary objective of this organization is to promote the general welfare and usefulness of banks and financial institutions. In 1951 it had a membership of 16,693 banks and banking offices. In its four divisions it operated through about 40 working groups. It is the parent organization of the American Institute of Banking for bank employees and the Graduate School of Banking for bank officers. In 1951, faced with the problem of providing credit for production of essential military and civilian goods while avoiding loans which could be classified as speculative, the association initiated a nationwide voluntary credit restraint program. Officers (elected at the 77th annual convention held in Chicago, Ill., October 3, 1951): C. Francis Cocke, First National Exchange bank, Roanoke, Va., president; W. Harold Brenton, State Bank of Des Moines, Ia., vice-president; William B. Gladney, Fidelity National bank, Baton Rouge, La., treasurer. Headquarters: 12 E. 36th St., New York, N.Y.

American Bar Association.—Founded in 1878 to advance the science of jurisprudence and promote the administration of justice in the U.S., the association numbered 45,628 members as of Sept. 15, 1951. In 1951 the annual medal for conspicuous service to U.S. jurisprudence was awarded to Reginald Heber Smith for his work as director of the survey of the legal profession; the Ross prize went to Paul G. Kauper for his essay "The First Ten Amendments . . ." Its publications include the *American Bar Association Journal,* an annual volume of reports and proceedings, and various pamphlets. Officers (1951): Howard L. Barkdull, president; Roy E. Willy, chairman of the house of delegates; Joseph D. Stecher, secretary; and Harold H. Bredell, treasurer. Headquarters: 1140 N. Dearborn St., Chicago 10, Ill.

American Bible Society.—Founded in 1816, the society encourages the wider circulation and use of the Holy Scriptures without note or comment and without purpose of profit. In 1951 manuscripts of the Scriptures in primitive languages were studied, and special committees were engaged in revising the Spanish and Portuguese Bibles. The Korean Bible in the Hankul spelling and an illustrated edition in English and Spanish of the *Acts of the Apostles* were published; about 11,056,580 copies of the Scriptures were distributed. Membership (1951): 250,000. Publication: *The Bible Society Record.* Officers (1951): Eric M. North, Frank H. Mann and Robert T. Taylor, general secretaries; Francis C. Stifler, recording secretary; Gilbert Darlington, treasurer. Headquarters: 450 Park Ave., New York 22, N.Y.

American Chemical Society.—Founded in 1876, the society's purpose is to encourage the advancement of chemistry, promote research in chemical science and industry, maintain high professional and ethical standards and promote the diffusion of knowledge on chemical subjects. Nine medals and awards were conferred at the Diamond Jubilee, which was held in New York city Sept. 3–7, 1951, and a commemorative U.S. postage stamp was issued during the year. The membership in 1951 was about 66,000. Publications include *Journal of the American Chemical Society; Industrial and Engineering Chemistry; Analytical Chemistry; Chemical and Engineering News;* and *Chemical Abstracts.* Officers (1951): N. Howell Furman, president; Alden H. Emery, executive secretary; Robert V. Mellefont, treasurer. Headquarters: 1155 16th St., N.W., Washington 6, D.C.

American College of Dentists.—The association was formed Aug. 20, 1920, to advance the standards and efficiency of dentistry, stimulate graduate study in dentistry, confer fellowships in recognition of meritorious achievement in the science and improve public understanding of oral health service. Membership in 1951 was 1,658. Activities throughout 1951 were carried on through standing committees, and included the establishment of emergency and travel funds for research workers and a teachers' training program. The *Journal of the American College of Dentists* is published quarterly. Officers (1951): Henry O. Lineberger, Raleigh, N.C., president; Edgar H. Keys, St. Louis, Mo., vice-president; Otto W. Brandhorst, St. Louis, Mo., secretary. Headquarters: 4952 Maryland Ave., St. Louis, Mo.

American College of Life Underwriters.—Founded in 1927 to establish an educational standard for the profession of life underwriting and to encourage formal training for this field, the organization awards qualified candidates a professional certificate of recognition. At the end of 1951, 4,129 had been awarded this certificate (C.L.U.) and 107 had received certificates of proficiency. In June 1951, 2,310 candidates took examinations for the certificate at 140 universities and colleges, and a total of 3,201 tests were taken during the year. A total of 4,419 persons had completed the five examinations necessary for the certificate, and 5,956 others had credit for one or more of the examinations. Publications: *Annual Announcement, Annual Report* and brochures. An endowment of $42,000 was raised in addition to about $64,000 received annually from contributing life insurance companies. Officers (1951): Julian S. Myrick, chairman of the board; S. S. Huebner, president; Joseph H. Reese, secretary. Headquarters: 3924 Walnut St., Philadelphia 4, Pa.

American College of Physicians.—This society was founded May 11, 1915, to bring together physicians of high standing for the maintenance and advancement of medical education, practice and research. Membership in 1951 totalled 7,400, and activities included the 32nd annual session in St. Louis, Mo., plus 30 regional or state meetings in the U.S., Puerto Rico and Canada; 17 advanced postgraduate courses were conducted in internal medicine and related fields. The college also awarded six research fellowships in internal medicine and, in conjunction with the W. K. Kellogg foundation, 16 Latin-American fellowships for training in the U.S. of teachers from Latin-American medical institutions. Publications include a directory and *Annals of Internal Medicine,* a monthly. Endowment funds totalled $395,000. Officers (1951): Maurice C. Pincoffs, Baltimore, Md., president; Richard A. Kern, Philadelphia, Pa., secretary-general; Edward R. Loveland, Philadelphia, executive secretary. Headquarters: 4200 Pine St., Philadelphia 4, Pa.

American College of Surgeons.—Founded in 1913 to advance the science of surgery, the organization held its 37th clinical congress in San Francisco, Calif., Nov. 5–9, 1951. Surveys of hospitals and tumour clinics and graduate training programs were continued in 1951. Membership of the college in 1951 was 16,982. Publications: *Surgery, Gynecology and Obstetrics* and the *Bulletin.* Officers (1951): Henry W. Cave, president; Paul R. Hawley, director; Michael L. Mason, secretary. Headquarters: 40 E. Erie St., Chicago 11, Ill.

American Dental Association.—Founded in 1859 "to encourage the improvement of the health of the public and to promote the art and science of dentistry," this professional association numbered 76,031 members as of Nov. 30, 1951. It continued support of measures to add fluoride salts to community water supplies to reduce incidence of tooth decay, and by Dec. 1951, more than 150 U.S. cities and towns were fluoridating their water supplies. The association in February sponsored its third annual national children's dental health day. Its house of delegates endorsed in principle the establishment of pre-payment dental plans and urged the development of public health units. Publication: *Journal of the American Dental Association.* Officers (1951–52): LeRoy M. Ennis, president; Harold Hillenbrand, secretary; H. B. Washburn, treasurer. Headquarters: 222 E. Superior St., Chicago 11, Ill.

American Dialect Society.—This organization was founded at Harvard university in 1889 to collect, study and publish linguistic material, especially dialect, found among the people of the U.S. and Canada. A southern section of the society, organized in 1951, met in Atlanta, Ga., in November. In December the regular annual national meeting was held in Detroit, Mich. Activities in 1951 included studies of the dialect, popular and scientific names of some plants found in America, oil terminology and the argot of the racetrack. Membership in 1951 was 568. Publications: *Dialect Notes, 1890–1939* (6 vol.); *Publication of the American Dialect Society.* Officers (1951): E. H. Criswell, president; George P. Wilson, secretary-treasurer. Headquarters: Woman's College of the University of North Carolina, Greensboro, N.C.

American Economic Association.—This association, which in 1951 had 7,300 members and 2,600 library, corporate and individual subscriptions, was founded in 1885 to encourage economic research and freedom of economic discussion, and to issue publications on economic subjects. The 64th annual meeting was held in Boston, Mass., Dec. 26–29, 1951. Publications include the *American Economic Review,* quarterly; *Papers and Proceedings* of the annual meeting; and a directory. Officers (1951): John H. Williams, Harvard university, president; James Washington Bell, Northwestern university, secretary-treasurer and editor of the annual proceedings; Paul T. Homan, University of California, managing editor of the quarterly. Headquarters: Northwestern university, Evanston, Ill.

American Geographical Society.—Founded in 1852 to promote geographical research and exploration and to disseminate geographical knowledge, the society celebrated on Nov. 8, 1951, the 100th anniversary of its first regular meeting. In connection with the long-term program of glaciological studies, work was continued during the summer of 1951 on the Juneau, Alsk., ice field research project. Revision was completed on the society's 1:5,000,000 map of the Americas and the drafting was completed of a new map of the Americas on the scale of 1:12,500,000. Publications include: *Geographical Review; Current Geographical Publications; Focus,* a monthly magazine; monographs and maps. Membership: about 4,500. Officers (1951): Richard Upjohn Light, president; George H. T. Kimble, director. Headquarters: Broadway at 156th St., New York 32, N.Y.

American Historical Association.—This association of professional and nonprofessional students of history was founded in 1884 to promote historical studies, collect and preserve historic manuscripts, and promote sound teaching of American history. It was incorporated by act of congress in 1889. The association's membership in 1951 was about 5,800, and its endowment was $279,000. Publications include the *American Historical Review* and selected historical monographs. Officers (1951): Robert L. Schuyler, Columbia university, president; Guy Stanton Ford, Washington, D.C., executive secretary. Headquarters: Study Room 274, Library of Congress Annex, Washington 25, D.C.

American Institute for Property and Liability Underwriters, Inc.—Founded in 1942, this organization strives to establish an educational standard for the profession of property and casualty insurance underwriting. In June 1951, 1,617 persons took examinations which are held by the institution for certification of underwriters. In addition, 1,712 persons had credit for one or more of the five examinations which were held at 112 universities and colleges in 41 states, the District of Columbia, Hawaii and Canada. At the end of 1951 a total of 687 examinees had received the C.P.C.U. designation. Publication: *Announcement,* annual. Officers (1951): S. S. Huebner, chairman, board of trustees; H. C. Conick, president; A. C. Goerlich, secretary. Headquarters: 3924 Walnut St., Philadelphia 4, Pa.

American Institute of Accountants.—A national professional society of certified public accountants, founded in 1887 to maintain high professional and ethical standards, to develop accountancy education and to provide for the examination of candidates for membership. In 1951 the institute had a membership of 18,000. The year's activities included the preparing of the uniform C.P.A. examinations given in 47 states, the conducting of local and regional meetings, the issuing of bulletins on accounting procedure and case studies in auditing procedure, and recommendations for improvement of federal income-tax laws. Publications: *Journal of Accountancy* and *Certified Public Accountant,* both monthly, and others. Officers (1951) included J. William Hope, president; John L. Carey, executive director. Headquarters: 270 Madison Ave., New York 16, N.Y.

American Institute of Chemical Engineers.—This organization was founded in 1908 for the advancement of chemical engineering in theory and practice and the maintenance of a high professional standard among its members. Activities in 1951 included the annual meeting at Atlantic City, N.J., Dec. 2–5, and three regional meetings. As of Sept. 30, 1951, the membership was 11,309. Publication: *Chemical Engineering Progress,* monthly. Officers (1951) included Thomas H. Chilton, president; Stephen L. Tyler, executive secretary. Headquarters: 120 E. 41st St., New York 17, N.Y.

American Institute of Electrical Engineers.—This association was founded in 1884 to advance the theory and practice of electrical engineering and to maintain high professional standing among its members. Its 1951 activities included the development of standards for electrical equipment, the publication of technical papers and the holding of numerous meetings on subjects within its cognizance. Active work in all parts of the electrical engineering field was carried on by subcommittees and working groups of the five technical divisions: communication, general applications, industry, power, and science and electronics. Membership as of Oct. 1, 1951, was 41,893. Publications: *Electrical Engineering,* monthly; *Transactions,* annually; and *Standards* and special publications, published irregularly. Officers (1951): F. O. McMillan, president; H. H. Henline, secretary. Headquarters: 33 W. 39th St., New York 18, N.Y.

American Institute of Mining and Metallurgical Engineers.—This society was founded in 1871 to promote the arts and sciences connected with the economic production of minerals and metals, and the welfare of the individuals employed in these industries. The regular annual meeting was held in St. Louis, Mo., in Feb. 1951. Publications include *Mining Engineering, Journal of Metals* and *Journal of Petroleum Technology,* all monthly, and three volumes of steel conference proceedings. Membership in 1951 was 17,500. The institute's endowments totalled more than $956,000. Officers (1951) included W. M. Peirce, president, and Edward H. Robie, secretary. Headquarters: 29 W. 39th St., New York 18, N.Y.

American Iron and Steel Institute.—In 1908 this organization was founded to promote the interests of the iron and steel industry, distribute information and promote discussion of problems relating to the industry. Its 1951 membership included 2,383 active, associate, honorary and emeritus members, and 96 company members. Publications: *Steelways,* bimonthly; *Steel Facts,* bimonthly; and numerous booklets and pamphlets. Officers (1951) included Walter S. Tower, president; Max D. Howell, treasurer; George S. Rose, secretary. Headquarters: 350 Fifth Ave., New York 1, N.Y.

American Law Institute.—Founded Feb. 23, 1923, this organization is designed to promote the clarification and simplification of the law and its better adaptation to social needs. In 1951 the institute completed the drafting of a uniform commercial code, and it sponsored numerous courses, lectures and the distribution of literature on selected phases of the law. Work advanced in 1951 on the drafting of a federal income tax statute, and the preliminary work on a code of substantive criminal law was also begun. In 1951 there were 1,106 elected members. Headquarters, 1951: 133 S. 36th St., Philadelphia 4, Pa.

American Mathematical Society.—Established in 1888 to further the interests of mathematical scholarship and research, the society held 14 meetings during 1951. Publications: *Bulletin of the American Mathematical Society; Proceedings of the American Mathematical Society; Transactions of the American Mathematical Society; Mathematical Reviews; Colloquium Publications; Mathematical Surveys.* Membership in 1951, 4,484. Officers (1951): John von Neumann, president; E. G. Begle, secretary. Headquarters: 80 Waterman St., Providence, R.I.

American Medical Association.—This federacy of constituent state and territorial medical associations was founded in 1847 to promote the science and art of medicine and the betterment of public health. Activities during 1951 included the evaluation of a number of drugs; studies on nutrition and special foods; examinations of devices and techniques for the rehabilitation of the physically disabled; consultations on labour health proposals; and studies on emergency medical problems, teaching standards in medical schools, standards of care in hospitals and the supply of U.S. physicians. Publications: The *Journal of the American Medical Association* and several special publications. Membership in 1951 was more than 135,000. Officers (1951): John W. Cline, San Francisco, Calif., president; Louis H. Bauer, Hempstead, N.Y., president-elect; George F. Lull, Chicago, Ill., secretary and general manager. Headquarters: 535 N. Dearborn St., Chicago 10, Ill.

American Optometric Association.—Founded in 1897, this organization's purpose is to promote the visual welfare of America and serve the professional interests of optometrists. During 1951 it sponsored public information programs on various aspects of vision. Seminars met in Milwaukee, Wis., and Chicago, Ill.; the annual Congress of Optometry was held in New Orleans, La., with the theme "The Social Impact of Visual Performance." Membership in 1951 totalled 11,000. Publications: *Journal of the American Optometric Association,* published monthly, and booklets on highway vision and optometry as a vocation. Officers (1951): J. Ottis White, president; S. L. Brown, treasurer; Ernest H. Kiekenapp, secretary. Headquarters: Jenkins building, Pittsburgh 22, Pa.

American Prison Association.—Founded in 1870, this association works for the improvement of laws governing public offenders; studies the causes of crime and the nature of offenders and their social surroundings, works for the improvement of penal institutions and jobs for former prisoners. In 1951 the association sponsored the 81st annual congress of correction. Membership in 1951 was about 2,000, consisting of court, crime-enforcement and penal officials and citizens interested in crime problems. Publications include an annual directory of correctional institutions; handbook on classification in correctional institutions; and the bimonthly *Prison World.* Officers (1951): James W. Curran, president; E. R. Cass, general secretary; John L. Schoenfeld, treasurer. Headquarters: 135 E. 15th St., New York 3, N.Y.

American Society of Civil Engineers.—The society was founded in 1852 for the purpose of advancing the sciences of engineering and architecture. Membership at the end of 1951 was about 34,000. Professional activities of the society were directed through its headquarters, its professional committees, student chapters in 132 engineering colleges and the 14 following technical divisions: air transport, city planning, construction, engineering economics, engineering mechanics, highways, hydraulics, irrigation, power, sanitary engineering, soil mechanics and foundations, structural, surveying and mapping, and waterways. Publications: *Proceedings,* also several pamphlets each month; *Transactions,* yearly; *Civil Engineering,* monthly; and a *Yearbook.* Officers (1951): Gail A. Hathaway, president; (1952) Carlton S. Proctor, president; William N. Carey, executive secretary. Headquarters: 33 W. 39th St., New York 18, N.Y.

American Society of Composers, Authors and Publishers (ASCAP).—Founded Jan. 13, 1914, the society collects performing right royalties for allocation to members whose copyrighted musical works are used in public performances for profit. Its membership in 1951 totalled 2,900, comprising 2,500 composers and authors and 400 publishers. Officers (1951) included: Otto A. Harbach, president; Saul H. Bourne and Oscar Hammerstein II, vice presidents; Paul Cunningham, secretary; Louis Bernstein, treasurer. Headquarters: 575 Madison Ave., New York 22, N.Y.

American Society of Mechanical Engineers.—This organization was founded in 1880 and incorporated in 1881 to promote the art and science of mechanical engineering, to encourage original research, to foster engineering education, to advance the standards of engineering and to permit interchange of ideas among engineers themselves. In 1951 the society held four national meetings and eight professional division conferences. In addition, meetings were held by the 75 local sections and the 137 student branches. Membership totalled 35,000. Publications: *Mechanical Engineering* and *Applied Mechanics Reviews*, both monthly; *Journal of Applied Mechanics*, quarterly. Officers (1951): J. Calvin Brown, president; Clarence E. Davies, secretary. Headquarters: 29 W. 39th St., New York 18, N.Y.

American Sunday-School Union.—Founded in 1817 as the Sunday and Adult School union, this organization's aim is to establish and maintain Sunday schools and publish and circulate moral and religious literature. During 1951, 220 new Sunday schools were organized, and 55 were reorganized; 1,663 vacation Bible schools were held; and about 6,000 Bibles and 4,000 Testaments were distributed. Active missionaries in 1951 numbered 178; the 2,592 Sunday schools enrolled 98,496 scholars. In 1951, 128 Young People's societies were established. Publications included the *Sunday School World*, a teachers' quarterly; *Union Quarterly; Superintendents' Guide;* and Sunday-school literature. The work is supported largely by contributions, plus a small endowment. Officers (1951): Belding B. Slifer, president; Elliott D. Parkhill, secretary of missions; William J. Jones, editor of publications. Headquarters: 1816 Chestnut St., Philadelphia, Pa.

Boy Scouts of America.—This nation-wide youth organization with activities for boys of eight years and older was organized in 1910 and chartered by congress in 1916. Objectives are to teach patriotism and citizenship and the importance of religion in daily life. In 1951 about 750 U.S. scouts attended the world jamboree in Bad Ischl, Austria. At a national training conference of professional leaders held at East Lansing, Mich., Sept. 5–12, a three-year program was adopted with the slogan, "Forward on Liberty's Team." Civic activities included a "Get Out the Vote" campaign in November. Membership, July 31, 1951, was 2,745,576 men and boys organized in about 76,000 units. The world scout membership as of 1949 was 4,416,306 in 46 countries. Headquarters: 2 Park Ave., New York 16, N.Y.

Brookings Institution.—A nonprofit organization dedicated to public service through research and education in economics and government, the institution was founded in 1928 and is supported by income from its own endowment, grants from foundations and the sale of publications. During 1951 the following studies were published: *Major Problems of U.S. Foreign Policy, 1951–1952; A Survey of Economic Education; Current Problems in U.S. Foreign Policy* (magazine; 10 issues); *Current Issues in Foreign Economic Assistance*, by Redvers Opie; *Toll Roads—The Problem of Highway Modernization;* and *The Search for Peace Settlements*, by Redvers Opie *et al.* Officers (1951): Harold G. Moulton, president; Elizabeth H. Wilson, secretary. Headquarters: 722 Jackson place N.W., Washington 6, D.C.

Buhl Foundation.—Established in 1927, the Buhl foundation had by 1951 granted to existing (or especially established) agencies a total of $6,995,895 for the promotion of nationally significant programs in the Pittsburgh, Pa., district. These programs were in regional economics, historical and social research, in higher education and in research in natural sciences. The foundation's $1,700,000 Chatham Village, pioneering demonstration of large-scale planned residential community built for long-term investment, had received international recognition. The $1,100,000 Buhl planetarium, built and maintained as a memorial to the founder, had conducted a program of popular science education from elementary school to adult level since 1939. Foundation assets in 1951 were $13,294,291. Director: Charles F. Lewis. Headquarters: Farmers Bank building, Pittsburgh 22, Pa.

Camp Fire Girls, Inc.—Founded in 1910, this youth organization's purpose is "to perpetuate the spiritual ideals of the home" and "to stimulate and aid in the formation of habits making for health and character." In 1951 Camp Fire Girls observed Birthday week (theme: "Everybody Counts"), March 11 through March 17, and conducted a membership drive, Sept. 15 through Nov. 30. Activities also included participation in a safety campaign and defense programs. In 1951 more than 369,600 girls were reported enrolled in its three groups: Blue Birds, 7 to 10 years old; Camp Fire Girls, 10 to 15 years old; and Horizon club members, of senior high school age. Publications: *Your Symbol Book; Camp Fire's Part in Defense; Exhibits That Work for You* (rev.); *Your Publicity P's and Q's* (rev.). National officers (1951): Mrs. Richard W. Blalock, president; George W. Hearn, chairman of the board; Mrs. R. L. Heminger, secretary; Martha F. Allen, national director. Headquarters: 16 E. 48th St., New York 17, N.Y.

Carnegie Trusts.—Six autonomous and separately administered agencies in the U.S. were established by Andrew Carnegie for various philanthropic purposes; in addition, there are four Carnegie trusts in Great Britain, and Carnegie Hero funds operate in nine European countries.

Carnegie Corporation of New York (1911), with a basic endowment of $135,000,000, had in 1951 assets of more than $175,000,000; the income from $12,000,000 of this is applicable in the British dominions and colonies. It included in its 1951 program the advancement of education through support of specific undertakings in institutions of higher education and in organizations engaged in research and public education. The primary interest is in the advancement of the social sciences and in the improvement of teaching. President (1951), Charles Dollard; secretary, Robert M. Lester. Headquarters: 522 Fifth Ave., New York 36, N.Y.

Carnegie Institute of Pittsburgh (1896) includes a department of fine arts, a music hall and a museum of natural history, and to it are closely related the Carnegie Library of Pittsburgh, the Carnegie Library school and the Carnegie Institute of Technology. President (1951), James M. Bovard; secretary, Augustus K. Oliver. Headquarters: 4400 Forbes St., Pittsburgh 13, Pa.

Carnegie Institution of Washington (1902), with assets exceeding $45,000,000 in 1951, conducts fundamental scientific investigation, particularly in astronomy, terrestrial magnetism, plant biology, embryology, genetics and historical research. President (1951), Vannevar Bush; executive officer, Paul A. Scherer. Headquarters: 1530 P St., N.W., Washington 5, D.C.

Carnegie Hero Fund Commission (1904), with assets in 1951 of approximately $10,000,000, was established to recognize by medals and monetary awards heroic acts performed in the peaceful walks of life. President (1951), Thomas S. Arbuthnot; manager, M. H. Floto. Headquarters: Oliver building, Pittsburgh 22, Pa.

Carnegie Foundation for the Advancement of Teaching (1905) was established to provide retiring pensions for teachers and to advance higher education; it received $31,000,000 from Carnegie and substantial additional sums from the Carnegie corporation for a program to improve graduate education in southern colleges. President (1951), Oliver C. Carmichael; secretary, Robert M. Lester. Headquarters: 522 Fifth Ave., New York 36, N.Y.

Carnegie Endowment for International Peace (1910) uses the income from its $10,000,000 endowment to further friendly understanding among nations, its aim in 1951 being to support the United Nations by stimulating public education in foreign affairs and by conducting studies and seminars. President (1951), Joseph E. Johnson; secretary, Leslie Paffrath. Headquarters: 405 W. 117th St., New York 27, N.Y.

Catholic Community Service, National.—This service organization was founded on Nov. 13, 1940, as the agency designated by the Catholic bishops of the U.S. to mobilize and co-ordinate the Catholic resources of the country to assist in serving the spiritual, educational, recreational and welfare needs of the men and women in the armed forces, their families and patients in Veterans administration hospitals. During 1951 the service conducted volunteer work in 143 hospitals and also conducted programs in 48 activities near major military establishments in the U.S. and overseas. Publications: *NCCS News Bulletin; NCCS VA Hospital News;* and *Focus on Faith*, a religious pamphlet series. Thomas D. Hinton was executive director in 1951. Headquarters: 1312 Massachusetts Ave. N.W., Washington 5, D.C.

Catholic Library Association.—Founded in 1921 as a section of the National Catholic Educational association, it became an independent organization in 1931. Its purpose is to initiate and encourage any movement that will promote Catholic literature and Catholic library work. In March, 1951 the 25th annual conference was held in Chicago, Ill. Membership in 1951 was about 1,900. Publications: *1951 Catholic Supplement to the Standard Catalog for High School Libraries; Catholic Periodical Index; Catholic Booklist.* Officers (1951): John M. O'Loughlin, president; Helen L. Butler, vice-president; Laurence A. Leavey, executive secretary, at the national headquarters address: P.O. Box 25, Kingsbridge Station, New York 63, N.Y.

Catholic Organizations for Youth.—Organized on diocesan and national levels, this organization's central co-ordinating agency is the youth department of the National Catholic Welfare conference. The purpose of the Catholic youth organizations is the fostering of the spiritual welfare of young people through religious, cultural, social and athletic activities. Organizations connected with the diocesan section by affiliation are the Columbian Squires, the Junior Catholic Daughters of America, the Young Christian Workers, the Daughters of Isabella and the Sodality of Our Lady. In 1951 the diocesan section was raised to the national level by the formation of the National Federation of Diocesan Catholic Youth Councils; this organization, the National Federation of Catholic College Students and the National Newman Club Federation formed the National Council of Catholic Youth. The total number of young persons reached by the various programs was estimated in 1951 at about 7,000,000. Diocesan groups and college federations have individual publications, and the youth department of the N.C.W.C. publishes *Newsnotes*, a monthly with material of interest to diocesan youth directors; *Program Service*, for parish youth directors; a *Catholic Youth Directory;* and pamphlets. Msgr. Joseph E. Schieder was N.C.W.C. youth department director in 1951. Headquarters: 1312 Massachusetts Ave. N.W., Washington 5, D.C.

Catholic Rural Life Conference, National.—This organization was founded in 1923 to care for underprivileged Catholics in farming areas and encourage Catholics to settle and remain on the land. During 1951 it endorsed "suitably organized" international migration to less populous countries and democratically organized co-operatives and land reform measures. *Christian Farmer*, monthly, is the organization's publication. Its president in 1951 was Bishop Albert R. Zuroweste of Belleville, Ill., and its executive secretary was Msgr. L. G. Ligutti. Headquarters: 3801 Grand Ave., Des Moines, Ia.

Catholic Welfare Conference, National.—This organization was founded in 1919 to organize and co-ordinate the Catholic residents of the U.S. in works of education, social welfare, immigrant aid and other activities. During 1951 War Relief Services distributed 76,757,786 lb. of relief material valued at $21,892,801 and reported 30,202 persons brought into the U.S. under its auspices. The education department participated in programs involving more than 150 organizations and committees. The social action department conducted two institutes for working women. The monthly publication is *Catholic Action.* Officers (1951): Archbishop Francis P. Keough, Baltimore, Md., chairman; Bishop John F. Noll, Fort Wayne, Ind., secretary. Headquarters: 1312 Massachusetts Ave. N.W., Washington 5, D.C.

Chamber of Commerce of the United States.—A federation of businessmen's organizations, the chamber directed major attention in 1951 to ways for strengthening the national economy to meet competing military and civilian demands made upon it under the rearmament program.

The chamber conceived its job to be that of facilitating mobilization while at the same time protecting business against dislocations that would permanently impair the traditional system of unfettered private enterprise. It proposed that every effort be made to make indirect controls a primary weapon against inflation, opposing both direct wage and price controls. It emphasized the need for curbs on reckless government spending, and proposed taxation measures for bringing the federal budget more nearly into balance.

At the annual meeting in May, Dechard A. Hulcy of Dallas, Tex., was elected president of the organization. Arch N. Booth, executive vice-president, was the managing head.

In 1951 the chamber had as members more than 3,200 chambers of commerce and trade associations, which determine policies, and an additional business membership of more than 20,000 business concerns.

Charles Hayden Foundation.—This organization was established in 1937 under the will of Charles Hayden to assist young men to "receive proper training in boyhood and youth . . . in the manner of right and proper living." Its activities are devoted mainly to aiding boys' clubs, boys' camps and similar projects for underprivileged boys, especially those of the New York, N.Y., and Boston, Mass., areas. By Sept. 30, 1951, the foundation had contributed $16,400,000 for these purposes, and there was approximately $58,600,000 in the fund. Officers: J. Willard Hayden, president; Edgar A. Doubleday, executive vice-president and treasurer; Erle V. Daveler, vice-president. Headquarters: 25 Broad St., New York 4, N.Y.

Commonwealth Fund.—Established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind," and increased by other bequests, the fund amounted to approximately $80,000,000 at the end of the fiscal year 1950–51. Appropriations for that year were $2,879,383.99. The major concern of the fund in 1951 was helping medical schools to reorient medical education to the student and medical care to the patient, by better integration and increased attention to the relation between the patient and his environment. Grants for medical education amounted to $1,129,282.50; for experimental health services, public health and hospital activities, $679,471.84; and for medical research, $454,768.50. In 1951, 41 men and 1 woman held Commonwealth fund British fellowships for students and civil servants from Great Britain and other parts of the British Commonwealth. The fund publishes an annual report. President, Malcolm P. Aldrich. Headquarters: 1 E. 75th St., New York 21, N.Y.

Daughters of the American Revolution.—The National Society of the Daughters of the American Revolution was founded in 1890 for historical, patriotic and educational purposes. The society in 1951 had 169,633 members in 2,685 chapters. During the year it operated two schools and provided financial assistance to others; conducted programs for good citizenship; operated 11,232 Junior American Citizens clubs with 342,600 members; maintained a genealogical library; and conducted various educational programs of a patriotic nature. Publications: *Daughters of the American Revolution Magazine* and *D.A.R. Manual for Citizenship*. Officers (1951): Mrs. James B. Patton, president general; Mrs. Marguerite Schondau, administrative secretary. Headquarters: 1776 D St. N.W., Washington 6, D.C.

Duke Endowment.—By an indenture executed Dec. 11, 1924, by James B. Duke, the Duke endowment was established as a common-law trust "to make provision in some measure for the needs of mankind along physical, mental and spiritual lines." The fund allocates payments to educational institutions, including Duke university, Durham, N.C., and also distributes funds to help support hospitals, orphanages and the Methodist Church in rural areas. The amount distributed from Dec. 11, 1924, to Dec. 31, 1950, was $90,616,251.26. The fund is supervised by a self-perpetuating board of 15 trustees. Officers (1951) included George G. Allen, chairman; Alex. H. Sands, Jr., secretary; Walter C. Parker, treasurer. Headquarters: Power building, Charlotte 1, N.C.

Elks, Benevolent and Protective Order of.—Founded in 1868, this service organization in 1951 had 1,070,000 members in 1,600 lodges. Its purpose: to practise charity, justice, brotherly love and fidelity; promote the welfare and enhance the happiness of its members; quicken the spirit of American patriotism and cultivate good fellowship. Activities in 1951 included reopening fraternal centres for men and women in the armed services, entertainment for hospitalized veterans, sponsorship of Boy Scout units and the granting of funds for training doctors, nurses and therapy specialists to staff treatment centres for the care of children afflicted with cerebral palsy. Publication: the *Elks Magazine*. Officers (1951): Howard R. Davis, Williamsburg, Pa., grand exalted ruler; J. E. Masters, grand secretary, 2750 Lakeview Ave., Chicago 14, Ill., the national headquarters.

Falk Foundation, Maurice and Laura.—This foundation was established in 1929 with the broad purpose of the advancement of human welfare. In 1951 it explored opportunities for constructive philanthropy in education for citizen participation in practical politics. Grants in 1951 totalled $361,000. Principal appropriations in 1951 included allotments of $75,000 to Brookings institution; $10,000 to the American Law institute; $11,000 to the Committee on Federal Tax Policy; $80,000 to the Alfred P. Sloan foundation; and $15,000 to Fordham university. Publications: *Financing Defense* and *The Transportation Industries, 1889–1946*. Funds as of Dec. 10, 1951, were $11,791,576. Officers (1951): Leon Falk, Jr., chairman; Eugene B. Strassburger, secretary; J. Steele Gow, executive director. Headquarters: 1911 Farmers Bank building, Pittsburgh 22, Pa.

Ford Foundation.—Founded on Jan. 15, 1936, the Ford foundation has as its purpose the receiving and administering of funds for scientific, educational and charitable purposes, all for the public welfare. In 1951 the foundation established the Fund for Advancement of Education, Fund for Adult Education and Free Russia Fund, Inc., and authorized $5,000,000 for overseas activities and $1,200,000 for a television-radio workshop program. Between Jan. 1 and Sept. 1, 1951, grants and authorizations totalled approximately $22,000,000. The total assets of the foundation as of Jan. 1, 1951, amounted to $492,678,255. Officers (1951) included: Henry Ford II, chairman; Paul G. Hoffman, president; Oliver May, secretary-treasurer. Offices: 916 E. Green St., Pasadena, Calif.; 655 Madison Ave., New York 22, N.Y.; Buhl building, Detroit, Mich.

Franklin Institute of the State of Pennsylvania.—This nonprofit institution was founded in 1824 for promotion of the mechanic arts. It devotes itself to interpreting science for nontechnical persons and to research for the benefit of industry and government. Activities include: maintenance of the Benjamin Franklin memorial, a museum of science and industry, including Fels planetarium; a technical library of 131,000 volumes, 46,000 pamphlets and more than 4,000 maps; lectures on a wide variety of subjects; honour awards for distinguished achievements in science and technology; publication of the *Journal of the Franklin Institute;* the Franklin Institute Laboratories for Research and Development; the Bartol foundation; and the Biochemical Research foundation. The National Asphalt Research centre was founded at the Franklin Institute Laboratories for Research and Development during 1951. Income is derived from dues of approximately 6,000 members, museum and planetarium admissions, bequests and gifts and industrial sponsorship of research and exhibits. Officers (1951): Richard T. Nalle, president; Henry B. Allen, executive vice-president and secretary. Headquarters: Benjamin Franklin Parkway at 20th St., Philadelphia 3, Pa.

Freemasonry.—Said to be the oldest and largest fraternal organization in the world, the Masonic fraternity is nonsectarian, nonpolitical and has no benefit or insurance provisions. Its purpose is the moral and spiritual elevation of its members and, through them, of mankind. Since the 18th century its lodges have been joined together in grand lodges, mostly on a territorial basis, each grand lodge being independent. Masonic organizations based on lodge membership include the Royal Arch, the Knights Templar and the Scottish Rite. In 1951 the grand lodges were almost universally concerned with a re-emphasis of Masonic education—the indoctrination of their own members, particularly new members, with the principles and potentialities of the fraternity. Masonic membership in the U.S. in 1951 was 3,651,599 in 15,460 lodges; world membership was in excess of 5,000,000. Publications: annual transactions by all grand lodges and many of the related organizations.

Future Farmers of America.—Founded Nov. 20, 1928, this is a national organization of boys studying vocational agriculture in public secondary schools under the provisions of the national vocational education acts. The chief of the agricultural education service of the U.S. office of education is chairman of an adult national advisory council. The purpose of the Future Farmers is to develop competent, aggressive rural and agricultural leadership; to nurture a love of country life; to help guide those following agricultural vocations; and generally to support scientific farming methods. The 1951 national convention was held Oct. 8–11 at Kansas City, Mo. Membership in 1951 was approximately 340,000. The national adviser (chief adult officer) was W. T. Stanton. Headquarters: U.S. Office of Education, Federal Security Agency, Washington 25, D.C.

Georgia Warm Springs Foundation.—This nonprofit organization was founded on July 28, 1927, to conduct a hospital for the aftertreatment of poliomyelitis and to train physiotherapists for this work. In the fiscal year ending Sept. 30, 1951, 998 patients were treated. It has no endowment, its annual deficit being financed by appropriations from the National Foundation for Infantile Paralysis. Publications include annual reports and medical articles of the professional staff. Officers (1951): Basil O'Connor, president and treasurer; Henry K. Urion, executive vice-president and counsel; William F. Snyder, vice-president and secretary. Headquarters: 120 Broadway, New York 5, N.Y.

Girl Scouts of the United States of America.—Founded in 1912 by Juliette Low, this organization's purpose "is to help girls realize the ideals of womanhood as a preparation for their responsibilities in the home and as active citizens in the community and in the world." Activities in 1951 included the International Encampment of Girl Guides and Girl Scouts at Camp Wind Mountain, near Stevenson, Wash., July 17–Aug. 6; the All-States Girl Scout camp, first of its kind to be held in the U.S., July 31–Aug. 21; and the 31st National convention, Boston, Mass., Oct. 15–18. During the year Girl Scout units celebrated the 25th anniversary of the Edith Macy school, the national Girl Scout training school. The total membership as of June 30, 1951, was 1,764,682. Publications: *Girl Scout Leader; American Girl; Girl Scout Handbook; A Leader's Guide to the Brownie Scout Program;* and *Senior Girl Scouting*. Officers: Dorothy C. Stratton, national executive director; Mrs. C. Vaughan Ferguson, president; Mrs. Amory Houghton, secretary. Headquarters: 155 E. 44th St., New York 17, N.Y.

International College of Surgeons.—This organization was founded in Geneva, Switz., in 1935 to create a common bond among surgeons of all nations and promote high standards in surgery. In 1951 postgraduate courses, lectures and clinics were held in various parts of the world. Membership was about 8,000. Its publication is *The Journal of the International College of Surgeons*. Officers (1951): Hans Finsterer (Austria), president; Max Thorek, secretary general. Headquarters: 1516 Lake Shore Dr., Chicago 10, Ill.

Jewish Welfare Board, National.—Founded in 1917, this agency is authorized by the U.S. government to serve the religious, welfare and morale needs of Jews in the U.S. armed forces and Veterans administration hospitals. In 1951 it created new local armed services committees; recruited 75 Jewish chaplains; served 135,000 men in the U.S. and overseas; and helped in the reorganization of the United Service organizations (U.S.O.), taking responsibility for 25 clubs. The membership in 1951 included 331 Jewish community centres and Young Men's Hebrew associations with 502,000 members and 40 national affiliated organizations. Officers (1951): Irving Edison, president; S. D. Gershovitz, executive director. Headquarters: 145 E. 32nd St., New York 16, N.Y.

John Simon Guggenheim Memorial Foundation.—Founded in 1925 to improve the quality of education and the practice of the arts and professions in the U.S., to foster research and to provide for the cause of international understanding, the organization during 1951 awarded 194 fellowships with grants totalling $838,500 to citizens of the U.S., Canada, the Latin American republics and the Republic of the Philippines. Endowment: $29,000,000. Officers (1951) included Mrs. Simon Guggenheim, president; Henry Allen Moe, secretary. Headquarters: 551 Fifth Ave., New York 17, N.Y.

Kellogg Foundation.—The W. K. Kellogg foundation was established in 1930 to promote the health, education and welfare of mankind, but principally of children and youth. It functions through these divisions: dentistry, education, medicine and public health, hospitals, nursing and the international division. It is administered by a board of nine trustees, and its assets, Aug. 31, 1951, totalled $61,214,210. Officers (1951): Emory W. Morris, president; Glenn A. Cross, vice-president; Bessie Rogers Young, secretary and treasurer. Headquarters: 250 Champion St., Battle Creek, Mich.

Kiwanis International.—Founded Jan. 21, 1915, in Detroit, Mich., this service organization operates through community Kiwanis clubs, comprised of business and professional men. During 1951 Kiwanis clubs presented on more than 500 radio stations 14 transcribed biographical sketches of leading Americans. It was co-sponsor of the third annual National Kids' day, Sept. 22, and members raised $500,000 to continue youth programs. Clubs provided lunches and milk for 658,473 needy children, sponsored 2,347 activities promoting economy in government and raised $16,385,861 for public welfare campaigns. Membership in 1951 included more than 205,000 in 3,350 clubs of the U.S., Canada, Alaska, Hawaii and the Yukon territory. Publications: *Kiwanis Magazine, Monthly Club Bulletin,* and *The Keynoter*, organ of the Kiwanis-sponsored Key clubs for outstanding high school youths. Officers, 1951–52: Claude B. Hellmann, president; O. E.

Peterson, secretary; Walter J. L. Ray, treasurer. Headquarters: 520 N. Michigan Ave., Chicago 11, Ill.

Knights of Columbus.—This Roman Catholic men's organization was founded in 1882 for the mutual help of its members and to conduct educational, charitable, religious, social, war relief and public relief work. During 1951 the organization continued radio and periodical advertising for the dissemination of religious information. In July it voted to establish the Knights of Columbus Foundation for the Preservation of Historic Documents at the Vatican library. Its membership in 1951 was 805,774. Publication: *Columbia*, a monthly. John E. Swift was supreme knight during 1951 and headquarters were at 45 Wall St., New Haven 7, Conn.

League of Women Voters of the United States.—Founded Feb. 14, 1920, to promote political responsibility through informed and active participation of citizens in government, the membership of this organization in 1951 was 105,000. It operates through state and local leagues, and its 1951 program emphasized support of U.S. mutual security measures and action against inflation. Officers, 1951: Mrs. John G. Lee, president; Mrs. Walter Neale, secretary; Mrs. Bradford L. Patton, treasurer. Headquarters: 1026 17th St. N.W., Washington 6, D.C.

Lions Clubs, International Association of.—Founded in 1917 as a nonpolitical, nonsectarian association of service clubs, the purpose of The International Association of Lions Clubs is to create international good will, promote good citizenship and good government, take an active interest in community welfare and provide for good fellowship and free discussion. In 1951 individual Lions clubs engaged in activities designed to further these aims, with special emphasis on aid to the blind, community betterment and health and welfare. Membership in 1951 was 425,000. Publication: *The Lion*, monthly. Officers (1951) included Harold P. Nutter, Camden, N.J., president; R. Roy Keaton, Chicago, Ill., director general. Headquarters: 332 S. Michigan Ave., Chicago 4, Ill.

Milbank Memorial Fund.—A membership corporation under the laws of the state of New York, this organization was founded April 3, 1905, to improve the physical, mental and moral condition of humanity and generally to advance charitable and benevolent objects. In 1950 the fund appropriated $478,281.69 to support activities and projects in its field of interest, including $289,800 for grants and fellowships to outside agencies. Total funds (Dec. 31, 1950) amounted to $11,172,785.56. Publication: Milbank Memorial fund *Quarterly*. Officers (1951): Morris Hadley, president; Frank G. Boudreau, executive director; Catherine A. Doran, secretary. Headquarters: 40 Wall St., New York 5, N.Y.

Music Library Association.—Founded in 1931, this association seeks to promote the establishment and growth of music libraries and collections in the U.S. In 1951 its membership was 850. The association met with the American Library association in Chicago, Ill., during July 1951. Publications: *Notes* and *Supplement to Notes*, both quarterly. Officers (1951) included Edward E. Colby, president; George R. Henderson, secretary. Headquarters: Music division, Library of Congress, Washington 25, D.C.

National Academy of Sciences.—Founded in 1863, by act of congress, the academy's purpose is to advise the government on any subject of science or art; stimulate research in science and its application to national welfare; and promote co-operation in research in the U.S. and internationally. During 1951, it administered research fellowships supported by philanthropic foundations and industry, advised government departments and maintained a large number of committees of civilian scientists for joint study of specific problems. Membership in 1951 was 475; there were 225 members of the National Research Council (founded 1916) and about 3,000 members of committees. Publications: *Proceedings of the National Academy of Sciences;* periodicals; numbered series of technical publications reviewing research. It is endowed by the Carnegie Corporation of New York. Detlev W. Bronk was president of the academy in 1951. William W. Rubey was chairman of the National Research Council. Headquarters: 2101 Constitution Ave. N.W., Washington 25, D.C.

National Association for the Advancement of Colored People.—Founded in 1909, this organization directed its 1951 activities toward abolishing segregation and discrimination in housing, the armed forces, recreation facilities, employment and education. Membership in 1951 was approximately 250,000. Publication: *Crisis* magazine. Officers (1951): Arthur B. Spingarn, president; Walter White, executive secretary. Headquarters: 20 W. 40th St., New York 18, N.Y.

National Association of Manufacturers.—The N.A.M. was founded in 1895 to promote the industrial interests of the U.S., foster domestic and foreign commerce, improve employer-employee relations, protect individual liberty and the rights of employer and employee, and support legislation in furtherance of these principles. Its activities in 1951 were exercised through 13 committees, and included employment relations clinics, vocational guidance forums and the annual Congress of American Industry. Membership in 1951 was approximately 16,500. Publications: *NAM News*, weekly; *NAM Law Digest*, quarterly; and others. Officers (1951) included: William H. Ruffin, president; Earl Bunting, managing director; Noel Sargent, secretary. Headquarters: 14 W. 49th St., New York 20, N.Y.

National Association of State Libraries.—This association was founded in 1889 to provide active co-operation among state libraries and to facilitate the exchange of state laws, court reports and public documents. Its 1951 membership included 46 state libraries. Its national convention was held in Chicago, Ill., in June 1951. Publications include check lists of collected public documents, legislative journals, session laws and statutes. Officers (1951): Roger H. McDonough, New Jersey State library, president; Alfred Decker Keator, Harrisburg, Pa., secretary-treasurer. Headquarters: New Jersey State library, Trenton, N.J.

National Education Association of the United States.—This organization was founded in 1857 "to elevate the character and advance the interests of the teaching profession and to promote the cause of education thruout the country." In preparation for its centennial anniversary in 1957, the 30th representative assembly at San Francisco, Calif., on July 6, 1951, adopted the charter of the Centennial Action program, 1951–57. Progress in the activities of its committees, in public relations, in its work with state and local associations and in the field of standards for the preparation and certification of teachers continued. As of May 31, 1951, the membership was 465,266; membership of affiliated state associations was 880,156. Publications: *NEA Journal* and *Research Bulletin*. Officers (1951–52): J. Cloyd Miller, president; Willard E. Givens, executive secretary. Headquarters: 1201 16th St. N.W., Washington 6, D.C.

National Temperance League, Inc.—This federation of state temperance organizations was formed by the merger in 1950 of the Temperance League of America (formerly the Anti-Saloon League of America) and the National Temperance Movement, Inc. Its purpose is to promote abstinence and to diminish and ultimately eliminate the traffic in alcoholic beverages. The official publication is the *American Issue*. Officers (1951) included: president, Robert G. Lee; secretary, James R. Swedenburg. Headquarters: 131 Independence Ave. S.E., Washington 3, D.C.

Parents and Teachers, National Congress of.—This organization, founded in 1897, had in 1951 a membership of 6,589,516 parents, teachers and other citizens interested in its objectives, organized in about 37,000 individual local associations. Its purpose is to promote the welfare of children; raise the standards of home life; secure laws for care and protection of children and youth; bring the home and school into closer relationship; and develop plans for joint action along these lines by educators and the general public. Activities in 1951 included establishment of a civil defense plan, inauguration of a program to combat illegal drug traffic and sponsorship of other programs dealing with parent-teacher leadership. Publications: the *National Parent-Teacher;* the *P.T.A. Magazine;* the *National Congress Bulletin*. Officers (1951): Mrs. John E. Hayes, national president; Mrs. Edgar F. Dixon, national secretary. National headquarters: 600 S. Michigan Blvd., Chicago 5, Ill.

Research Libraries, Association of.—Founded in 1931, this association of 48 institutions seeks by co-operative effort to develop and increase the resources and usefulness of the research collections in American libraries. Publications include *Doctoral Dissertations Accepted by American Universities* and *Newspapers on Microfilm: A Union Check List*. Charles W. David was executive secretary in 1951, and headquarters were at the University of Pennsylvania library, Philadelphia, Pa.

Rockefeller Foundation.—Founded in 1913 "to promote the well-being of mankind throughout the world," the foundation during 1951 made grants to institutions or agencies such as universities, research institutes or governmental agencies, in the following fields in which its program for the advancement and application of knowledge to human interest was currently concentrated: medical sciences, natural sciences, social sciences, humanities and public health. The 21 trustees are the 21 members of the corporation. Assets, Dec. 31, 1950, totalled $129,379,362. Officers: Chester I. Barnard, president; Edward Robinson, treasurer; Flora M. Rhind, secretary. Headquarters: 49 W. 49th St., New York 20, N.Y.

Rotary International.—Founded Feb. 23, 1905, this organization sponsors a program to encourage and foster the "ideal of service." By 1951, 284 Rotary fellowships for graduate study for one year in foreign countries, ranging from $1,800 to $3,400, had been awarded to students from 42 countries. In 1951 there were 7,400 Rotary clubs with a membership of 350,000 business and professional executives in 83 countries and regions. Publications: the *Rotarian* (English) and *Revista Rotaria* (Spanish), monthly magazine; *Proceedings* of 42nd annual convention; and pamphlets. Officers (1951) included: Frank E. Spain, president; Philip Lovejoy, secretary. Headquarters: 35 E. Wacker Dr., Chicago, Ill.

Russell Sage Foundation.—Established in 1907 by Mrs. Russell Sage for "the improvement of social and living conditions in the U.S.," the foundation's program underwent a revision in 1948 when its library collection, relating chiefly to social work, was divided between the New York School of Social Work and the College of the City of New York. Its later program consisted of varied research and consultation projects, designed to advance the use of the social sciences in the fields of health, education, government and welfare. Publications included *Selection for Parole*, by L. E. Ohlin, and *Social Science and Psychotherapy for Children*, by Otto Pollak. Assets of the foundation, as of Sept. 30, 1951, were $14,150,000. Officers (1951): president, Eli Whitney Debevoise; general director, Donald Young; treasurer, Dave H. Morris, Jr.; secretary, Ralph G. Hurlin. Headquarters: 505 Park Ave., New York 22, N.Y.

Seeing Eye, Inc.—A national philanthropy founded in 1929 and supported through annual memberships, public contributions and bequests. The society's purposes include securing and training dogs to guide blind persons, teaching instructors the technique of training the guide dogs and training the blind in the proper use of their guide dogs. During 1951, 187 blind persons were provided with dog guides. Membership in 1951 was about 20,000; in 1951 more than 1,900 people had received Seeing Eye dogs since the organization's inception. Publications: *The Seeing Eye Guide*, published quarterly for the members of The Seeing Eye, and printed booklets. Officers (1951): Henry A. Colgate, president; James Carey, treasurer; George Werntz, secretary. Headquarters: Morristown, N.J.

Sloan Foundation, Inc., Alfred P.—Founded in 1934, the foundation's primary purpose is the increase and spread of economic knowledge; it also promotes interest in cancer research, primarily through the Sloan-Kettering Institute for Cancer Research of the Memorial Cancer centre in New York city. Economic activities include grants to research organizations and institutions of higher learning and for the production and distribution of radio programs, motion pictures, pamphlets and related material in the field of economics. In 1951 its funds totalled $24,114,126. Officers (1951): Alfred P. Sloan, Jr., president; Arnold J. Zurcher, vice-president and executive director; James F. Kenney, secretary and treasurer. Headquarters: 30 Rockefeller plaza, New York 20, N.Y.

Sodality of Our Lady.—This international Catholic body was founded in 1563 to foster devotion to Mary, the Mother of God. During 1951 eight sodality summer schools of Catholic Action were held with a total attendance of 8,389. U.S. sodalists sent to Pope Pius XII, as a spiritual Christmas gift, offerings of 1,000,021 masses and 841,085 communions. In the U.S., membership in 1951 comprised 16,883 affiliated units with from 6 to 2,000 members in each. Publications include *The Queen's Work*, *Action Now*, *Junior Sodalist* and pamphlets. Officers are a number of priests of the Jesuit order. Headquarters: 3115 S. Grand Blvd., St. Louis 18, Mo.

Twentieth Century Fund.—Founded in 1919 by Edward A. Filene, this is a nonprofit, nonpartisan foundation for research and public education on current economic problems. Activities during 1951 included publication of *Monopoly and Free Enterprise*, *Financing Defense*, *Defense without Inflation* and *Short Selling on the New York Stock Exchange*, and completion of studies of employment and wages in the U.S., the Costa Rican economy and British planning and nationalization, all for publication in 1952. A sound film, *Producing for Defense,* was released for television and nontheatrical use, and a series of radio programs entitled "The People Act" was produced jointly by the fund and the National Broadcasting company. Other projects included studies of national and international economic problems such as agricultural policies in the U.S., antitrust policies and enforcement, government financing, international monetary policy, world needs and resources, U.S. imports, etc. Total assets, Dec. 31, 1950: $9,843,706. Officers: A. A. Berle, Jr., chairman of the board; Francis Biddle, chairman, executive committee; Evans Clark, executive director; J. Frederic Dewhurst, economist. Headquarters: 330 W. 42nd St., New York 18, N.Y.

United States Junior Chamber of Commerce.—This national civic service organization of young men, ages 21 through 35, had in 1951 a membership of approximately 175,000. There were local groups of "Jaycees" in more than 1,900 communities located in the 48 states, Alaska and Hawaii. Activities during 1951 included dedication of a national headquarters building in Tulsa, Okla., and the annual competition for the ten outstanding young men of the U.S. At the national convention in Miami, Fla., in June, the organization adopted a Junior Citizens' crusade, designed to eliminate the causes of juvenile delinquency and to help rehabilitate youthful offenders. Publication: *Future,* monthly. President (1951): Lee Price, Jr., Swainsboro, Ga. Headquarters: 21st and Main Sts., Tulsa, Okla.

Woman's Christian Temperance Union, National.—This organization was founded in 1874 to unite Christian women of the U.S. to rally public sentiment for total abstinence from all alcoholic liquors and to abolish traffic in alcoholic liquors. Membership in 1951 was about 400,000; publications include the *Union Signal* (weekly) and the *Young Crusader* (monthly), for children. During the year the organization continued its comprehensive educational program, distributing literature and educational films and conducting lectures and summer courses for teachers. Officers (1951): Mrs. D. Leigh Colvin, president; Mrs. B. Blanche Butts, corresponding secretary; Mrs. Jonathan B. Cook, treasurer. Headquarters: 1730 Chicago Ave., Evanston, Ill.

Women's Clubs, General Federation of.—Founded in 1890, this organization aims at uniting women's clubs throughout the world to promote education, philanthropy, public welfare, moral values, civics and fine arts. Its 1951 activities included a "Build Freedom with Youth" contest; an international good will program; and campaigns to provide supplies in emergency areas. During the school year 1950–51, 59 students from 27 countries were awarded a total of $30,253. Membership in 1951 included 803,401, with a total in affiliated organizations of about 11,000,000 in the U.S. and a number of other countries. Publication: *General Federation Clubwoman* (monthly). Officers (1951): Mrs. Hiram Cole Houghton, president; Mrs. R. I. C. Prout, treasurer; Mrs. J. L. McCaffrey, recording secretary. Headquarters: 1734 N St. N.W., Washington 6, D.C.

Young Men's Christian Association.—Founded in London, Eng., in 1844, this is a world-wide fellowship seeking to improve the spiritual, social, recreational and physical lives of young people. During 1950 (latest data available in 1951) there were 1,688 Y.M.C.A.s operating in cities and rural areas, with memberships of 2,804,691. More than 149,000 clubs, classes, teams, special-interest groups and councils met regularly with programs emphasizing physical, educational, social and religious features, plus emphasis on citizenship and world affairs. Among high school youth, 9,826 Hi-Y clubs for boys and 2,986 Tri-Hi-Y clubs for girls were functioning. Publications included *National Council Bulletin,* YMCA *Year Book* for 1951 and *History of the YMCA in North America* (1951). Endowments totalled $51,248,000. Officers, 1951: Harper Sibley, president; Eugene E. Barnett, general secretary. The corporate body, the National Board of Y.M.C.A.s, had headquarters at 291 Broadway, New York 7, N.Y.

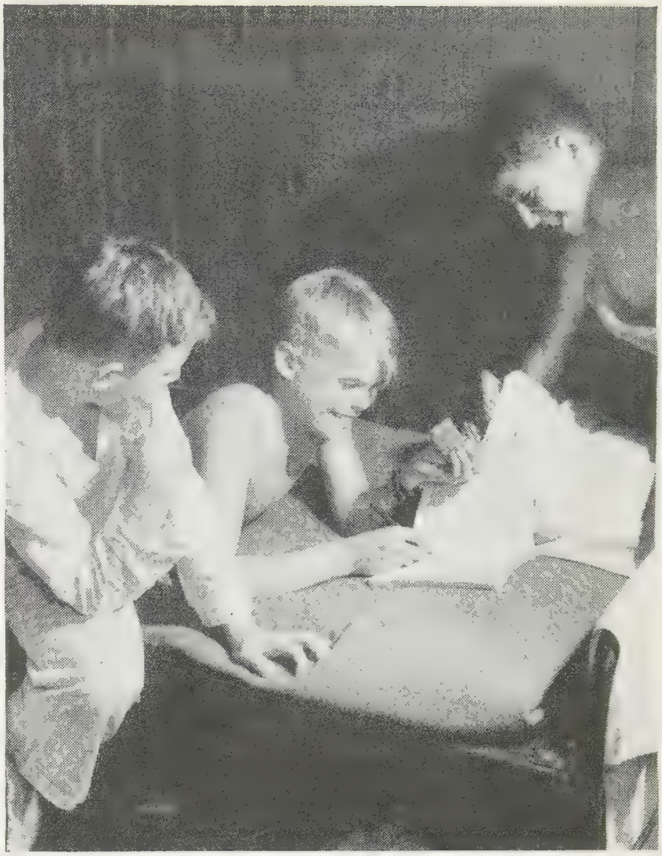
Young Women's Christian Association of the United States of America.—This organization was founded in England in 1855 and in the U.S. in 1858 to build a fellowship of women and girls devoted to the pursuit of Christian ideals in personal and social living. During 1951, 3,000,000 women and girls participated in its activities, which engage women from high school age on. Publications: *The Bookshelf* and *YWCA Magazine.* Officers, 1951: Mrs. Arthur Forrest Anderson, president; Mrs. Roland P. Beattie, treasurer; Mrs. Harrison S. Elliott, general secretary. Headquarters: 600 Lexington Ave., New York 22, N.Y.

Zionist Organization of America.—Founded in 1897, this organization's purpose is to provide assistance to the people of Israel and advance the Jewish cultural renaissance everywhere. During 1951 it sponsored Israel's bond campaign in the U.S.; provided assistance to three youth villages and veterans' organizations in Israel; awarded five Israeli scholarships; and conducted an international essay contest on the relationship between Israel and American Jewry. Membership in 1951 totalled 175,000. Publications: *The American Zionist; The Zionist Quarterly; Dos Yiddishe Folk;* and *Inside Israel.* Officers (1951): Benjamin G. Browdy, president; Sidney Marks, secretary. Headquarters: 41 E. 42nd St., New York 17, N.Y.

Zonta International.—A service organization of executive women in business and the professions, founded in 1919, this organization encourages high ethical business and professional standards, the improvement of the legal, political, economic and professional status of women, and international understanding through a world fellowship of executive women. Membership in 1951 included about 240 clubs with approximately 8,500 members in the U.S. and other countries. Publications: *Zontian* magazine and pamphlets. Officers (1951–52): Elizabeth Gist Dozier, San Fernando, Calif., president; Ellen Fireoved, Chicago, Ill., executive secretary. Headquarters: 59 E. Van Buren St., Chicago 5, Ill.

Sociology.

In 1951 the continuance of the cold war and the Korean war seemed to have accelerated, in the United States, the trend toward large-scale research. Funds in considerable amount became available for social-psychological, sociological and related investigation. The department of defense in its various branches let numerous contracts, the Rand corporation (an air force device for avoiding red tape) continued its "brain trust" program, the central intelligence agency almost certainly had, under tight security, an extensive research setup, and the department of state did a great deal of high quality work under severe handicap. Field workers were sent to many areas at home and overseas by some of these agencies to deal with problems such as how to avoid friction between U.S. forces abroad and the indigenous population. Lecturers from the universities were called in to work along lines reminiscent of the foreign area and language study curriculum and the civil affairs training program of World War II. The Point Four program, in which the department of agriculture played a large part, enlisted the research and field work services of many rural sociologists.


BUNKMATES at an international children's village set up near Cincinnati, O., in 1951. The children's interrelations and their diaries were used as research material by a staff of sociologists and psychologists headed by D. T. Allen, psychologist at the University of Cincinnati

All in all, government seemed to be sponsoring, supervising or conducting general social-scientific research on a large scale, and the various specialties in the science of social relations came in for a good share of attention. Most of the work was done by teams or at least by co-ordinated personnel, and was almost always anonymous and under security classification.

The private foundations, large and small, likewise fostered large-scale research. Some of them, notably the Ford foundation, gave support to programs aimed not at specific researches but at genuinely basic considerations. Large grants to individual researchers who then recruited assistants were also made, but not in most cases by the more conventional foundations.

The universities also showed signs of favouring large-scale research, especially on interdepartmental and teamwork bases. This was sometimes partially supported by the taking of contracts to do work for private concerns—advertising agencies, television and radio sponsors, industrial organizations and so on. Over and above this, however, appeared the increasing practice of giving release from teaching and committee duties in order to do research, and also the establishment of full-time research professorships.

Research of the small-scale type, much of it carried out by individuals, continued to be of importance although relatively less prominent. Fulbright appointments, Social Science Research council grants (especially for area training and investigation), university sabbaticals, special research leaves, reduced teaching schedules, provision for research assistants, Carnegie support, and self-financed projects accounted for a considerable flow of basic and applied work.

Many men who would have chafed under even the mild regimentation that some large-scale projects involved were thus enabled to make important contributions, more especially when the projects they undertook did not lend themselves to the use of standardized methods or techniques.

The teaching function of the social scientist also received recognition from government agencies. For example, the department of state brought in sociological and anthropological specialists for its summer and other staff courses, the air force college at Maxwell field, Ala., made use of social-science-trained lecturers on both permanent and visiting bases, the central intelligence agency had men on leave or "on career" who taught ordinary academic subjects with the special slant that the needs of the agency required, and the Pentagon not infrequently utilized academic consultants in a teaching capacity.

In the colleges and universities the teaching of this or that branch of the science of social relations at both undergraduate and graduate levels still took up the greater part of the time of most staff members of those branches.

Sociological and allied publication continued on its accustomed way. The usual flock of elementary textbooks made its appearance, but was peppered by the telling shots of A. H. Hobbs, whose *Claims of Sociology* (1951) showed clearly how much quoting of textbooks by other textbooks, and so on, was going on, and how flimsy some of the most widely accepted textbook generalizations were. The best textbook of the year, however, Don Martindale's and E. D. Monachesi's *Elements of Sociology* (1951) was not as vulnerable as others.

There was a continuance of the translation vogue with at least one worth-while result, H. H. Gerth's work on Max Weber's *The Religion of China* (1951).

Among important treatises published were Talcott Parsons' *The Social System* (1951) and a symposium edited by Parsons and E. A. Shils, *Toward a General Theory of Action* (1951). It was too early to assess the ultimate significance of these works, but it already seemed clear that they would call forth much comment. The careful student could readily determine where most of the theoretical insights came from by reading Howard W. Odum's *American Sociology* (1951) and Howard Becker's and Harry Elmer Barnes' *Social Thought from Lore to Science* (2nd ed., 1951).

In Great Britain there was a sound stress on field work and similar kinds of empirical research. At Birmingham there had already appeared an impressive research publication following a social-cartographic method that bore the title, reminiscent of Patrick Geddes, of *Conurbation;* North Americans would have classified it as urban sociology or human ecology. A survey of Banbury, with primary reference to neighbourhood and similar clusterings, was in full swing, and a somewhat similar survey of Coventry was well advanced. Liverpool researchers were working on the sociology of housing. At Edinburgh the department of anthropology was carrying on studies in remote Scottish parishes, small villages, and among minority groups that were essentially sociological. In the Institute of Agricultural Economics at Oxford researches were proceeding in the field of rural sociology.

The Tavistock Institute of Human Relations was doing studies along "group dynamics" lines, with heavy injections of psychoanalysis, labour economics and measurement techniques.

Outside the British universities and institutes there was some good sociological work that did not bear that label. Researches of social-science amateurs were often published in small local journals of high quality. County books and similar publications dealing with manners, customs and social institutions of all sorts abounded in the bookshops. Studies of regional characteristics in personality and culture were numerous. Signs of progress were clearly apparent, particularly in the pages of the important new periodical, the *British Journal of Sociology.*

In France the break with the period prior to World War II was not so strikingly evident as it was in Britain and in the United States. There was no notable increase in the number of students of sociology or of professorial posts.

Important French research centres were the École Pratique des Hautes-Études and the Centre d'Études Sociologiques (the latter a part of the Centre National de la Récherche Scientifique). Books and articles of significance were published by Georges Friedmann, Paul Maucorps, Georges Gurvitch, Roger Bastide and Marcel Mauss, and there appeared posthumously Maurice Halbwachs' *La Mémoire collective.*

Germany was slowly recovering from the nazi blight and the postwar confusion, but there was a deplorable dearth of younger men in important posts. Few chairs of sociology had been established; those that existed were occupied by men who were primarily philosophers, historians, journalists, or would-be political figures. At the same time, good research institutes granting some place to sociology were to be found at Frankfurt, Münster, Marburg, Giessen, Hanover, Darmstadt and Göttingen, to name only a few. The number of younger men who were sent abroad for sociological training was considerable. During the year, an imposing *Festschrift* was published in honour of Leopold von Wiese on his 75th birthday, with contributions by sociologists from all over the world.

FILMS OF 1951.—*Ages and Stages Series* (2 films) (McGraw-Hill Book Co., Text-Film Department); *Discussion Problems: Other People's Property, Discussion Problems: The Other Fellow's Feelings, Discussion Problems: The Outsider* (Young America Films, Inc.); *Going Steady, Heredity and Environment, How Friendly Are You? How to Say No—(Moral Maturity), Marriage is a Partnership, Self-Conscious Guy, Social Courtesy, What to do on a Date* (Coronet Films); *The Challenge* (The March of Time Forum Films); *The Growing Years* (Associate Films, Inc.).

(H. BEC.)

Sodality of Our Lady: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Softball. The Dow Chemical Company nine at Midland, Mich., provided a thrilling finish for the 1951 world championships of the Amateur Softball association held at Detroit, Mich., when it came back from defeat to topple the Clearwater, Fla., Bombers, the defending titleholders. After losing to the Southerners, 3–1, earlier in the competition, the Dow team blanked Clearwater by 4–0 in the final round to force a playoff for the crown. John Skolnicki, who had held the Bombers to 3 hits in the last round contest, was called upon again in the deciding battle and he was in top form, allowing only 2 safeties.

Two California teams met in the title contest of the women's division and the honours went to the Orange Lionettes for the second year in a row when they set back the Fresno Rockets, 2–1, for their fifth victory in five tournament games. Behind the 7-hit twirling of Bertha Ragan, the Lionettes won in the 20th inning on a walk, a wild pitch and a single by Pat Collins.

FILMS OF 1951.—*Softball Champions* (T. N. Rogers Productions).

(T. V. H.)

Soil Erosion and Soil Conservation. A significant trend noted during 1951 was the incorporation of soil and water conservation into programs designed specifically to improve conditions in underdeveloped countries. It was becoming apparent in most of these countries that better living conditions could not be achieved without increased agricultural production. And, fortunately, nearly everywhere there were at least a few agriculturists, holding positions of importance and trained in modern conservation methods, who could advocate care and improvement of the soil as a primary factor essential to greater yields of food and forage crops.

The Food and Agriculture organization of the United Nations was assisting in the spread of conservation methods to the needy nations. Other United Nations organizations gave impetus to the movement by setting up educational programs, such as the pilot projects of U.N.E.S.C.O. and stressing soil and water conservation as an important feature of educational activities for backward communities. These projects were proving especially valuable in some of the Latin-American countries. At the same time, a number of conservation technicians were dispatched into underdeveloped areas through the Point Four program, or through the Economic Co-operation administration, where funds were made available to assist worthwhile soil conservation programs already in operation.

The soil conservation service of the U.S. department of agriculture continued to train conservationists on a worldwide basis for the benefit of food production in general. By Nov. 1951, nearly 1,000 agricultural scientists or technicians had visited the United States from 90 nations, colonies or protectorates, to study soil conservation with the soil conservation service. About 200 of them had spent a year or more learning soil and water conservation in all its phases.

Some of the underdeveloped nations or colonies reporting benefits in the form of better food production from soil conservation were: the Belgian Congo, Algeria, Nigeria, Uganda, Tanganyika, Kenya, Nyasaland, Haiti, Guatemala and El Salvador.

In Europe there was a significant acceleration in planning and organizing for modern soil conservation as a basis for increasing food production to provide better nutrition in small countries with dense populations. Soil conservation work was started in Spain, Portugal, Switzerland, Austria, Germany and France. About 250 agricultural specialists from European countries, including Iceland, Great Britain and the Azores visited the United States to observe and study soil and water conservation methods applied on farm land.

Some of the technical problems encountered during the year were the restocking of derelict woodlands and the reclamation of land devastated by open-cast mining in Great Britain; water spreading and flood control methods adaptable to barren lands slated for reclamation in India; and suitable water spreading methods for the great plains of the United States, and parts of Australia and India. Special studies were being conducted in all these regions to devise the least expensive and permanently effective ways of solving such problems.

United States.—During 1951 there were several significant advances in soil and water conservation. The field of the work on the land broadened considerably as farmers and ranchers organized more than 80 new soil conservation districts including nearly 55,000,000 ac. and 100,471 farms. By Nov. 1, 1951, 2,412 such districts had been formed in the 48 states and in Alaska, Hawaii, Puerto Rico and the Virgin Islands. They covered approximately 1,333,000,000 ac. and included 4,929,464 farms and ranches. Technicians of the soil conservation service were located in all but 51 of the districts, helping farmers to plan their farms and to apply soil and water conservation methods to their land. Ten states and two territories were completely covered by the districts: Alabama, South Carolina, Delaware, Rhode Island, New Hampshire, Vermont, New Jersey, Massachusetts, Nebraska, Mississippi, and Puerto Rico and the Virgin Islands.

RECLAIMING LAND from the Zuider Zee to increase Dutch acreage, a project being financed in 1951 with the help of Marshall plan funds. Sand-laden water is shown being poured over a rising dike to leave a deposit of sand (rear) when the water drains off

The soil conservation districts, organized under state laws and functioning as local units of state governments, were proving the most important feature of the national soil and water conservation program. The primary aim of all districts is to apply needed soil and water conservation measures and to maintain the land for high production of agricultural products. The districts were especially effective during 1950–51 in gaining the interest and support of state and local agencies and institutions in soil conservation.

All state experiment stations continued to co-operate with the soil conservation service in soil and water conservation research, while many state nurseries assisted by producing seed and planting materials for erosion control plantings in the districts. The state legislatures were appropriating directly, on an annual basis, between $4,000,000 and $5,000,000 for use by the districts. In addition, many local government agencies, as well as civic and business groups, were contributing valuable aid in the form of technical assistance, benefit or incentive payments and grants, or materials and equipment needed by the districts for conservation works benefiting the communities.

As of July 1, 1951, 18,542 private contractors were engaged in soil conservation work in the districts. More than 50,000 pieces of heavy equipment were being used, including wheeled and crawler tractors, draglines, power shovels, ditching machines, well drillers, bulldozers, pickup scrapers, and others.

A working method developed by soil conservation service technicians and farmer supervisors of soil conservation districts, known as neighbour group action, was effective in speeding conservation work in many communities during 1950 and 1951. By this method, natural neighbourhood groups, bound by common interests and daily living, planned and worked together, with the technicians' assistance, to spread soil and water conservation within their farm communities. They made conservation plans of the whole communities, loaned one another machinery and seed, assisted each other in laying out terracing and strip cropping, formed working parties to build ponds and diversions, and co-operated in conservation work in many other ways.

The soil conservation service was providing technical assistance to nearly 26,000 such groups during 1951. About 16,500 additional groups had been identified and many had started this type of neighbourhood co-operation within soil conservation districts. The method was proving effective in speeding up the planning and application of conservation plans and methods, and in many instances it appeared that the work was more efficient.

Considerable attention was given by the soil conservation service to effective and inexpensive ways to maintain soil and water conservation practices in good working condition after they were applied. Nearly 150,000,000 ac. of farm and ranch land had been completely treated for erosion control and conservation use, and farmers were keenly interested in maintenance. Application of conservation plans was in progress on an additional 110,000,000 ac., so that the problem of maintenance was important to operators whose land totalled about 260,000,000 ac. All of this land was in use for production of food, livestock feed, and other crops necessary to the nation's economy.

Complete conservation farm plans had been prepared for more than 1,000,000 farms including 275,116,000 ac. by the end of the 1951 fiscal year. Conservation surveys had been completed on 375,300,000 ac.

Substantial progress was made in range conservation in 1951. Ranchers showed increased interest in conservation, and new soil conservation districts were formed in the range country. Conservation management plans were applied on 11,000,000 ac. of range, making a total of about 70,000,000 ac. that had been put under conservation treatment by July 1, 1951. Nearly 10,000,000 ac. of pasture and range seeding had been completed. Studies made of livestock production on ranges which were in poor condition, and those in good condition after conservation treatment, showed an average increase of 60% in pounds of beef per acre on the conservation treated ranges.

On Feb. 15, 1951, the secretary of agriculture designated the basic objective toward which all soil conservation activities of the department of agriculture were to be directed. The objective read: "The basic physical objective of soil conservation activities by Department agencies shall be the use of each acre of agricultural land within its capabilities and the treatment of each acre of agricultural land in accordance with its needs for protection and improvement." The secretary directed that co-ordinating activities be carried out between the soil conservation service, the agricultural conservation program of the Production and Marketing administration, the forest service and other agencies concerned with conservation.

Considerable progress was made in this co-ordinating program during the latter half of 1951. Under the new directive the soil conservation service became responsible for all technical phases of soil conservation work undertaken by the Production and Marketing administration in state and county programs and for giving technical assistance to farmer participants in the agricultural conservation program. The Production and Marketing administration continued to be responsible for payments for conservation practices, and the forest service and soil conservation service were directed to work closely together to improve farm woodlands and help farmers establish sustained yield woodland practices as part of their conservation farming plans.

World-Wide Developments.—Almost all organized nations, colonies or protectorates had taken steps toward conservation of soil and water resources by the end of 1951. Some of the year's developments which appeared promising were as follows:

A soil and water survey was started early in the year in Libya, North Africa, with funds alloted under the United States Point Four program. At the same time, an agricultural education program, including simple soil conservation methods, was launched in Eritrea. Programs already in operation in Algeria and the Sudan were stressing wind erosion control in flat lands, and attempting to develop sound practices to save all rain water falling in highlands.

In Pakistan a central soil conservation organization was established to conserve soil and water resources by extending sound land use practices and reducing hazards of floods and siltation. Intensified research was launched, including five new research stations in Baluchistan, North-West Frontier Province, Sind, Punjab and east Pakistan, in order to develop erosion control practices under local conditions. A survey had shown that soil erosion and waterlogging were putting about 200,000 ac. of land out of use every year and reducing fertility of other lands. Intensive research was said to be required to find remedies for Pakistan's waterlogged areas.

The Israeli Soil Conservation department established a large nursery for erosion control grasses and legumes at Migdal Got during 1951. Much of the area was seeded to a variety of grasses, which were to be studied to determine those best adapted to erosion control and grazing throughout the country.

A National Soil Conservation act was passed by the congress of the Philippines in May and approved by Pres. Elpidio Quirino in June 1951. The act established the Bureau of Soil Conservation, under executive control and supervision of the Philippine Department of Agriculture and Natural Resources. The new bureau absorbed all divisions, sections and field activities and agencies of the government theretofore connected with soils and conservation work. It was authorized to make erosion studies and surveys, establish conservation demonstrations, and carry on an active program of assistance to soil-conserving farmers. Four regional areas with field headquarters already had been established, and soil conservation tillage, sedimentation control and soil fertility demonstrations were under way.

In the Union of South Africa, 408 soil conservation districts, covering 118,390,000 ac. and including 46,393 farms, had been formed by the beginning of 1951. District committees were functioning in 298 of the districts, and soil conservation technicians were at work with farmers in 150 of them. In addition, seven conservation areas, covering about 4,400,000 ac. of critically eroded land, were being treated with gully control, cover cropping, regrassing, and reforestation methods adapted to the different conditions. The total area in the districts and the conservation areas represented about half the land farmed by Europeans in the Union. It mainly included, however, areas devoted to pastoral farming, that is, ranching and production of wool and mutton. Arable farms were proving much slower in becoming part of the soil and water conservation program. In May, officials of the Union's Division of Soil Conservation began assisting South West African farmers and farm organizations, upon request, in the formation of a soil and water conservation program for that country.

A soil conservation committee of five agricultural technicians was appointed by the minister of agriculture of Portugal in June 1951 to develop a soil and water conservation program for that country including the Madeira Islands. All of them were sent to the United States to study with the U.S. soil conservation service, as a first step in planning the Portugal program. In France, also, a new technical section to conduct research with special reference to soil conservation, irrigation and drainage problems, and to aid in development of conservation education, was set up and staffed within the ministry of agriculture's office of rural engineering. The newly organized staff visited the United States for study and observation during the summer of 1951. (*See* also AQUEDUCTS; DAMS; FORESTS; IRRIGATION.)

FILMS OF 1951.—*Earth, Erosion* (Gateway Productions, Inc.). (H. H. BE.)

Solar System: *see* ASTRONOMY.

Solomon Islands: *see* PACIFIC ISLANDS, BRITISH; TRUST TERRITORIES.

Somaliland, British: *see* BRITISH EAST AFRICA.

Somaliland, French.

This former colony situated in the Gulf of Aden, the status of which was changed in 1946 to that of overseas territory, is bounded north by Eritrea, west and south by Ethiopia and southeast by British Somaliland. Area: 8,376 sq.mi. Pop.: (1936 census) 46,391; (1950 est.) 60,000. Natives included 21,000 Danakils, 15,700 Somalis and 5,600 Arabs; Europeans 2,000, including 1,260 French. Capital: Jibuti (pop., 1949 est., 22,000). Governor: Numa Sadoul.

History.—In the elections of June 17, 1951, for the national assembly in Paris, the deputy going out, a Socialist, was replaced by a Gaullist. Work on the port and on the street plan of Jibuti was continued. Steps were taken toward establishing centres of cultivation in the hinterland, with a view to settling nomads. The new local assembly, based on a better distribution of seats among the various peoples, seemed to have given satisfaction. There were no reports of disturbances.

Education.—Schools (1950): primary 7, pupils 870.

Foreign Trade.—(1950): Imports 2,720,000,000 Jibuti fr.; exports 1,383,000,000 Jibuti fr. (coffee treated on the spot and re-exported, 963,000,000 Jibuti fr.; sea salt 91,000,000 Jibuti fr.).

Transport and Communications.—(1950) Roads 400 km.; motor vehicles 500. Traffic handled by the port of Jibuti 460,000 metric tons.

Finance.—Budget (1951 est.): balanced at 539,000,000 Jibuti fr. Jubuti franc = 1.64 metropolitan francs = .466 U.S. cents. (HU. DE.)

Somaliland, Italian.

This is an Italian trust territory (former colony) in east Africa, bounded southeast by the Indian ocean, west by Kenya and northwest by British Somaliland and Ethiopia. Area: 198,000 sq.mi. Pop. (1949 est.): 971,879 (incl. 2,985 Italians). Capital, Mogadishu (pop. *c.* 74,000). Administrator, Giovanni Fornari.

History.—The year 1951 was the first full year of trust administration designed to lead the territory to independent sovereign status within ten years. Italy, the administering authority, prepared machinery and plans to achieve this ideal. Activities were mainly concerned with picking up the threads of administration severed by a nine-year British interlude. By Somali standards the country was peaceful during the year.

Constitutional progress was initiated by the formation of a council, nominated by the administrator. It consisted of representatives of all the main interests and of provincial and municipal councils. These bodies had been given advisory powers only. An administrative school was opened in Mogadishu to train selected Somalis as future governing elements. The advisory council for the trusteeship administration of the United Nations consisting of representatives of three member states continued to function during the year. The Somali Youth league, which had strenuously opposed the re-entry of Italy to the colony, extended reluctant co-operation to the administration, but their spokesmen outside the territory continued to complain in petitions to the U.N. Trusteeship council of victimization.

The report by Italy was examined by the Trusteeship council in July, and received a favourable, although not uncritical, reception. It emphasized the country's economic instability, the need for capital investment to develop its scanty resources and the political immaturity of the people. (*See* also TRUST TERRITORIES.) (F. E. ST.)

Education.—Schools (1951): 68 elementary (6,892 pupils); 11 secondary (550 pupils). School of administration, 37 pupils.

Finance and Trade.—Currency: somalo (one somalo = Italian L.87.50, U.S.$1 = 7.14 somali). Budget 1950–51: revenue 55,907,454 somali, including grant-in-aid from Italy 30,527,324 somali; expenditure 55,907,454 somali. Foreign trade (April 1–Dec. 31, 1950): imports 43,632,289 somali; exports 18,816,107 somali. Principal exports (April 1–Dec. 31, 1950): bananas 5,504,447 somali, cotton 2,139,351 somali, hides 4,928,583 somali.

South Africa, British: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

South Africa, The Union of.

A self-governing member of the Commonwealth of Nations, the Union of South Africa extends from the southernmost point of the African continent to the Limpopo river in the north. The mandated territory of South-West Africa is administered by South Africa. (*See* also TRUST TERRITORIES.)

Province	Area (sq. mi.)	Population (1951 census*)	Capital (pop., 1951 census)
Cape of Good Hope. . . .	277,113†	4,417,330	Capetown (571,638)
Natal	35,284	2,408,433	Pietermaritzberg (74,399)
Orange Free State	49,647	1,018,207	Bloemfontein (109,130)
Transvaal	110,450	4,802,405	Pretoria (283,148)
Total, Union of South Africa	472,494	12,646,375	
South-West Africa.	317,725	430,354	Windhoek (1946 census, 14,933)

*Revised preliminary figures.

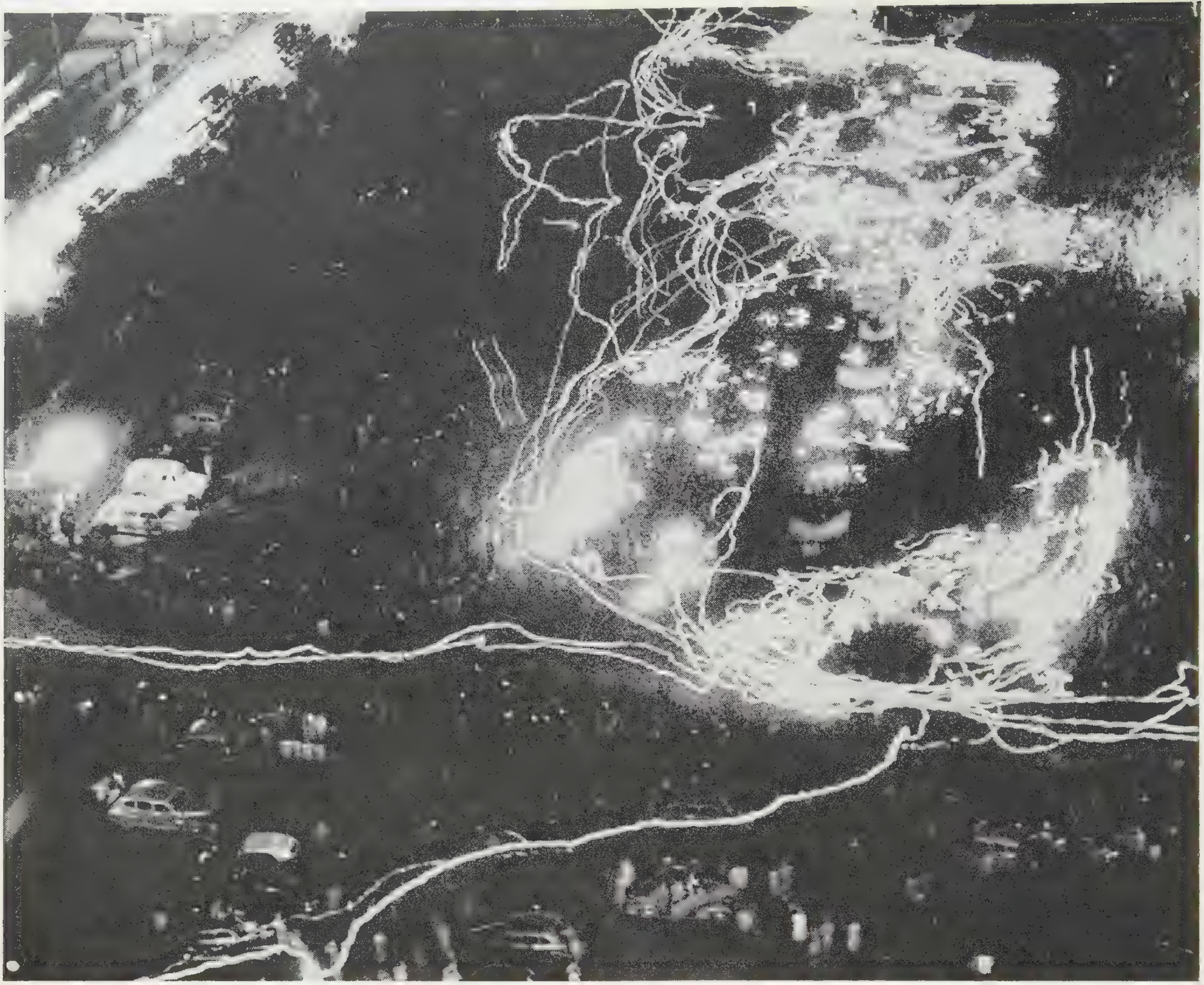
†Including Walvis Bay (430 sq.mi.; pop., 1946 census, 2,270) administered with South-West Africa.

The population of the Union included: European 2,643,187; Bantu 8,535,341; coloured (mixed) 1,038,766; Asian 365,524; Cape Malays 63,557. South-West Africa: European 49,641; African 380,686; Malay 16; Asians 11. Languages: official languages (1946 census, Europeans only), 69% spoke Afrikaans and English, 17% English only, 14% Afrikaans only; Africans, generally Bantu. Religions: (Europeans, 1946 census) Dutch Reformed Church 55%, Anglican 19%, Methodist 6%, Presbyterian 5%, Roman Catholic 5%, Jewish 4%, other 6%; (non-Europeans) 51% Christian.

Capetown is the seat of the legislature and Pretoria the seat of government. Other principal towns (total pop. and European pop., 1951 census) are: Johannesburg (880,014; 359,539); Durban (475,026; 148,980); Port Elizabeth (187,071; 78,315); Germiston (149,982; 65,854); East London (90,695; 43,668); Springs (115,880; 31,389); Governor general: Ernest George Jansen; prime minister and minister of external affairs in 1951: Daniel François Malan.

History.—A. J. Stals, minister of health and social welfare, who died in Feb. 1951, was replaced both in the cabinet and in parliament by Karl Bremer, who easily held the seat for the Nationalists at the by-election in Ceres. An important political development was the amalgamation of the two government parties, the small Afrikaner party led by N. C. Havenga and the Nationalist party led by Malan. A new Nationalist party was formally constituted with a somewhat broader program of general principles, and the prohibition against Jews as members of the Transvaal Nationalist party was lifted.

The work of the parliamentary session was overshadowed by the contentious Separate Representation of Voters act which transferred about 50,000 Cape coloured (mixed race) voters from the common electoral roll to a special roll. These voters would in future elect four Europeans to represent them in the house of assembly and two persons to the Cape provincial council. One senator would be nominated by the government to represent them in the senate. After hearing arguments from both sides, the speaker ruled that under the constitution a two-thirds majority was not required for the passage of the bill, thus con-



TORCHLIT GATHERING in the grand parade square of Capetown, U. of S. Af., called in May 1951 to protest passage of a new franchise bill segregating coloured (mixed race) and white voters at registration

firming the government's view. The opposition, however, contended that good faith, if not strict law, demanded that so momentous a constitutional step should not be taken by a small majority. On May 7 a strike of coloured factory and other workers occurred in Capetown to protest against the bill. The leader of the United party, J. G. N. Strauss, undertook to repeal the act when returned to power and to entrench the coloured franchise as well as other fundamental rights in a bill of rights. The validity of the act was contested in the supreme court, whose decision was awaited at the end of the year.

The act to suppress communism, passed in 1950, was amended to close loopholes. It also provided for the expulsion of Communist members of parliament and of the legislative assembly of South-West Africa at the instance of the minister of justice and with the approval of the house of assembly or the senate. The Bantu Authorities act abolished the Natives' Representative council which had existed since 1936 as a forum for the expression of African opinion. It provided instead for tribal or regional local authorities to be established with due regard for native law and custom and after consultation with the tribe concerned. Other acts defined the future sphere of African workmen in the building trade, regulated merchant shipping and increased the salaries of members of both houses of parliament from £(S.A.)1,000 to £(S.A.)1,400 a year.

A serious disturbance occurred near the end of 1950 in the native reserve of Witzieshoek, in the Orange Free State. There was a clash between 600 Africans and a small police force, as a result of which 14 Africans and 2 European policemen were killed. A commission of inquiry found that the unrest was the result of radical and unpopular changes in tribal agriculture imposed by officials of the native affairs department who had failed to realize how deeply the Africans were disturbed. The enforced culling of cattle was a major grievance. The people in the reserve misunderstood and resented efforts to improve their livestock and to alter their grazing and other rights. The commission recommended that the arable area of the reserve be extended by more than 10,000 ac. and that the needs of landless Africans be provided for.

Another stage was reached in the controversy between the United Nations and the South African government over the future status of the former mandated territory of South-West Africa. A committee of the United Nations submitted a draft agreement providing for a limited degree of international supervision over the administration of the territory. Rejecting this, the government put forward counterproposals involving an agreement with Great Britain, France and the United States as the only remaining members of the group of powers that conferred the original mandate. South Africa was willing to have such an agreement sanctioned by the United Nations, but unwilling to submit annual reports to the United Nations on its administration of the territory. In February Malan, on the occasion of the visit of Patrick Gordon Walker, secretary of state for commonwealth relations, renewed the proposal that the British South African protectorates should be transferred to South African administration. The Union strengthened its defense forces and undertook commitments in respect of joint defense with Great Britain against aggression in the middle east. An agreement was concluded with the United States for the supply of military equipment. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.)

Education.—State schools (1947): primary 1,190 (European 1,110), pupils 115,368 (European 92,291), teachers 3,927; secondary and high schools 241, pupils 75,339 (European 65,232), teachers 3,122; mission schools 3,031; training institutions 32 (European 9), pupils 3,790 (European 874), teachers 218. Private schools (1947): kindergarten 92; primary 773; secondary 114; commercial and business 19; others 10; pupils at all private schools 73,787 (European 36,500). Technical colleges (1948) 11, students 46,000, teachers 2,150. Universities (1950) 6 and constituent colleges of the University of South Africa 3; total enrolment of students (1948) 23,887.

Finance and Banking.—Budget: (1950–51 actual) revenue £(S.A.)161,500,000, expenditure £(S.A.)156,600,000; (1951–52 est.) revenue £(S.A.)168,400,000, expenditure £(S.A.)182,000,000. National debt (Aug. 1951): £(S.A.)780,600,000. Currency circulation (Aug. 1951): £(S.A.) 79,500,000. Bank deposits (Aug. 1951): £(S.A.)321,700,000. Gold and foreign exchange (Sept. 1951): U.S. $581,000,000. Monetary unit: South African pound, at par with the pound sterling and with an exchange rate (Nov. 1951) of £(S.A.)0.357 to the U.S. dollar.

Foreign Trade.—(1950): imports £(S.A.)307,300,000; exports £(S.A.) 248,200,000. Main sources of imports (1950): U.K. 41.2%; U.S. 16.0%; Canada 4.2%; Iran 3.6%. Main destinations of domestic exports: U.K. 26.0%; France 12.2%; U.S. 8.5%; Southern Rhodesia 7.4%. Main imports: metals, metal manufactures, machinery and vehicles 33%; textiles and clothing 22%; petroleum and products 9%. Main exports, excluding gold and bullion: wool 25%; semiprocessed and processed gold 15%; diamonds 8%; fruits 4%.

Transport and Communications.—Roads (1950): national 6,000 mi.; provincial main roads 80,715 mi. Licensed motor vehicles (Dec. 1950): cars 466,000, commercial 134,000. Road services (1949–50): passengers conveyed 13,800,000; freight carried 1,754,500 metric tons. Railways (1950): 13,942 mi.; freight 11,570,000,000 ton-mi.; freight carried 39,600,000 metric tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 156; total tonnage 177,893. Air transport (1950): passenger-miles, 125,000,000; cargo net ton-miles, 4,200,000. Telephones (1950): subscribers 415,518. Radio receiving set licenses (Dec. 1949): 531,300.

Agriculture.—Main crops (metric tons, 1950–51): maize 2,470,000; wheat 680,000; oats (1949–50) 115,000; potatoes 270,000; dry beans 32,000; sugar, raw value 622,000; peanuts 180,000; sunflower seed (1949–50) 21,000; tobacco 19,700; grapes (1949–50) 430,000; oranges and tangerines 204,000. Wine production (1950–51) 2,670,000 hl. Livestock (Aug. 1949): cattle 12,242,000; sheep 31,908,000; goats 5,529,000; pigs 761,000. Meat production (metric tons, 1950): total 430,000, of which beef and veal 307,000, mutton and lamb 74,000, pork 49,000. Dairy production (metric tons, 1950): butter, factory production, 27,100; cheese, factory production, 9,400. Wool production, greasy basis, including Basutoland and South-West Africa (1950–51) 102,000 metric tons. Fisheries: total catch (1949) 125,000 metric tons. Fish oil production (1950) 11,177 metric tons.

Industry.—Industrial establishments (1948–49): 14,361; persons employed 670,000 (Europeans 228,000). Fuel and power (1950): coal 26,064,000 metric tons; electricity 10,872,000,000 kw.hr. Raw materials (metric tons, 1950): iron ore, metal content 1,188,000; pig iron 733,000; steel ingots and castings 816,000; copper, smelter 33,000; chrome ore 496,000; manganese ore 791,000; asbestos 79,300; gold 11,659,000 fine oz.; diamonds 1,926,000 carats; silver 1,134,000 fine oz.; osmiridium 6,450 oz. Cement production (1950): 1,847,000 metric tons.

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FILMS OF 1951.—*Animals Unlimited* (Films of the Nations Distributors, Inc.; Association Films, Inc.); *South Africa's Modern Cities* (Almanac Films, Inc.). (JU. L.)

South America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; CHILE; COLOMBIA; ECUADOR; FRENCH GUIANA; PARAGUAY; PERU; SURINAM; URUGUAY; VENEZUELA.

South Carolina. A south Atlantic state of the United States, eighth of the original 13 to ratify the constitution (1788), South Carolina is known as the "Palmetto state." Area: 31,055 sq.mi. (30,305 sq.mi. land). Population (1950): 2,117,027, an increase of 11.4% over 1940; density: 69.6 per square mile; distribution: 61.1% white, 38.9% nonwhite (almost entirely Negro), 63.3% rural. Capital: Columbia. Chief cities (with populations): Columbia (86,914); Charleston (70,174); Greenville (58,161); Spartanburg (36,795); Rock Hill (24,502); Florence (22,513).

History.—Constitutional amendments abolishing the poll tax as a voting requirement, eliminating separate registration for municipal elections and allowing larger school districts received final ratification by the legislature of 1951. The proposal of Gov. J. F. Byrnes for a referendum on the calling of a constitutional convention for general revision, however, was defeated, as was the recommendation for a state civil service merit system. Two additional plans submitted by the commission on government reorganization also failed to receive legislative approval. But significant laws were passed, at the governor's request, to curb activity of the Ku Klux Klan and to launch a greatly expanded educational program.

The school reorganization law provided a 3% retail sales tax earmarked for education and a long-range expansion program designed to improve and equalize physical facilities for white and Negro schools. It established a state educational finance commission with power to require school district consolidation and other reforms as conditions for its approval of state aid distributed on the basis of $15 annually for each pupil in daily attendance. State bond issues up to $75,000,000 were authorized to finance immediate advances amounting to 75% of the sum due to school districts for the following 20 years.

Impetus to educational reform was given by a nationally publicized suit filed in federal district court by Clarendon county Negroes to end segregation in the schools. Though urging equalization of school facilities, Governor Byrnes announced that South Carolina would abandon the public school system should the court decree nonsegregation. The legislature gave some consideration to meeting such a contingency. In a hearing before a three-judge court at Charleston May 30 Clarendon school officials freely admitted facility inequalities but asked for time to remove them. In a two-to-one decision the court on June 23 upheld segregation but warned that facilities should be equalized and ordered a progress report within six months. An appeal to the U.S. supreme court was pending at the end of 1951.

Chief state officials in 1951 were: J. F. Byrnes, governor; G. B. Timmerman, lieutenant governor; C. F. Thornton, secretary of state; T. C. Callison, attorney general; J. B. Bates, treasurer; E. C. Rhodes, comptroller general; J. T. Anderson, superintendent of education.

Education.—For the year ending June 30, 1951, enrolment in white elementary schools was 193,239, an increase of 2,774; in Negro elementary schools, 187,532, an increase of 661; in white high schools, 84,575, an increase of 2,735; in Negro high schools, 37,744, an increase of 2,755; total white and Negro teachers, respectively, numbered 10,137 and 7,007. State expenditures for current expenses were $34,910,817 for white and $14,392,448 for Negro pupils, the total, $49,303,265, being an increase of $6,592,171.

Social Insurance and Assistance, Public Welfare and Related Programs.—In the year ending June 30, 1951, federal allocation for needy persons totalled $11,146,407, to which the state added $5,076,343. As of June 30, assistance was being given to 43,138 aged, 1,617 blind, 19,493 children, 2,623 totally and permanently disabled and 2,745 persons needing general assistance, a total of 69,616 persons. The total number of cases under care during the year was 76,861. The state employment security trust fund was $53,589,823 on June 30. Payments totalling $6,572,907 went to an estimated 38,300 individuals during the year. Patients in the state hospital for mentally diseased on June 30, 1951, numbered 5,334; in the school for feeble-minded, 1,319; prisoners in the penitentiary, 1,537; in Negro boys' reformatory, 177; in reformatory for white boys, 219; in reformatory for white girls, 96.

Communications.—Paved highway mileage, June 30, 1951, was 13,384; total under state highway department, 22,503; under county highway systems, 26,532. State highway department receipts of $45,331,980 included $22,894,676 from the gasoline tax, total receipts from which were $32,545,945. Railroads measured 3,563 mi. South Carolina ports handled 4,598,564 tons of cargo in 1950. Eastern, Delta, Southern and Southeastern air lines crossed the state.

Banking and Finance.—On June 30, 1951, there were 25 national banks plus 34 branches, 102 state banks plus 14 branches, with capital account, deposits and resources, respectively, as follows: national, $24,075,000, $424,449,000, $452,828,000; state banks and depositories, $21,447,733, $235,668,685, $258,369,829. Resources of the 32 federal building and loan associations totalled $108,096,955; of the 41 state associations, $40,644,997. For the year ending June 30, 1951, the state operated under a general appropriations budget of $108,538,717 and showed a surplus of $389,228; the general appropriations bill for the new year totalled $144,499,437. On June 30 the state debt was $71,090,898 ($71,009,000 being for roads). Federal income taxes totalled $109,248,478; employment and withholding

Table I.—*Principal Crops of South Carolina*

	1951	1950	Average, 1940–49
Corn, bu.	26,320,000	31,089,000	26,067,000
Wheat, bu.	3,500,000	1,974,000	3,135,000
Oats, bu.	16,128,000	17,792,000	16,012,000
Barley, bu.	400,000	340,000	509,000
Rye, bu.	75,000	60,000	156,000
Hay, tons	371,000	344,000	454,000
Irish potatoes, bu.	1,937,000	1,590,000	2,457,000
Sweet potatoes, bu.	2,380,000	4,725,000	5,292,000
Tobacco, lb.	177,540,000	150,480,000	121,759,000
Cotton, bales	860,000	405,000	707,000
Cottonseed, tons	350,000	165,000	287,000
Peaches, bu.	6,474,000	468,000	3,799,000
Pecans, lb.	4,028,000	3,000,000	2,543,000
Peanuts, lb.	10,500,000	15,200,000	18,696,000
Cowpeas, bu.	330,000	295,000	571,000

Source: U.S. Department of Agriculture.

Table II.—*Value of Principal Industrial Products of South Carolina*

Industry	Year ending June 30, 1951	Year ending June 30, 1950
Textiles (including knitting)	$1,608,984,643	$1,206,433,982
Lumber products (barrels, boxes, baskets, veneering, paper and pulp, furniture, woodwork)	174,506,481	120,636,711
Clothing	68,360,432	50,507,224
Electricity	50,233,303	45,090,928
Fertilizers	36,362,721	31,107,743
Textile supplies	28,588,097	

taxes, $62,943,459; unemployment taxes, $1,473,459. Exports amounted to $78,600,000; imports, $77,600,000; duties on imports, $2,938,652, an increase of more than $400,000 over the previous year.

Agriculture.—The total 1951 value of 21 field and 13 commercial truck crops was $393,535,000, which was 40% above 1950 and 9% above the previous record of 1919. Harvested acreage was 3,998,000, or 2% above 1950. Preliminary estimates showed that cash income from agriculture in 1951 exceeded by about 33% that of 1950, when income from crops was $219,840,000; from livestock, $67,479,000; from government payments, $3,959,000.

Manufacturing.—The value of products manufactured in 1,795 establishments during the year ending June 30, 1951, was $2,230,507,920, an increase of $522,124,291 over 1949–50. Employees numbered 183,596, an increase of 10,634. Total manufacturing capital was $867,285,102, an increase of $91,981,066. (C. E. Cn.)

Table III.—*Mineral Production of South Carolina*

(In short tons)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Clays	955,072	$4,995,971	664,333	$3,795,657
Sand and gravel	348,060	166,710	287,108	145,142
Stone	2,557,510	3,836,056	2,440,540	3,628,596
Other minerals		?		1,456,480
Total		?		$9,026,000

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950.

South Dakota.

A north-central state of the United States, admitted as the 40th state on Nov. 2, 1889, South Dakota is popularly known as the "Coyote state." Area: 77,047 sq.mi., of which 511 sq.mi. are water; pop. (1950 census): 652,740 (an increase of 1.5% since 1940), with 436,030 listed as urban; the Indian population in 1945 was 26,432. Capital: Pierre (5,715). Principal cities: Sioux Falls (52,696), Rapid City (25,310), Aberdeen (21,051), Huron (12,788), Watertown (12,699) and Mitchell (12,123).

History.—The legislature convened on Jan. 2, 1951, for a 60-day session. Record appropriations totalling $43,813,931 were authorized and the state gasoline tax was raised from four cents to five cents to provide more revenue for highway construction. The major enactment concerning education provided for school district reorganization through county committees on petition by 10% of the school board members but subject to approval by the voters. The state teachers' retirement system was repealed to enable teachers to participate in the federal social security program. A legislative research council was also provided for.

State officials (all Republican) in 1951 included Sigurd Anderson, governor; Rex Terry, lieutenant governor; Ralph A. Dunham, attorney general; Geraldine Ostroot, secretary of state; Theodore Mehlhaf, treasurer; and Harold S. Freeman, superintendent of public instruction (elected on nonpartisan ballot).

Table I.—*Principal Crops of South Dakota*

Crop	1951	1950	Average 1940–49
Corn, bu.	85,624,000	101,124,000	92,154,000
Wheat, bu.	57,260,000	33,488,000	41,358,000
Oats, bu.	116,365,000	86,086,000	86,060,000
Barley, bu.	19,693,000	18,942,000	32,982,000
Rye, bu.	6,656,000	5,460,000	5,390,000
Flaxseed, bu.	4,584,000	4,527,000	4,168,000
Potatoes, bu.	1,650,000	2,100,000	2,435,000
Hay, all, tons	4,517,000	3,303,000	2,903,000
Soybeans, bu.	870,000	875,000	260,000

Source: U.S. Department of Agriculture.

Education.—The school census, ages 6–20, inclusive, was 159,890 in 1950–51, compared with 159,232 in 1949–50. The enrolment was 90,881 in elementary schools and 29,324 in high schools. Total expenditures were $27,859,456. Average salaries paid were $1,952 for elementary teachers and $2,925 for high school teachers.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1950 the state department of social security distributed $5,820,019 among 12,206 persons in old-age assistance; $2,002,550 to 2,500 families as aid to 6,069 dependent children; and $98,458 for the needs of 223 blind persons. Eight penal and charitable institutions were in operation on a legislative appropriation of $2,749,620.

Unemployment benefit payments during 1950 amounted to $1,122,658 at an average weekly rate of $17.54 to 6,471 individuals. The average total amount received by each individual was $173.54. Readjustment allowances paid to unemployed veterans under the Servicemen's Readjustment act totalled $95,826 in contrast with $863,823 paid to unemployed veterans in 1949. This decrease was attributable to a two-year limit placed on readjustment allowances and was reflected in an increase in the total payments for unemployment benefits.

Communications.—The state in 1951 maintained a highway system of 6,289 mi. including 3,106 mi. of bituminous surface, 401 mi. of concrete pavement, and 2,638 mi. of gravel surface, at a maintenance cost of $4,618,600. There were 3,960 mi. of railroad in operation in 1951. Telephones in use on Jan. 1, 1951, numbered 152,675, of which 41,146 were classified as rural.

Banking and Finance.—There were 35 national banks in operation on Dec. 31, 1950, with total assets of $278,345,000 and total deposits of $262,471,000. The 134 state banks and trust companies on June 30, 1951, had resources of $249,400,553 and deposits of $231,880,542. Eight building and loan associations on June 30, 1951, reported total resources of $6,638,224.

Total receipts for the state treasury for the fiscal year ending June 30, 1951, were $71,689,225; disbursements were $68,087,126. The total bonded indebtedness on Nov. 1, 1951, was $23,965,000, including $11,000,000 of veterans' bonus bonds scheduled to mature July 1, 1953, for which sufficient revenues had already been collected.

Federal internal revenue collections for the fiscal year 1950–51 totalled $64,181,473, of which amount $55,947,728 was derived from the income tax.

Agriculture.—Cash farm income was estimated at $384,056,000 for 1951 and $298,225,000 for 1950. Above-average production totals were forecast for all crops except barley, corn, sorghum and potatoes, with the hay crop the largest on record. Unfavourable planting conditions and early killing frosts resulted in a lower corn yield.

Industry.—In 1947 there were 494 establishments engaged in manufacturing, paying a total of $25,796,000 in salaries and wages to 10,265 employees. The total value added by manufacture was $51,398,000. A total of 645 establishments was reported in 1951. Eight meat-packing plants comprised the largest industry. Creamery and poultry products ranked next in importance. A state-owned cement plant produced 1,001,169 bbl. of cement in 1950. (H. S. S.)

Table II.—*Mineral Production of South Dakota*

(In short tons, except as noted)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Clays	205,585	$ 2,207,827	151,341	$ 1,529,542
Feldspar	49,140	249,176	36,145	156,548
Gold (oz.)	567,996	19,879,860	464,650	16,262,750
Sand and gravel	5,392,247	2,750,847	5,456,742	2,315,430
Stone	1,205,910	4,860,858	1,023,710	4,473,432
Other minerals		?		1,985,154
Total		?		$26,722,856

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the end of 1951. South Dakota ranks first among the states as a producer of gold.

Southern Rhodesia: *see* Rhodesia, Southern.

South Pacific Commission: *see* Pacific Islands, British; Pacific Islands, French.

South-West Africa: *see* South Africa, The Union of; Trust Territories.

Sovereigns, Presidents and Rulers: *see* Presidents, Sovereigns and Rulers.

Soviet Union: *see* Union of Soviet Socialist Republics.

Soybeans.

The 1951 U.S. soybean crop of 280,512,000 bu. was second only to the record 299,279,000 bu. of 1950, and much larger than the 1940–49 average crop of 178,-

567,000 bu. Planted acreage was 3% less than the 1950 record; 13,211,000 ac. were harvested compared with 13,814,000 ac. in 1950 and 9,348,000 ac. average for 1940–49. An average yield of 21.2 bu. per acre was favourable compared with the 19-bu. average for 1940–49 but lower than the 21.7 bu. of 1950. Early drought in the south, floods in the early growing season in the western area and some late drought in Ohio were handicaps to the crop. Illinois, as usual, produced about one-third (94,562,000 bu.) of the total.

A ceiling price of $3.33 per bushel (at Chicago, Ill.) was put on soybeans early in 1951, after which the price declined about 60 cents per bushel, only to rise about 40 cents per bushel contraseasonally during the harvest period. The average price at the farm was estimated at $2.75 per bushel, compared with $2.47 in 1950. A production goal of 276,000,000 bu. on 13,000,000 ac. was recommended for 1952.

Prospects for U.S. export to Europe and Japan appeared to be somewhat less than the 1,614,000,000 lb. of soybeans and 361,488,000 lb. of soybean oil in 1950–51.

World soybean production in 1951, estimated at 650,040,000 bu. (less than half of it in non-Communist countries), was slightly less than the 653,900,000 bu. of 1950, but almost half again as large as the 463,720,000-bu. annual average before World War II. The 1951 Manchurian crop was estimated to be considerably in excess of 100,000,000 bu., with the likelihood that considerable amounts would be exported. (J. K. R.)

Spain.

A country of southwestern Europe, Spain is bounded north by the Bay of Biscay and France, west by the Atlantic and Portugal and south and east by the Mediterranean. Area: 194,945 sq.mi., including the Balearic (1,936 sq.mi.) and Canary (2,804 sq.mi.) Islands. Pop. (1940 census) 25,877,971; (1950 est.) 28,287,000, including the Balearic (1940 census, 407,497) and Canary (680,294) Islands. Language: mainly Spanish (Castilian); Catalan, Galician and Basque are also spoken. Religion: mainly Roman Catholic. Chief towns (pop., 1947 est. if not otherwise stated): Madrid (cap., 1950 est., 1,609,524); Barcelona (1950 est., 1,205,909); Valencia (562,967); Seville (382,013); Zaragoza or Saragossa (292,965); Málaga (277,582); Murcia (226,702); Bilbao (220,333). Leader (*caudillo*), chief of state and prime minister, Gen. Francisco Franco (*q.v.*).

History.—Asked by Dean Acheson, U.S. secretary of state, in Jan. 1951 whether Spain would be willing, given modern arms, to put forces under Gen. Dwight D. Eisenhower's command, General Franco indicated a preference for direct collaboration with the United States rather than with the North Atlantic Treaty organization. The Spanish ambassador to Washington, D.C., spoke in June of Spain's interest in a military alliance with the United States and in receiving economic aid toward developing vital communications and industries. Reports of such a bilateral pact provoked sharp political reactions in London and Paris, and in western Europe generally suspicions of a U.S. intention to defend the Pyrenees. U.S. senators visiting Spain in July on a mission of inquiry into western defense on behalf of the senate foreign affairs committee were told by General Franco that it would depend on circumstances whether Spain would participate in a general war but that, given the equipment, it could produce an army of 2,000,000 men. Gen. Omar N. Bradley, chairman of the U.S. chiefs of staff, gave 300,000 to 400,000 men as his estimate. Talks held in Madrid in mid-July by Adm. Forrest P. Sherman to discuss the use by U.S. forces of Spanish naval and air bases, in return for military aid, were described by Acheson as "purely exploratory." The "unfriendly attitude" to these conversations shown by Great Britain and France led the Spanish government on July 21 to lodge formal protest with both powers against "these new attempts at interference in a matter which concerns Spain's sovereign right to hold direct relations with another power." A U.S. military survey team representing the three services went to Spain in August to inspect bases. In September it was announced that Spanish officers of infantry and armoured units were being sent to the U.S. for six months' training, and Brig. Gen. Gavado Caballero, military governor of Bilbao, went to Frankfurt, Ger., in October to attend U.S. autumn manoeuvres. Three new destroyers, their armament including three 4-in. guns, were launched in September at Ferrol, where the hulk of the former Italian battleship "Trieste" was taken for conversion into an aircraft carrier. A committee on nuclear energy was set up by the cabinet in October.

SECURITY POLICE lining the streets of midtown Barcelona in March 1951 after a one-day general strike against high food prices, the first serious challenge to the Franco regime since the Spanish Civil War

The decision of Dec. 27, 1950, to exchange ambassadors (José Félix de Lequerica and Stanton Griffis) between Madrid and Washington, after a lapse of five years, was followed early in January by the resumption of full diplomatic relations with Spain by Great Britain and France. Relations were resumed with the Netherlands in January, and instituted with Ethiopia in April, with the German Federal Republic in May, with South Africa in June and with Pakistan in September. In Paris in June the "Basque government-in-exile" was evicted from a building held by a civil court to have been bought (in Feb. 1939) with assets which were the property of the Spanish state. The new British government officially informed Spain on Nov. 7 of its desire to see established more friendly relations between the two countries.

On July 19 General Franco announced the reconstitution of his government after six years. Alberto Martín Artajo (foreign affairs), Blas Pérez González (interior), José Antonio Girón (labour) and Gen. Eduardo González Gallarza (air) retained their portfolios. Four new ministries were created: presidency (designed to relieve General Franco of routine business), Capt. Luis Carrero Blanco; information, Gabriel Arias Salgado; commerce (previously one with industry), Manuel Arburúa; and Falange, Raimundo Fernández Cuesta. The remaining appointments were: army, Gen. Agustín Muñoz Grandes; navy, Adm. Salvador Moreno; justice, Antonio Iturmendi; finance, Francisco Gómez Llano; industry, Joaquín Planell; agriculture, Rafael Cavestany; education, Joaquín Ruiz Jiménez; public works, Count Fernando de Vallellano. Nine ministers in the new cabinet were reported to be monarchists, against six in the old. Earlier, on July 10, the pretender Don Juan had sent a personal letter from Lisbon, Port., to General Franco calling for an immediate restoration of the monarchy and of personal liberties to all Spaniards, and indicating his rejection of any suggestion of a regency with General Franco as regent and Juan Carlos as heir. Prince Xavier de Bourbon-Parma, known as "regent of the Traditionalist communion," arrived from France in November to visit Carlist communities in the Basque provinces, Navarre, Seville and Barcelona.

A one-day general strike in Barcelona on March 12, observed by 300,000 workers, was the first sign of acute and prolonged labour unrest. The government sent a cruiser and three destroyers to the port, and the *Cortes,* meeting on March 12, approved a 30% increase in police pay and one of 20% for civil servants. In April, when Madrid students went on strike, General Franco initiated a series of emergency cabinet meetings to study the country's economic difficulties. A 48-hour strike called in Bilbao and other northern towns for April 23 was observed by 100,000 workers in spite of government threats of dismissal; another strike followed in Pamplona in May. Official statements sought to pin responsibility on separatist and Communist elements working from across the Pyrenees; and of 41 persons arrested in Barcelona in March, 27 were at the end of the year awaiting court-martial on charges of active membership in the banned United Socialist (Communist) party of Catalonia and of issuing clandestine Communist newspapers. New municipal elections, the second since 1939, began on Nov. 25.

Of the U.S. $62,500,000 loan authorized by the U.S. congress in 1950, $10,000,000 was advanced in February and March to buy wheat and cotton; the intention was in the main to exclude consumers' in favour of capital goods, and Washington announced in July the sending to Spain of an economic survey group to study applications for credits. A further $5,600,000 was released in August for hydroelectric and mineral production. Foreign trade agreements were signed with Norway (the first since World War II) in January, with Turkey (providing for the supply by Spain of arms and ammunition) in June and with France in November. Existing agreements with Great Britain were extended to the end of 1951, with some reduction of British exports arising from rearmament. An associate of the Banco Exterior de España, to be known as the Banco Español en Londres, was founded in London in October to help develop trade between the two countries. An adjustable type of railway axle allowing trucks to cross the Franco-Spanish frontier in spite of the difference of gauge came into use in May.

(W. C. An.)

Education.—Schools: primary (1947–48) 55,111, pupils 2,425,762 (1,212,921 girls), teachers 55,833 (30,030 women); secondary (1948–49) 119, pupils 212,210 (74,319 girls); training colleges for elementary teachers (1948–49) 53, students 24,171 (17,575 women). Universities (1948–49) 12, students 49,980 (6,866 women), professors and lecturers 3,300. Illiteracy (1947): 20.8%.

Finance and Banking.—Budget: (1952–53 est.) revenue 22,208,000,000 pesetas, expenditure 22,477,000,000 pesetas. National debt (Sept. 1951): 58,195,000,000 pesetas. Currency circulation (July 1951): 31,600,000,000 pesetas. Bank deposits (March 1951): 38,100,000,000 pesetas. Gold reserve (July 1951): U.S. $61,000,000. Monetary unit: peseta with an official exchange rate (Nov. 1951) of 30.66 pesetas to the pound and 10.95 pesetas to the U.S. dollar.

Foreign Trade.—(Gold pesetas, 1950): imports 1,199,000,000; exports 1,090,000,000. Main sources of imports (1950): Spanish colonies 24%; U.S. 13%; France 8%; western Germany 7%. Main destinations of exports (1950): Spanish colonies 24%; U.S. 15%; U.K. 14%; France 6%. Main imports (Jan.-June 1951): machinery, apparatus and vehicles 16.6%; food and drink 15.5%; chemicals and derivatives 10.6%; textiles 12.7%. Main exports: food and drink 54.7%; textiles 11.2%; minerals, earths and stones 8.4%; metals and metal goods, including gold and silver, 5.2%.

Transport and Communications.—Roads (1949): 68,651 mi., of which 51,202 mi. were macadamized. Licensed motor vehicles (Dec. 1950): cars *c.* 100,000, commercial 65,000. Railways (1950): 11,068 mi., of which 925 mi. were electrified; passenger-miles 4,422,000,000; freight net ton-miles 4,004,000,000; freight carried 25,000,000 metric tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,163; total tonnage 1,192,928. Air transport (1949): aircraft entering Spain 19,426; passengers 234,790; freight 3,576 tons; passengers leaving Spain 249,460; freight 4,070 tons. Telephones (Dec. 1949): subscribers 591,948. Radio receiving sets (1949): 375,635.

Agriculture.—Main crops (metric tons, 1950): wheat 3,380,000; barley 1,500,000; oats 500,000; rye 560,000; maize 620,000; rice, paddy 240,000; sugar, raw value 177,000; potatoes 2,800,000; cotton, ginned, 2,000; tobacco 15,000; groundnuts 12,000; linseed 7,000; olives (1949) 1,924,000; olive oil 194,000; oranges and tangerines 970,000; lemons 43,000. Wine production (1950) 15,680,000 hl. Livestock: cattle (Dec. 1948) 4,000,000 head; horses (Dec. 1949) 600,000; asses (April 1948) 747,000; mules (April 1948) 1,079,000; pigs (April 1948) 2,668,000; sheep (Dec. 1950) 23,000,000; goats (April 1948) 4,222,000; chickens (July 1950) 35,000,000. Meat production (1949) total 110,000 metric tons, of which beef and veal 71,000 and pork 9,000. Wool production, greasy basis (1950) 39,000 metric tons. Index of agricultural production (on basis of 1934–38=100, 1949–50) 90. Fisheries: total catch (1949) 550,000 tons.

Industry.—Fuel and power (1950): coal (metric tons) 11,040,000; lignite 1,344,000; manufactured gas 267,000,000 cu.m.; electricity 6,312,000,000 kw.hr. Raw materials (metric tons, 1950): iron ore, metal content 2,076,000; pig iron 671,000; steel ingots and castings 818,000; copper, black and blister 9,700; lead 34,600; zinc 21,300. Manufactured goods (metric tons, 1950): cement 2,100,000; cotton yarn 57,800; wool yarn 10,000; rayon filament yarn 10,000; rayon staple fibre 14,600. New dwelling units completed (1950): 16,608. Index of industrial production (on basis of 1948=100, 1950): 104.

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Spanish-American Literature: *see* LATIN AMERICAN LITERATURE.

Spanish Colonial Empire.

Under this heading are grouped the Spanish possessions in Africa. Their total area is approximately 134,715 sq.mi. and the total population (1950 est.) 1,610,000. Areas, populations, capital towns, status and governors of the territories composing the empire are given in the table.

History.—A Franco-Spanish commercial agreement on interzonal trade in Morocco was concluded at Tetuán in March. The Spanish government approved at the same time plans for the utilization of the waters of the river Moulouya to irrigate 15,000 ha. of desert land and to power hydroelectric stations; the project was linked with similar plans in the French zone, and some of the hydraulic installations would be common to both.

Lieut. Gen. José Enrique Varela, high commissioner for Spanish Morocco since 1945 and one of the outstanding Nationalist leaders in the civil war, during which he relieved the Alcázar of Toledo, died in Tetuán on March 24. Lieut. Gen. Rafael García

Spanish Colonial Empire

Country	Area (sq.mi.)	Population (1950 est.)	Capital	Status	Governor
Spanish Morocco					
Northern zone	7,592	1,180,000	Tetuán (pop., 1945, 93,658)	Protectorate	*High commissioner:* Lieut. Gen. Rafael García Valiño y Marcén *Khalif (viceroy of the sultan of Morocco):* Muley Hassan Ismael el Mehedi
Southern zone	10,039	12,000	Cabo Yubi	Protectorate	
Ifni territory	741	43,000	Ifni	Colony	
Ceuta, Melilla, Alhucemas, Chafarinas and Peñón de Velez	82	163,000	—	Administered as part of Spain	—
Spanish Sahara					
Rio de Oro	73,362	37,000	Villa Cisneros	Colony	—
Saguia el Hamra	32,047				
Spanish Guinea . . . . . . including Fernando Po and four small islands	10,852	175,000	Santa Isabel, on Fernando Po (pop., 1945, 17,000)	Colony	—

Valiño y Marcén was appointed his successor.

Four thousand troops, comprising infantry, artillery, cavalry, engineers and the air arm, took part in manoeuvres at Bu Hazchan, near Larache, in October; they were attended by members of the U.S. military mission in Spain. (W. C. An.)

Finance.—Spanish Morocco, budget: (1947) balanced at 211,000,000 gold pesetas. Spanish Guinea, budget: (1943) revenue 23,300,000 pesetas, expenditure 23,600,000 pesetas.

Foreign Trade.—All territories: (1947) imports 526,300,000 gold pesetas, exports 168,200,000 pesetas; (1948) imports 578,400,000 pesetas, exports 206,400,000 pesetas. Ceuta and Melilla only: (1949) imports 123,000,000 pesetas, exports 55,000,000 pesetas; (1950, six months) imports 59,500,000 pesetas, exports 21,200,000 pesetas.

Transport and Communications.—Spanish Morocco: (1947) roads, 1,430 mi.; railways 140 mi. Shipping: (1949) vessels entered, 120,000 net registered tons.

Spanish Literature. Poetry, represented by Fernando Gutiérrez's *Anteo e Isolda* and Dionisio Ridruejo's *En once anos,* was less prominent in 1951 than fiction, though the new Aguilar edition of the poems and plays of Miguel Hernandez gave it distinction. The veteran novelist Concha Espina published *Un Valle enelmar.* Another woman writer, Elena Quiroga, was successful with a Galician novel *Viento del norte.* Successful, too, were Mariano Pombo Angulo's *Sin Patria,* Ramon Ledesma Miranda's *La Casa de la fama* and Francisco Montero Galvache's *El Mar está solo.* A notable play was Claudio de la Torre's *Cortesana.*

In criticism, the year was most fruitful. Dámaso Alonso published a collection of lectures and essays under the title *Poesia española* and (with Carlos Bousoño) *Seis Calas en la expresión literaria española.* The first two volumes appeared of the gigantic *Homenaje* to Menéndez Pidal, who contributed to the Colección Austral its 1000th volume, *El Cid Campeador.* An outstanding historical work was Francisco Elías de Tejador's *Las Doctrinas políticas en la Cataluña medieval.* Joaquin Casalude Casalduero published a new and enlarged edition of his biography of Pérez Galdós. Ricardo Gullón's *Cisne sin lago* was a critical biography of Enrique Gil y Carrasco. E. Correa Calderon edited a volume of selections from *costumbristas* of the 17th to 19th centuries. Esteban Pujolls brought out a substantial study of Espronceda and Byron, and Vicente Garcia de Diego an equally substantial treatise on linguistics. Guillermo Diaz-Plaja published the second volume of his omnibus history of Spanish literature, and José Simón Díaz continued his Hispanic bibliography. Don Francisco Sánchez-Castañer edited a two-volume *Homenaje a Cervantes,* containing the text of a series of lectures delivered by various scholars at the University of Valencia for the quatercentenary of Cervantes' birth.

Of literary reviews, always abundant in Spain, though generally short-lived, *Intus* established itself in Salamanca, *Platero* in Cádiz and *La Calandria* in Barcelona. Notable works published in Catalan included the first volume of Ferran Soldevila's biography of Peter the Great of Aragon-Catalonia and two anthologies, one of 20th-century verse and one of the short story, both by Joan Triadu.

Ciriano Pérez Bustamante was elected to the Academy of History, and the well-known author Don Pedro Lain Entralgo was appointed rector of the University of Madrid. (E. A. P.)

Special Libraries Association: *see* Libraries.

Spirits: *see* Liquors, Alcoholic.

Spitsbergen: *see* Norway.

Sports and Games: *see* Angling; Archery; Automobile Racing; Badminton; Baseball; Basketball; Billiards; Bobsledding; Bowling; Boxing; Canasta; Chess; Contract Bridge; Cricket; Curling; Cycling; Fencing; Football; Gliding; Golf; Gymnastics; Handball; Hockey, Field; Hockey, Ice; Horse Racing; Ice Skating; Lacrosse; Lawn Bowling; Motor-Boat Racing; Olympic Games; Polo; Roller Derby; Rowing; Shooting; Skiing; Soccer; Softball; Squash Racquets; Swimming; Table Tennis; Tennis; Track and Field Sports; Wrestling; Yachting.

Squash Racquets. Edward Hahn of Detroit, Mich., kept his national singles title in 1951 when he defeated Henri Salaun of Boston, Mass., former junior tennis champion of Brittany, Fr., 9–15, 15–4, 11–15, 15–12, 15–4, at Chicago. Hahn again was first on the United States ranking list, with Salaun second and Charles Brinton of Philadelphia, Pa., third.

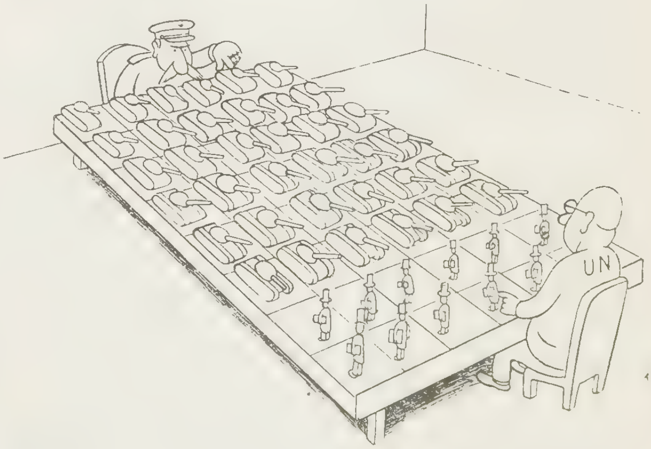
Diehl Mateer and Calvin McCracken, Philadelphia, annexed the doubles title by halting Germain Glidden and Cliff Sutter, New York pair, 18–13, 15–13, 8–15, 15–12. Earlier in the campaign, Hunter Lott, of Philadelphia, and Mateer won the Lockett trophy for the fourth consecutive season when they conquered Brinton and Ned Madeira, their Merion (Pa.) Cricket club teammates, 15–13, 15–8, 15–7.

Jim Tully, Pittsburgh, Pa., regained national professional honours with a victory over Al Ramsay, Cleveland, O., at Philadelphia. Tully won, 15–9, 9–15, 15–7, 2–9 and default when his rival pulled a leg tendon and was forced to quit. W. William LaRoche, Philadelphia, and Allan Cummings, Rye, N.Y. took the pro-amateur doubles crown.

George Waring of Boston was U.S. veterans' king and Henry Foster of Harvard university gained national intercollegiate laurels to help the Crimson racquet swingers annex the team championship.

Jane Austin, Philadelphia, beat Betty Howe Constable, Princeton, N.J., 15–11, 6–15, 15–12, 10–15, 15–12, for the women's national singles crown, the doubles honours going to Mrs. John Carrott, Greenwich, Conn., and Frances McGurn, Philadelphia. Mrs. E. I. Beatty, Jr., Philadelphia, took the women's veterans' title. (T. V. H.)

Stalin, Joseph Vissarionovich (1879–), Soviet prime minister, was born at Gori, Georgia, Transcaucasia, on Dec. 21. For his early career see *Encyclopædia Britannica.* According to U.S. government sources, Stalin interrupted the writing of his memoirs early in 1951 and returned to Moscow when the Communists began to advance below the 38th parallel in Korea. He made a bitter attack on Feb. 16 on Clement Attlee, the British prime minister, for a statement in the house of commons that the Soviet Union had not fully demobilized after World War II. This, Stalin said to a *Pravda* representative, was a lie. He prophesied that if Great Britain and the United States rejected Chinese peace proposals "the war in Korea can end only in the defeat of the interventionists."



"THE CHESS GAME," a 1951 cartoon published in *Candido* (Milan, It.)

Stalin attended the budget session of the Russian Soviet Socialist Republic in April and a display of about 500 soviet planes in Moscow in July. He sent a sable coat and a writing set of Urals stone to Queen Narriman of Egypt as a wedding present in May.

On Oct. 6 he announced that one type of atomic bomb had been tested in the U.S.S.R., the first admission that an atomic bomb had in fact been exploded there. Tests on "various calibres" of bomb, he said, would be carried out. He thought that the advocates of the use of the atomic bomb might agree to its prohibition now that they could see that they did not have a monopoly in atomic weapons. (*See* also UNION OF SOVIET SOCIALIST REPUBLICS.)

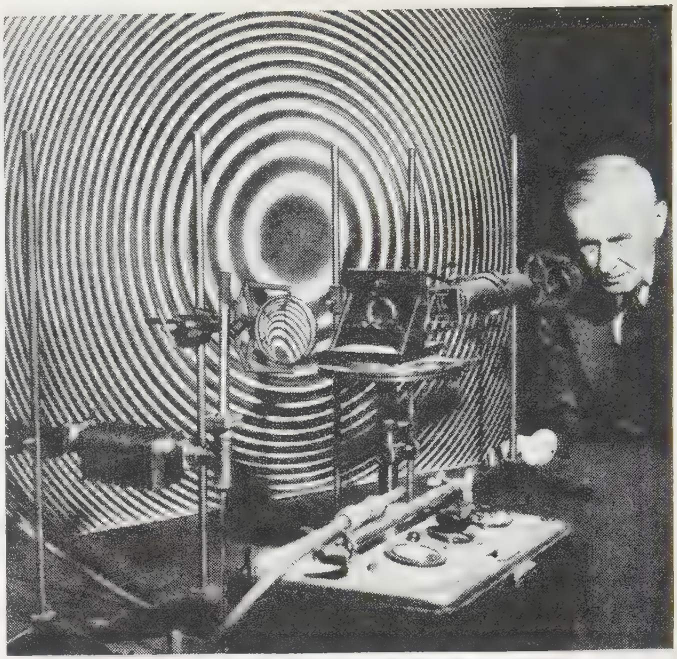
Stamp Collecting: *see* PHILATELY.

Standards, National Bureau of. Established by act of congress, March 3, 1901, the national bureau of standards is the principal agency of the federal government for basic and applied research and development in physics, mathematics, chemistry and engineering. During 1951 it consisted of 24 divisions and offices: 15 scientific divisions (electricity, optics and metrology, heat and power, atomic and radiation physics, chemistry, mechanics, organic and fibrous materials, metallurgy, mineral products, building technology, applied mathematics, electronics, ordnance development, radio propagation and missile development); 3 offices (basic instrumentation, scientific publications and weights and measures); and 6 administrative divisions (fiscal, personnel, shops, plant, supply and services).

New facilities were obtained during the year. A 100-ac. site with 300,000 sq.ft. of buildings was acquired from the navy at Corona, Calif., and modified for laboratory work. At the end of the year the bureau's missile development division had completed its move to Corona. Projects in electronic physics, optics and engineering were also initiated there. Construction of facilities for cryogenic research was well under way, initiated for the bureau by the Atomic Energy commission, at the 200-ac. Boulder (Colo.) site acquired by the bureau. A major radio laboratory also was to be constructed, beginning early in 1952.

Major military programs included guided missiles (navy), proximity fuses (army) and nuclear and atomic research (Atomic Energy commission). Details on these and other defense projects were necessarily restricted. The nonmilitary work of the bureau covered every field of the physical sciences and was concerned with scientific standards of measurement, instruments and methods of measurement, properties of materials, physical constants and a wide variety of services (calibration, testing, standard samples and advisory services). This work was in many cases basic to progress in other laboratories and in industry.

The diversity of the 1951 program is suggested by the work related to the medical and dental professions, which included more than a score of projects. For example, a study of the skin temperature differences between corresponding points on the limbs of patients having peripheral vascular disorders was made. Work was begun on the development of an instrument for use by anaesthesiologists to measure continuously, to indicate visually and to record systolic and diastolic blood pressure, pulse rate, arrhythmia and respiration volume and rate during surgery. An investigation of dextran as a blood plasma extender was begun, and various materials for possible stockpiling as blood plasma were assessed. In studying the fundamental character of tooth structure, progress was made toward understanding the structure of the basic calcium phosphates which comprise the major portion of the inorganic constituent of teeth. A new silicone resin pigment was developed for marking clinical thermometers, which resists constant immersion in germicides and cleaning solutions. A simple method was worked out for determining the correct sound pressures which must be produced in the ear canal by the audiometers used to measure hearing loss.


PRIMARY STANDARD OF LENGTH adopted by the National Bureau of Standards in 1951, consisting of a spectroscopic lamp (left foreground) containing one pure isotope of mercury. Measurements were based on the circular interference fringes of green light (background) from the lamp

A broad program of research was carried on in atomic and radiation physics. Radiation scattering experiments were begun to obtain data for the design of nuclear shielding. Studies were made with the 50,000,000-v. betatron to determine optimum wall thicknesses for protective barriers against high-energy X-rays. A new type of photographic film dosimeter for detecting and measuring atomic radiation was developed. A special radiation source and related equipment were developed to provide field calibration of radiation measuring instruments. Development of a standardized line of field X-ray equipment was substantially completed. The first comprehensive descriptions were made of the optical spectra of technetium and promethium, two new elements produced by uranium fission.

Work in physics included extensive studies at extremely low and high temperatures. At temperatures close to absolute zero, investigations of the isotope effect in superconductivity were continued and extended to isotopes of tin and thallium. Further studies of liquid helium II guided methods for measuring its basic thermodynamic properties. In connection with turbojet combustor design, the rates of inter-change of temperature and velocity between coaxial streams of hot and cold gas were studied under a variety of operating conditions. Studies of flame temperatures were carried out spectroscopically in the ultraviolet and infra-red regions of the spectrum. The heat capacities of sodium, potassium and three sodium-potassium alloys were determined at temperatures up to 1,173° K.

The magnetic properties of various iron and steel alloys were studied. The dielectric properties of new electrical insulating materials were measured. A new type of battery, delivering large currents for an unusually long time, was developed, as well as a dry cell for use in regions of extreme cold. A new and economic system for measuring visibility at airport weather stations was devised. Sonic methods were developed for measuring the viscosity of gases and for continuous indication of the velocity of sound in a liquid. An instrument was designed and constructed for accurate measurements of vibrations having very small amplitudes, and applied in calibrating gauges for vibration measurements in machinery, buildings and the soil.

Studies of the upper atmosphere and its effect on the propagation of radio waves included ionospheric winds, atmospheric radio noise and radio astronomy. Extensive work was conducted on frequency-channel allocations at very high frequencies. Monthly predictions were issued on the best radio frequencies, and standard frequency and time signals were broadcasted continuously over national bureau of standards stations WWV in Maryland and WWVH in Hawaii. A new atomic clock, using atomic-beam techniques, was nearing completion.

The work in electronics largely involved new and highly specialized circuits, components and devices. A low-cost multichannel telemeter system was developed and constructed. High-temperature adhesive-tape resistors were developed for use in printed circuits. A new casting resin was developed for potting electronic circuits. A currency counter was developed for the treasury which would save the government $250,000 annually in treasury counting operations. A large-scale electrostatic memory for computers was designed. The national bureau of standards computer was operated continuously during the year, day and night, on a wide variety of critical problems in the physical sciences and mathematics.

More than 300,000 calibrations and tests were performed, and 25,000 standard chemical samples were issued. Typical services: sample testing of 3,000,000 clinical thermometers, 10,000,000 bbl. of cement and 7,000,000 light bulbs; calibration of 4,500 gauge blocks, 900 water current meters and 35,000 capacity measuring devices; distribution of 1,300 samples of radioactive materials and measurement of 800 radon-breath samples from workers in radioactive environments.

The results of the bureau's work are available through three monthly periodicals (*Journal of Research*, *Technical News Bulletin* and *Basic Radio Propagation Predictions*) and a series of nonperiodical publications. An indexed list of publications (*Publications of the National Bureau of Standards*, circular 460) is available from the superintendent of documents, U.S. government printing office, Washington 25, D.C. (H. Od.)

Stars: *see* Astronomy.

Stassen, Harold Edward

(1907–), U.S. college president, was born on April 13 in West St. Paul, Minn. He studied at the University of Minnesota, Minneapolis, was admitted to the bar in 1929 and in 1930 was elected county attorney, holding the post for eight years. He was elected governor of Minnesota in 1938 on the Republican ticket, and was re-elected in 1940. He was temporary chairman and keynote speaker at the Republican national convention in 1940, and resigned as governor in 1943 to join the U.S. navy, where he served as flag officer to Adm. William F. Halsey, Jr. He was a delegate to the United Nations San Francisco conference in 1945, and in 1948 was a strong rival for the Republican presidential nomination, but lost in the convention polling to Gov. Thomas E. Dewey of New York.

Stassen accepted the presidency of the University of Pennsylvania later that year.

On Nov. 3, 1951, he won the Minnesota state Republican convention's endorsement for the 1952 presidential nomination. He did not immediately announce his intention to campaign actively for the nomination, but he did state that he opposed the candidacy of Sen. Robert A. Taft of Ohio. In early 1952, however, he confirmed that he was a candidate and his name was entered in several state primary elections.

He was considered an advocate of the policy of restraining Communist aggression by giving full support to the European rearmament program, and it was on this issue in particular that he was considered to be in active opposition to Senator Taft.

State, U.S. Department of: *see* Government Departments and Bureaus, U.S.
State Fairs: *see* Fairs and Exhibitions.
State Guard: *see* National Guard.
States Rights: *see* Law.
Steel: *see* Iron and Steel.
Stellar System: *see* Astronomy.

Stocks and Bonds.

U.S. Stocks.—Based upon Standard and Poor's composite index of 90 stocks, as shown in Table I, U.S. common stock prices in 1951 continued the bull market which began about the middle of 1949. The index showed a substantial increase, January to March 1951, when a reaction occurred. Thereafter, common stocks moved up until June, when a second decline occurred. After this the average moved up again until November when another decline was experienced. A broader index of the Securities and Exchange commission, based upon an average of 265 common stocks on the New York Stock exchange, showed a similar trend. At the end of December, common stock prices were close to their highs for the year and were the highest since 1930.

Table I also reveals that the industrial and public utility stocks carried the composite average to new highs. In January the industrial average was 213. At its high in September it was almost 239, an increase of more than 12%. At the year-end, industrials were up more than 11%. Public utility stocks ended the year with an increase of approximately 11%. On the other hand, the railroad stocks declined from March to July; and in spite of a recovery thereafter, they ended the year with slightly lower average. Preferred stocks of the highest grades also declined in price during the greater part of 1951.

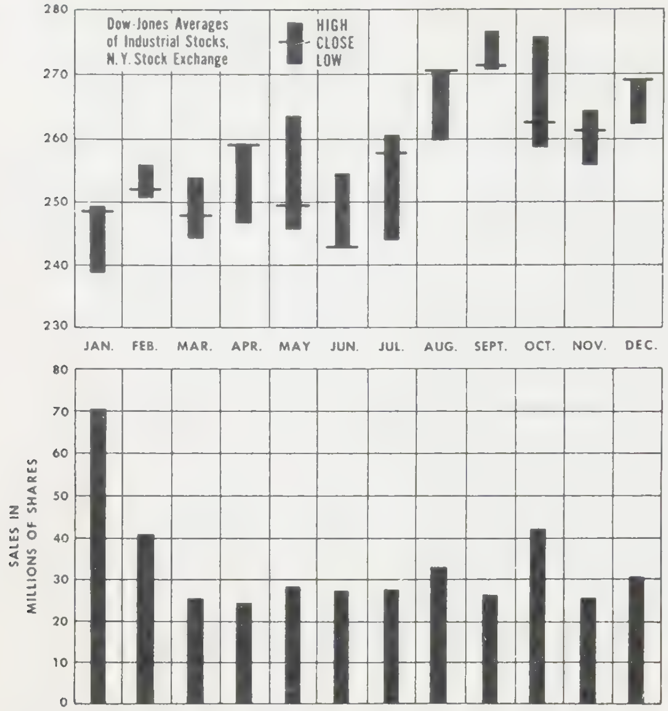
The number of shares traded on the various exchanges, as reported by the Securities and Exchange commission for the first nine months of 1951, was about 3% less than for the same period of 1950. Expressed on a money value basis, the trading on all exchanges during the first nine months of 1951 was about 5% more than in the comparable 1950 period. For the full year 1951, the volume of shares traded on the New York Stock exchange was 443,504,076 as compared with 524,799,621 shares in 1950, 272,203,402 shares in 1949, 302,218,965 shares in 1948, 253,623,894 shares in 1947 and 363,709,312 shares in 1946.

On Nov. 1, 1951, according to a compilation of the New York Stock exchange, there were 2,592,311,000 shares listed on the

Table I.—*U.S. Stock Market Prices*

	Railroads (20 stocks)		Industrials (50 stocks)		Public Utilities (20 stocks)		Stocks (90 stocks)		Yield (90 stocks)
	1950	1951	1950	1951	1950	1951	1950	1951	1951
Jan.	43.7	62.3	165.0	213.0	83.8	80.3	134.0	168.4	6.34
Feb.	43.8	65.3	168.4	221.4	85.2	84.3	136.6	174.7	6.20
March	44.1	61.1	169.6	217.6	86.8	85.0	137.8	171.8	6.34
April	44.4	60.9	175.2	221.6	87.1	83.6	141.7	174.0	6.27
May	44.6	60.1	182.0	222.0	88.0	83.3	146.4	174.1	6.23
June	43.5	57.6	186.1	218.0	86.8	83.2	148.8	171.1	6.31
July	45.0	57.2	172.4	222.2	78.4	84.5	138.0	174.2	6.26
Aug.	49.1	59.8	184.0	232.6	78.6	86.3	146.4	181.8	5.96
Sept.	51.0	62.4	191.1	238.8	79.5	87.2	151.6	186.5	5.75
Oct.	52.1	62.9	199.9	237.0	80.7	87.5	157.8	185.5	5.76
Nov.	51.8	59.1	199.7	230.0	79.9	87.4	157.4	180.3	6.18
Dec.	56.0	61.6	198.4	237.4	78.2	89.0	156.8	185.9	5.98

Source: Standard and Poor's *Trade and Securities, Current Statistics*. Figures are an average for the month, based upon closing prices with 1926 used as base period.



SALES AND PRICES on the New York Stock exchange, 1951

exchange, with a total value of $106,439,230,000 and a flat average price per share of $48.28. Of the 1951 total value (Nov. 1), United States stocks amounted to $104,263,384,000 and foreign stocks were $2,175,848,000 in value. The total number of shares were distributed over 1,462 separate United States issues and 22 foreign issues.

Dividends paid to stockholders during the first nine months of 1951, as reported by the New York Stock exchange, were much larger than in the same period for 1950, in spite of larger taxes. A total of $3,730,093,000 was paid out to owners of common stocks listed on the New York Stock exchange during the first three quarters of 1951, or 9.4% more than was paid in the same period of 1950. Also, 1951 was the ninth consecutive year in which dividend payments for the first nine months were larger than in the same period of the preceding year.

For the last quarter of 1951, however, dividend payments fell below those paid in the last quarter of 1950. For all of 1951, nevertheless, they exceeded somewhat those paid out during the whole of 1950. In 1950, dividend payments of $9,200,000,000 constituted 40% of profits, which totalled $22,800,000,000. In the third quarter of 1951, according to department of commerce estimates, profits of domestic corporations were at an annual rate of slightly more than $17,000,000,000; and for the last quarter of 1951, dividend payments were at an annual rate of slightly more than one-half of profits earned.

The following factors may be mentioned as important in their influence on common stock prices during 1951: (1) a high yield compared with that from good-grade corporate bonds; as shown by Table I, the yield throughout the year on a composite list of 90 stocks was about 6%; as shown by Table II, the yield on high-grade corporate bonds throughout the year was a little less than 3%; (2) an excess of earnings over dividends paid by corporations, approximating roughly 100% of their dividend payments; (3) the protection against inflation, which many believed that common stocks afforded. Regarding this latter point, the accelerated war-defense program, the strong demand for basic raw materials, the cutbacks in production of some civilian goods, the increased commitments to Atlantic pact countries, the failure of wage and price controls and other similar factors all tended to increase the attraction of common stocks as an inflation hedge.

Table II.—*U.S. Corporate Bond Prices and Yields, 1951*

(Composite bonds A1+; average price in dollars per $100 bond)

Month	Average	Yield	Month	Average	Yield
Jan.	121.4	2.61	July	116.2	2.92
Feb.	121.3	2.62	Aug.	117.1	2.87
March	119.4	2.73	Sept.	118.0	2.81
April	117.8	2.82	Oct.	116.9	2.88
May	117.4	2.85	Nov.	115.3	2.98
June	116.6	2.90	Dec.	114.8	3.01

Source: Standard and Poor's *Weekly Corporate Bond Price Index.*

Table III.—*U.S. Government Long-Term Bond Prices and Yields, 1951*

(Average price in dollars per $100 bond)

Month	Average	Yield	Month	Average	Yield
Jan.	107.6	2.40	July	104.0	2.68
Feb.	107.5	2.41	Aug.	104.9	2.60
March	106.0	2.52	Sept.	105.2	2.58
April	105.0	2.60	Oct.	104.3	2.65
May	103.9	2.68	Nov.	103.8	2.69
June	103.8	2.69	Dec.	103.5	2.72

Source: Standard and Poor's *Weekly Government Bond Price Index.*

U.S. Bonds.—U.S. government long-term bond prices, according to Table III, started a steady and appreciable decline in March 1951, reaching their lows for the year in December. There was considerable recovery in July, August and September, with a decline thereafter until the end of the year. Corporate bond prices, as shown in Table II, followed a similar pattern. They started to decline in March, reached a low in July, recovered until September and then started to decline again. According to the Standard and Poor's indexes, U.S. government bonds ended the year 1951 with a decline of a little more than 3.8%; and U.S. corporate A1+ bonds with a decline of slightly more than 5.4%.

Sales of bonds on the New York Stock exchange for 1951 were lower than those for 1950 but higher than for 1949. Total sales for 1951 amounted to $824,002,920, compared with $1,112,425,170 for 1950, $817,949,070 for 1949 and $1,013,829,210 for 1948.

According to a compilation by the New York Stock exchange, the total par value of bonds listed on the exchange on Nov. 1, 1951, stood at $99,205,637,000, with a market value of $97,511,474,000. U.S. corporation bonds (Nov. 1) amounted to $17,848,262,000 par value, with a market value of $16,803,315,000; company bonds of other countries with a par value of $503,723,000 and a market value of $407,224,000; U.S. government bonds (including state and municipal, etc.) with a par value of $79,214,497,000 and a market value of $79,072,453,000; and foreign governments with a par value of $1,339,154,000 and a market value of $937,989,000. The total listed bonds of United States corporations were distributed over 610 issues of 302 issuers; U.S. government bonds over 62 issues of 3 issuers; and foreign government bonds over 185 issues of 51 issuers.

Table IV.—*New Security Issues in the U.S.*

(Jan. 1 to Sept. 30, 1951—in millions of dollars)

	1951		1950	
Corporate	New capital	Refunding	New capital	Refunding
Domestic				
Long term	3,224.3	230.4	2,323.2	999.8
Short term	5.1	.7	106.1	51.3
Pref. stocks	332.2	98.0	393.0	30.8
Common stocks	676.2	9.7	491.5	6.4
Canadian				
Long term	2.5	—	19.5	8.0
Short term	—	—	—	—
Pref. stocks	—	—	—	—
Common stocks	6.7	2.7	24.3	—
Other foreign				
Long term	5.0	—	—	—
Short term	—	—	—	—
Pref. stocks	—	—	—	—
Common stocks	1.4	—	3.0	—
Total corp.	4,253.6	341.6	3,360.8	1,096.4
International bank	150.0	—	—	100.0
Canadian government	223.3	30.9	—	131.7
Farm loan and government agencies	362.6	1,117.6	296.5	698.5
Municipalities, states, etc.	2,142.2	50.8	2,695.6	66.1

Source: *Commercial and Financial Chronicle*, Dec. 3, 1951.

As shown in Tables II and III, yields increased with the decline in bond prices. On corporate bonds, yields rose from 2.61% in January to 2.92% in July; and on U.S. government long-term bonds the increase for this period was from 2.40% to 2.68%.

From January to December the increase was from 2.61% to 3.01% for corporate bonds; and from 2.40% to 2.72% for long-term governments.

The spread between the yields of bonds and stocks narrowed in 1951 as compared with 1950, although the difference still was wide by comparison with the years prior to World War II. In Jan. 1951 the average yield on A1+ corporate bonds was 2.61% and the average yield on 90 composite stocks was 6.34%, a difference of 3.73 basis points. In Dec. 1951 this difference had narrowed to 2.97 basis points.

The most important factor affecting prices of high-grade bonds in 1951 was the unpegging of government bonds by the federal reserve board which started in March. Prior to this date the board had supported the federal bond market when necessary in order to keep long-term government bonds above par. In this manner the board co-operated with the treasury department for the purpose of maintaining a low interest-rate policy. As soon as the board withdrew its support, prices of some long-term government bonds found their own level well under par. Support of bond prices was withdrawn by the board in order to increase interest rates and thereby help in curtailing the expansion of credit and, hence, inflation.

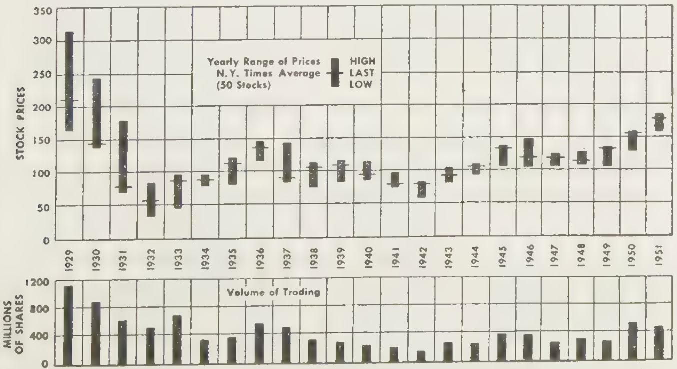
New York Stock Exchange.—On Jan. 15, 1951, the exchange announced the details of an $800,000 public educational program. On Jan. 16 the exchange announced its co-operation in the observance of the federal reserve board's increase in margin requirements from 50% to 75%, effective Jan. 17. On Feb. 15 the board of governors appointed a committee for consideration of closing the exchange on Saturdays throughout the year, rather than closing only on Saturdays in June, July, August and September.

On April 12 the board announced that the exchange would not close Saturdays, except during the four summer months. On May 24, it was announced that George K. Funston, president of Trinity college, Hartford, Conn., had accepted the presidency of the exchange under a three-year contract. On Oct. 9 the exchange reported that for the nine months ending Sept. 30, 1951, operation had been conducted with a profit of $456,202, compared with a profit of $769,349 for the same period of 1950, and a net loss of $325,995 for the like period of 1949.

New Issues.—The amount of common stock issued by U.S. private corporations in 1951, as reported in the *Commercial and Financial Chronicle,* was higher than in any previous year from 1946. A comparison of the years of 1947, 1948, 1949 and 1950 with 1951 showed a steady increase each year in the issuance of common stock of new capital purposes. Public utility corporations issued many more securities of all kinds in 1951 than any other single type of corporation; and this was true also for the years going back to 1946.

Table V.—*1951 Price Range of 20 Leading U.S. Bond Issues*

Name	High 1951	Low 1951	Close 1951	Close 1950
American Telephone & Telegraph 2⅝s 86.	96½	86⅝	88	96
American Tobacco 3s 62	103	98½	100½	102¼
Atchison, Topeka & Santa Fe 4s 95. . . .	129⅞	116¼	118	128
Bethlehem Steel 2¾s 70	101⅞	93½	95	100⅝
Chesapeake & Ohio 3½s 96D	104¾	96⅛	96½	103¾
Chicago, Burlington & Quincy 4s 58 . . .	111⅝	104	104¼	111¼
Commonwealth Edison 3s 99	104½	94	95	104¼
Erie 4½s 2015.	82¾	70⅛	71½	82⅝
Illinois Bell Tel. 2¾s 81	102	92¼	93⅜	101½
Louisville & Nashville 3¾s 2003.	105⅝	94½	95	104½
National Dairy 2¾s 70	102¼	95⅛	96¼	102
Northern Pacific 4s 97	114¼	100	102	112¼
Ohio Edison 3s 74	104¾	97¼	99⅛	104¼
Pennsylvania Railroad gen 5s 68	114	100	101	110¼
Philadelphia Electric 2¾s 67	102¼	94¾	96¾	101¾
Reading Railroad 3⅛s 95	96¾	78	79½	94
Southern Pacific 4½s 81	102¼	90½	92⅝	101¼
Standard Oil of New Jersey 2⅜s 71. . . .	96¾	89¾	90⅝	96¼
Swift & Company 2⅞s 73	103	98¾	98¾	103
Western Union 5s 60	104⅞	99⅞	101	102½



TRADING IN STOCKS on the New York stock exchange: yearly range of prices and number of shares sold, exclusive of odd-lot and stopped sales

Another important feature of equity financing by private corporations in 1951 was the large amount of convertible preferred stocks issued.

Issues of farm loan and other government agencies and issues by states and their subdivisions were large during 1951, although issues by states and their subdivisions during this year were somewhat less than in 1950. (*See* Table IV.)

Private placement of security issues continued to be a much used method in 1951, with issues privately placed during the first nine months averaging over 38% of the total. (*See* also SECURITIES AND EXCHANGE COMMISSION.) (C. A. K.)

Great Britain.—British government securities fell roughly 10% between the opening and close of the year; most if not all issues touched the lowest prices since 1933, that is, almost since the era of cheap money was first ushered in with the conversion of the war loan in 1932 from a 5% to 3½% coupon.

In the first six months, industrial ordinary shares rose by more than 20% and virtually attained again the record postwar level of Jan. 1947, but by the end of the year prices were nearly back again to the Jan. 1951 levels. Prices of gold-mining shares sank to those ruling before sterling devaluation raised the price of gold in 1949. In the main, shares in commodity-producing companies did well, especially in the oil, copper and tin industries, but following the slump in rubber after its spring boom, rubber shares could do no more than hold their ground on the year.

Despite official warnings that the nation was faced with a series of economic problems as difficult as any after World War II, a current of optimism ran through markets in the early months of the year. The popularity of the Labour government was on the wane and investors were prepared to discount the prospect of an early general election and the return of a Conservative government to power. World-wide inflation of the prices of goods and services brought about by the rearmament and stock-piling programs tended to promote a movement out of fixed interest stocks into equities, mainly into industrial ordinary and those of commodity-producing companies.

The sympathetic influence of Wall street on London prices had always been considerable, and Wall street encouraged investors by reaching 20-year peaks. The nationalization of the iron and steel industry in the United Kingdom on Feb. 15 resulted in about £236,000,000 3½% British Iron and Steel Guaranteed stock, with maturity dates 1979–81, being issued in compensation. The terms of issue implied a reduction of income for many holders who sought reinvestment in equities offering higher yields.

Equity investment was also stimulated by the publication of record profits by many industrial companies, partly as a re-

Table VI.—*Movement of the London Stock Market Indexes in 1951*

	Price Indexes						Yields % on					
	Government Securities		Industrial Ordinary		Gold Mines		2½% Consols		Industrial Ordinary		Daily Bargains	
Month	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Jan.	107.25	105.95	120.8	115.5	117.46	108.44	3.59	3.51	4.91	4.78	11,817	5,399
Feb..	105.70	104.66	123.1	121.3	121.00	117.52	3.66	3.60	4.78	4.67	16,454	10,296
March	105.07	103.68	122.8	119.6	121.70	117.38	3.73	3.65	4.81	4.68	16,109	7,425
April	105.10	103.35	132.9	121.3	123.68	120.09	3.77	3.63	4.74	4.45	15,372	7,269
May	103.70	101.86	137.2	133.5	120.58	116.76	3.87	3.75	4.55	4.39	14,787	8,387
June.	102.67	101.25	140.4	135.6	116.41	106.24	3.89	3.80	4.63	4.42	11,757	7,128
July	102.21	101.71	136.8	127.1	112.54	108.29	3.81	3.77	5.06	4.59	9,639	7,048
Aug.	102.09	101.74	133.6	127.1	112.44	109.88	3.80	3.78	5.06	4.81	8,126	5,022
Sept.	102.00	101.28	138.6	132.8	112.36	107.80	3.87	3.81	4.84	4.64	12,069	5,826
Oct..	102.21	101.30	138.3	132.7	114.05	111.10	3.86	3.76	4.91	4.65	11,134	6,605
Nov.	101.16	98.00	132.2	125.1	112.04	103.70	4.03	3.87	5.21	4.93	9,391	6,788
Dec..	98.18	95.30	125.6	119.8	104.93	99.02	4.12	4.00	5.47	5.19	8,622	2,827

Constituents and bases of indexes are: government securities, 11 British short-dated, medium-dated and long-dated, base date Oct. 15, 1926; industrial ordinary, 30 leading British equities, base date July 1, 1935; gold mines, 30 South African, West African and Australian, base date Oct. 15, 1926.

Source (for indexes): *Financial Times*, London.

sult of the rise in the value of stocks of materials and goods. Industrial share prices went further ahead when the Labour government's budget proposals proved to be less drastic than had been feared. The worst feature of the budget so far as company taxation was concerned was a rise from 30% to 50% in the distributed profits tax, but against this the optimists could point to the official expectation that company profits in 1951 would be a good deal higher than in 1950, a forecast which turned out to be correct.

The election of a Conservative majority to parliament on Oct. 25 was a critical point for markets. When the new economic and monetary policy of the Conservative government to prevent the country from becoming "bankrupt, idle and hungry" was introduced, the effect on stock markets was profound. The Labour government had already abandoned the cheap money policy to the extent of allowing long-dated British government securities to find their own level while holding short-term rates unnaturally low. It became apparent, however, that the Conservative government, which had raised the bank rate from 2% to 2½%, was prepared to allow its new monetary measures—aimed at discouraging credit expansion—to work themselves out in both "short" and "long" securities. As a result, by the end of the year substantial falls had taken place without the market yet finding a stable level. (A. L. W. S.)

Stomach and Intestines, Diseases of.

Peptic ulcer probably is more common than is generally appreciated; thus, in a group of children examined by X-ray the incidence was 10%. The importance of stomach acidity in the formation of ulcer received additional emphasis during 1951. In dogs, stimulation of gastric secretion by the hormone gastrin caused typical ulceration; surgical removal of the antrum of the stomach eliminated this hormonal influence and decreased the acidity. In man, the recurrences of peptic ulcer during the administration of ACTH and cortisone were attributable directly to the increased production of acid and pepsin. The search for better methods of controlling the acid continued during 1951. The results with protein hydrolysates, anion exchange resins and enterogastrone remained disappointing; and the effects of several new antacid preparations were not impressive.

Suppression of gastric secretion by compounds acting upon certain nerve mechanisms (cholinergic blocking agents) was studied in detail. Atropine was not effective since it decreased stomach acidity in only one-third of patients with duodenal ulcer; uncomfortable side effects developed frequently. The action of the synthetic preparation dibuline was similar. Tetraethylammonium salts, given by injection, and hexamethonium compounds, taken by mouth, decreased gastric secretion temporarily, relieved pain and facilitated the healing of peptic ulcer. These compounds produced undesirable reactions, however, including a fall in blood pressure upon standing, fainting, weakness, blurring of vision and dryness of the mouth. Banthine decreased acidity and gastrointestinal motility when injected intramuscularly; these effects were less pronounced when the drug was administered by mouth. Banthine also produced reactions similar to those already mentioned. Although it was not consistently effective in many cases, banthine appeared to be a useful addition to antacid treatment.

There was no unanimity of opinion among surgeons regarding the most effective operative treatment of duodenal ulcer. The value of cutting the vagus nerves to the stomach (vagotomy) in the surgical treatment of duodenal ulcer was reaffirmed by Lester Dragstedt, whose series now exceeded 740 patients. Persistent lowering of gastric secretion was demonstrated two to seven years after operation, indicating that the nerves do not regenerate. Many surgeons, though accepting the usefulness of vagotomy for ulcers developing after certain operations upon the stomach, nevertheless preferred partial removal of the stomach (gastric resection).

Gastric acidity was found to be subnormal in patients with cancer of the stomach; the lowered secretion apparently preceded the development of the tumour. Earlier recognition of this disease had become increasingly important because of improving surgical techniques and survival rates. The operating gastroscope, permitting removal of tissue for examination, revealed the cancer in some cases; however, this procedure was not generally applicable. Study of the cells in the stomach contents as a method of diagnosis seemed more promising. The use of a solution of papain and the introduction of a balloon encased in a hat veil into the stomach were designed to provide more suitable material for this purpose; the early results were encouraging. A new "stomach" was created in patients requiring total removal of this organ for cancer by transplanting a portion of the large bowel; initial observations indicated surprisingly adequate function in the transplanted structure.

Intestines.—Antibiotics, including chloramphenicol (chloromycetin), terramycin, neomycin, bacitracin and polymixin, were administered in the treatment of various gastrointestinal infections. Chloramphenicol induced prompt improvement in typhoid fever; however, haemorrhage or perforation complicated treatment occasionally and development of the chronic carrier state was not prevented. None of the antibiotics excelled sulfadiazine in the treatment of bacillary dysentery. Results in other bowel infections varied but were good in individual cases. Polymixin B was most effective in the control of infections with certain resistant bacteria (proteus and pseudomonas). Aureomycin and chloramphenicol appeared helpful in the rectal inflammation accompanying the venereal disease lymphopathia venereum. Favourable results with aureomycin were observed occasionally in patients with inflammation of the gall bladder and acute and chronic infections of the liver. It should be noted that large quantities of this antibiotic by mouth and by vein injured the liver in animals and occasionally in man. Antibiotics had no specific effect in ulcerative colitis or regional enteritis but they were of value in the treatment of secondary infection. Many reports emphasized the undesirable side effects occurring during antibiotic therapy; these were probably even more common than the literature indicated. Increasing attention was directed also to superinfection with bacteria originally regarded as harmless, bacterial infections resistant to current antibiotics, and to the laboratory demonstration that chloramphenicol interfered with the antibacterial action of penicillin or streptomycin.

New developments in the treatment of intestinal amoebiasis included the combination of carbarsone and atabrine, and the administration of terramycin, aureomycin and bacitracin. Chloraquine was more effective in amoebic infections of the liver. Antibiotics may be most useful in the management of amoebiasis as adjuncts to standard amoebicidal therapy.

The causes of ulcerative colitis and the treatment of this serious disease were investigated extensively during 1951. The large quantities of lysozyme produced experimentally after injury of the bowel and the failure of this enzyme persistently to damage the colon in dogs suggested that lysozyme was not of primary importance in the development of the disease, as had been thought originally. The concentration of lysozyme in the faeces increases during the active stage of ulcerative colitis and decreases with healing. However, the administration of anti-lysozyme compounds did not improve the course of the disease significantly. The importance of emotional stress was re-emphasized; psychotherapy was helpful in several groups of patients. As in other diseases, ACTH or cortisone did not cure ulcerative colitis but were definitely beneficial. The clinical response included subsidence of abdominal distress and diarrhoea, increased appetite and sense of well-being and healing of the inflammatory process. The improvement was no more complete than had been observed previously without ACTH, but it was more rapid and at times dramatic. Relapses were frequent but they seemed to be less severe.

ACTH and cortisone also were helpful temporarily in some patients with regional enteritis, but the results were less striking. Attitudes concerning the need for operation in ulcerative colitis continued to vary in 1951, although medical treatment was recommended in the majority of cases. Removal of the diseased large bowel and the establishment of a new opening in the small intestine (ileostomy) were necessary in a small group of cases with especially severe ulcerative colitis. The frequency of cancer of the bowel in two groups of patients with ulcerative colitis was 3.9% and 4.9% respectively, definitely higher than in the general population. In a more encouraging report, sustained improvement, clinically and by X-ray, was demonstrated in 24 patients with the disease.

Examination of the rectum by the proctoscope continued to be a valuable method for the earlier diagnosis of cancer in this region of the alimentary tract. Several surveys based upon this procedure indicated an incidence of polyps ranging from 7% to 10%. Since these polyps frequently undergo malignant transformation, their prompt removal is an effective method of cancer prevention.

Liver.—The course of infectious hepatitis, a viral infection of the liver, usually is mild and ends in complete recovery. Chronic hepatitis, cirrhosis, or massive destruction of the liver occurred in a small percentage of cases. A new skin test for the diagnosis of this disease was undergoing evaluation in 1951.

Cirrhosis of the liver had proved to be more common than appreciated; it may not produce symptoms. Examination of liver tissue obtained by the introduction of a needle remained the best method of diagnosis. The bromsulfalein excretion test was the most useful measure of liver function in patients without jaundice. Patients with cirrhosis and excess abdominal fluid (ascites) reacted unfavourably when the fluid was removed too frequently, because this procedure resulted in serious loss of protein and electrolytes. A low intake of salt and the use of resins facilitating the removal of sodium via the bowel proved helpful in retarding or preventing the reaccumulation of fluid. The value of a high protein diet, including salt-poor human albumin, in the treatment of this disease was re-emphasized.

Haemorrhage from enlarged veins in the oesophagus is an important cause of death in cirrhosis. Excellent results were reported in the treatment of this complication by surgically uniting the portal vein to the inferior vena cava or the splenic to the renal vein. In one series, 47 of 50 patients treated by these procedures were alive and well; in a second group of 111 cases the over-all mortality was reduced to 16.2%. The operation is most effective in patients with good liver function.

Pancreas.—The diagnosis of pancreatic disease had been handicapped by the lack of adequate tests of pancreatic function. More frequent measurement of the serum amylase led to the increased recognition of pancreatitis in 1951. Favourable results in relieving the severe pain of acute and chronic pancreatitis were reported with the surgical procedures of cutting the vagus, sympathetic or splanchnic nerves.

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Stomach Disorders: *see* STOMACH AND INTESTINES, DISEASES OF.

Strawberries: *see* FRUIT.

Streptomycin: *see* CHEMOTHERAPY; MEDICINE; TUBERCULOSIS.

Strikes.

In 1950 there were 4,843 strikes in the United States, an increase of 1,237 from the 1949 total of 3,606. However, the number of workers involved (2,410,000) and the idle man-days (38,800,000) in 1950 were considerably less than in the previous year, as shown in Table I.

The number of strikes in the first eight months of 1951 did not differ greatly from the number of strikes for the corresponding period in 1950. Likewise, there was no significant difference in the number of workers involved in strikes during these two periods. Nevertheless, there was a large decline in the idle man-days in the 1951 period, the eight-month 1951 figure of 14,900,000 being approximately 50% less than the corresponding figure for 1950.

These statistics published by the U.S. bureau of labour statistics included all known work stoppages arising from labour-management disputes that continued for at least one full day or shift and involved six or more workers. The data on man-days idle and workers involved covered all workers made idle in establishments directly involved in a stoppage and not those employees made idle through material or service shortages incurred by such stoppages.

Table I.—*United States: Number of Strikes Beginning in the Year, Workers Involved and Man-days Lost*

Year	Number of strikes	Number workers involved	Man-days idle during year	Per cent of estimated work time
1935–39 (average)	2,862	1,130,000	16,900,000	0.27
1946	4,985	4,600,000	116,000,000	1.43
1947	3,693	2,170,000	34,600,000	.41
1948	3,419	1,960,000	34,100,000	.37
1949	3,606	3,030,000	50,500,000	.59
1950	4,843	2,410,000	38,800,000	.44
1951 (8 mo.)	3,075	1,550,000	14,900,000	.24

Source: United States Bureau of Labor Statistics, *Monthly Labor Review*. 1951 figures are preliminary.

Table II.—*Analysis by Industries of Work Stoppages Arising from Industrial Disputes in Great Britain*

Industry	Jan.–Sept. 1951 Number of stoppages beginning in period	Number of workers involved in all stoppages in progress	Aggregate number of working days lost	Jan.–Sept. 1950 Number of stoppages beginning in period	Number of workers involved in all stoppages in progress	Aggregate number of working days lost
Agriculture, forestry, fishing	—	—	—	3	3,800	43,000
Coal mining	796	101,400‡	284,000	682	114,300‡	363,000
Other mining and quarrying	6	100	†	1	*	†
Treatment of nonmetalliferous mining products	11	900	2,000	4	100	1,000
Chemicals and allied trades	3	400	2,000	2	1,000	6,000
Metal manufacture . .	32	4,100	16,000	27	7,000	40,000
Shipbuilding and ship repairing	80	7,200	38,000	37	9,700	40,000
Engineering	65	20,500	98,000	48	12,300	41,000
Vehicles	53	39,600	218,000	40	19,000	87,000
Other metal industries .	20	1,800	8,000	14	1,000	6,000
Textiles	10	2,200	8,000	11	1,000	4,000
Leather, etc.	—	—	—	1	100	1,000
Clothing	9	2,800	4,000	8	700	3,000
Food, drink, tobacco .	17	6,000	20,000	7	800	25,000
Manufactures of wood and cork	8	1,300	5,000	19	1,800	15,000
Paper and printing. . .	6	300	1,000	6	3,900	35,000
Other manufacturing industries	8	2,700	7,000	4	1,200	2,000
Building and contracting	78	16,700	65,000	59	13,000	59,000
Gas, electricity, water .	5	2,600	61,000	4	3,900	33,000
Transport, etc.	72	91,100‡	585,000	52	42,600‡	180,000
Distributive trades . .	14	1,800	9,000	7	6,400	40,000
Other services	25	3,500	13,000	13	1,700	21,000
Total	1,318	307,000‡	1,444,000	1,049	245,300‡	1,045,000

*Fewer than 50. †Fewer than 500. ‡Some workers, largely in the coal mining and transport industries, were involved in more than one stoppage and are counted more than once in the totals. For all industries combined, the net total number of workers involved was approximately 260,000 in the 1951 period and 200,000 in the 1950 period.

Source: Ministry of Labour *Gazette* (London).

PICKET LINE formed by pilots of the United Air Lines who demanded pay based on miles rather than working hours because of increased flying speed. The ten-day walkout by 900 pilots ended June 29, 1951

Work stoppages arising from industrial disputes in Great Britain for the first nine months of 1950 and 1951 are indicated in Table II. As in 1949 and 1950, the majority of strikes in the first nine months of 1951 arose in coal mining, with 796 strikes through Sept. 1951—the total number of work stoppages having been 1,318 during this period. Although the number of strikes in the coal mining industry was greater in the first nine months of 1951 than in the similar period for 1950, the number of workers involved in these strikes and the number of working days lost were not so large. Other industries with a relatively large number of strikes were shipbuilding and ship repairing, building and contracting, transport, engineering and vehicles. Although the number of strikes in each of these industries was less than 10% of the number of stoppages in mining for the 1951 period under consideration, the number of working days lost in the transport industry was more than double the number lost in mining, and the number of working days lost in the vehicles group was not much smaller than that lost in mining.

Wage disputes were the predominant cause of industrial stoppages in Great Britain for the first nine months of 1951. The major share of these wage disputes was not for wage increases, but was concerned with other wage issues. Disputes over the employment of particular classes or persons, and other working arrangements, were also major causes of work stoppages.

Comparative figures for the first nine months of 1950 and 1951 showed a larger number of strikes in progress in every month except March in 1951.

As Table IV indicates, however, the number of working people involved and the number of working days lost did not necessarily increase (decrease) when the number of stoppages increased (decreased).

In Canada in the first eight months of 1951 there were 55 more strikes and lockouts than for the corresponding period in 1950. However, the number of workers involved in industrial disputes and the number of days lost during the 1951 period were considerably less than 50% of the corresponding numbers for 1950, the latter having been greatly increased by the railway dispute of that year. (*See* also LABOUR UNIONS; NATIONAL LABOR RELATIONS BOARD; UNITED STATES.) (P. TA.)

Table III.—*Analysis of Principal Causes of Industrial Disputes in Great Britain: First Nine Months of 1951*

Principal causes	Number of stoppages begun during 1951	Number of workers directly involved
Wage increase	152	59,400
Other wage disputes	491	70,000
All wage disputes	643	129,400
Hours of labour	27	2,200
Employment of particular classes or persons .	185	58,100
Other working arrangements	389	54,800
Trade union principle	23	7,600
Sympathetic action	11	16,900
Total	1,278	269,000

Source: Ministry of Labour *Gazette* (London).

Table IV.—*Relative Frequency and Size of Labour Disputes in Great Britain: First Nine Months of 1951 and Corresponding Months in 1950*

Month	Strikes in progress 1951	1950	Number of working people involved 1951	1950	Number of working days lost 1951	1950
January	133	130	24,100	22,800	84,000	65,000
February	138	124	57,800	22,100	340,000	91,000
March	150	178	34,900	30,500	143,000	127,000
April	190	133	46,100	35,500	153,000	159,000
May	189	133	57,700	22;300	190,000	51,000
June	184	146	84,800	28,700	304,000	95,000
July	110	91	16,900	44,200	42,000	250,000
August	151	106	22,300	18,400	73,000	53,000
September*	173	129	33,300	43,800	109,000	154,000

*Figures for September are subject to revision.

Source: Ministry of Labour *Gazette* (London).

Table V.—*Number* and Time Loss in Canadian Labour Disputes*

Month	1951† No. of strikes	No. of employees involved	Time loss in working days	1950 No. of strikes	No. of employees involved	Time loss in working days
Jan.	17	6,253	16,763	9	2,381	38,588
Feb.	18	4,508	18,878	16	3,861	24,871
March	27	4,754	15,135	22	5,600	15,041
April	19	2,647	9,673	24	2,869	15,272
May	39	6,560	34,902	28	4,491	24,471
June	52	13,641	128,150	27	2,767	29,692
July	32	9,470	119,413	34	6,394	50,880
Aug.	38	25,272	219,473	27	133,392	1,054,013

*These figures relate only to the actual number of strikes and lockouts in existence and the workers involved during the year, not being a summation in each case of the monthly figures. Strikes and lockouts were recorded together and are a cessation of work involving six or more employees and lasting at least one working day.

†1951 figures are preliminary.

Source: *Labour Gazette* (Ottawa).

Subsidies: *see* AGRICULTURE.

Sudan: *see* ANGLO-EGYPTIAN SUDAN; FRENCH UNION; FRENCH WEST AFRICA.

Suez Canal.

For two reasons the Suez canal was the subject of international political tension during 1951: first, because Egypt was accused before the security council of the United Nations for its restrictions on goods in transit through the canal; second, because the Egyptian government took drastic steps to enforce the evacuation of the Suez canal zone by the British troops stationed there.

Claiming that it was formally at war with Israel, Egypt continued its policy of "blockading" it, that is, refusing to allow the transit through the canal of war material, mainly fuel oil, to Israel. The British government protested in Cairo against these restrictions, describing them as illegal because they contravened the 1888 convention guaranteeing free passage to all traffic through the canal, and also because an Egyptian-Israeli armistice was concluded on Feb. 24, 1949. Ten other governments sent similar protest notes to Cairo but Egypt remained adamant. The dispute was referred to the security council and the formal complaint came from Israel. The case was considered at Flushing Meadow, N.Y., from July 26. A resolution sponsored by Great Britain, France and the United States was introduced on Aug. 16 calling on Egypt to terminate the restrictions on the passage of shipping and goods through the Suez canal wherever bound. The resolution was passed on Sept. 1 by eight votes to none, the U.S.S.R., India and nationalist China abstaining. An Egyptian government spokesman declared on the same day in Cairo that his government had no intention of implementing the resolution.

On Oct. 8, Mustafa el Nahas Pasha, prime minister of Egypt, tabled among others a decree abrogating the Anglo-Egyptian treaty of 1936 under which British troops were stationed in the Suez canal zone. It was passed by both houses of parliament on Oct. 15. On the night of Oct. 16–17, Lieut. Gen. Sir George Erskine, commanding the British troops in Egypt, seized Ismailia, Kantara East and West, the railway bridge linking Egypt and Sinai at El Ferdan and the ferry at Kubry, 5 mi. north of Suez. At the same time reinforcements were rushed to the canal zone by air from Cyprus and Libya and by sea from Britain. By the end of the year the British position in the zone was considered defensible.

At the annual general meeting of the Suez Canal company held in Paris on June 12, François Charles-Roux, its president, said that the traffic through the canal in 1950 was larger than ever: 11,751 transits were made, representing a total of 81,795,523 net registered tons, compared with 10,420 transits in 1949 (68,861,548 n.r.t.). Receipts for 1950 amounted to 28,020,300,000 fr., an increase of 2,083,300,000 fr. over those of 1949, whereas expenses at 10,705,500,000 fr. showed a reduction of 334,800,000 fr. After deduction from the gross profit of 1,152,600,000 fr. for interest and amortization of the capital, the available profit stood at 16,162,200.000 fr., but 2,000,000.000 fr. were allocated to improvement works planned in the company's seventh program.

Goods in Transit Through the Suez Canal

('000 metric tons)

	1938	1946	1949	1950	(6 months) 1951
Southward	7,767	6,000	13,032	12,144	7,528
Northward	21,012	15,936	48,024	60,468	29,469
Total	28,779	21,936	61,056	72,612	36,997

The first stage of the seventh program—the 7½-mi. by-pass canal halfway between Port Said and the Bitter lakes—was completed during the year. (*See* also EGYPT.)

Sugar.

The average U.S. civilian in 1951 consumed three-fourths of his weight in sugar, only one-fourth of which was produced domestically. Sugar production in 1950–51 in the principal areas supplying the United States was a record 12,198,000 tons, with a slightly larger crop in prospect for 1951–52. Production in the U.S. proper was estimated at only 1,967,000 tons as compared with 2,576,000 tons in 1950 and an average for 1940–49 of 1,924,000 tons. The 1951 U.S. crop included an indicated 1,588,000 tons of beet sugar and 379,000 tons of cane sugar; in 1950 the comparable data were 2,012,000 tons and 564,000 tons, but the averages for 1940–49 were 1,482,000 tons and 442.000 tons, respectively.

The U.S. sugar-beet crop in 1951 was 10,584,000 tons, 22% less than the 1950 record crop of 13,535,000 tons but more than the 9,880,000-ton average for 1940–49. The yield was favourable at 15.1 tons per acre, as compared with 14.6 tons per acre in 1950 and an average for 1940–49 of 13.1 tons. Hence, the crop decline was accountable to a sharply reduced acreage, from 925,000 ac. in 1950 and the 750,000-ac. average for 1940–49, to 702,000 ac. in 1951. Plantings of 887,000 ac. were indicated by farmers in March but the July crop report showed only 770,000 ac. planted—a reduction apparently based on fear of inability to obtain beet field labour and competition with other more profitable crops. California, as usual, was the leading state.

The U.S. sugar-cane crop of 1951 for sugar making was 5,187,000 tons, as compared with 6,481,000 tons in 1950 and an average of 5,491,000 tons for the previous decade. The yield of 18.5 tons per acre and the harvested acreage of 280,500 were sharply lower than comparable data for 1950 and slightly below the 1940–49 average.

Sugar-cane syrup production in the south in 1951 continued its sharp decline of prior years, falling to 5,140,000 gal., the smallest crop on record, compared with 9,230,000 gal. in 1950 and an average for 1940–49 of 19,008,000 gal. A sharply decreased acreage accounted for most of the decline. Sorgo (or sorghum) syrup production in 1951 declined to 2,831,000 gal., from 3,691,000 gal. in 1950. Even maple syrup and maple sugar declined in 1951—1,809,000 gal. of syrup (2,062,000 gal. in 1950) and 200,000 lb. of sugar (a record low) as compared with 257,000 lb. in 1950. Honey in 1951 was an excellent crop of 249,053,000 lb., as compared with 233,013,000 lb. in 1950. Colonies of bees in production were 5,572,000 as compared with 5,612,000 in 1950.

U.S. sugar consumption for 1951 was initially estimated (in Dec. 1950) at 8,000,000 tons by the U.S. department of agriculture for official quota purposes. After sugar exports from the U.S. had been curbed in the spring to conserve lower-priced supplies, the estimate was raised to 8,250,000 tons, but as demand stabilized and inventory building ceased it was lowered to 7,900,000 tons. In Dec. 1951 the official estimate of U.S. requirements for 1952 was set at 7,700,000 tons, moderately

Table I.—*U.S. Sugar-Beet Production*

(In thousands of tons)

State	1951	1950	Average 1940–49
California	2,660	3,927	2,130
Colorado	1,900	2,183	1,882
Idaho	1,253	1,508	1,045
Nebraska	682	812	717
Michigan	589	1,020	704
Montana	544	744	816
Wyoming	445	454	416
Utah	413	535	517
Ohio	126	277	258
Other states	1,972	2,075	1,393

Table II.—*U.S. Sugar-Cane Production*

(In thousands of tons)

State	1951	1950	Average, 1940–49
Louisiana	3,993	5,312	4,577
Florida	1,194	1,169	914

Table III.—Centrifugal Sugar Production of the Principal Producing Countries

(In thousands of tons, raw value)

Country	1951	1950	Average 1935–39
Cuba	6,800	6,349	3,183
U.S.S.R.	2,300	2,400	2,761
United States	1,967	2,576	1,992
Brazil	1,725	1,646	786
India	1,575	1,480	1,300
France	1,375	1,592	1,060
Puerto Rico	1,325	1,230	974
Western Germany	1,200	1,121	610
Republic of the Philippines	1,180	935	1,058
Hawaii	1,100	1,005	980

lower than the revised total for 1951, and sharply below the 8,500,000 tons for 1952 as suggested by commercial users, who ordinarily take about 70% of the total.

In Sept. 1951 the Sugar Act of 1948 was slightly modified and extended to the end of 1956. The major changes (effective beginning in 1953) were to increase Puerto Rico's quota from 910,000 tons to 1,080,000 tons and to double the Virgin Islands' share from 6,000 tons to 12,000 tons. As applied to the 7,700,000 tons estimated for consumption in 1952, the following quota amounts would apply: U.S. beet sugar, 1,800,000 tons; Louisiana and Florida cane sugar, 500,000 tons; Hawaii (cane), 1,052,000 tons; Puerto Rico (cane), 910,000 tons; Virgin Islands (cane), 6,000 tons; Philippines (cane), 974,000 tons; Cuba (cane), 2,424,571 tons; other countries, 33,429 tons, with 250 tons not allocated.

World production of centrifugal cane and beet sugar in 1951–52 was expected to total 36,500,000 tons, slightly more than the 36,400,000 tons of the previous year and much more than the prewar average of 28,900,000 tons. In addition, 6,285,000 tons of noncentrifugal sugar were produced, largely for local consumption in India, Pakistan and some Latin-American countries.

Of the centrifugal sugar total, cane sugar amounted to 22,900,000 tons, 6% more than the record 21,600,000 tons of 1950–51 and 34% larger than the pre-World War II average. Although area planted to sugar beets was increased by 2%, the season was such that the beet crop (98,700,000 tons, about two-thirds of this in Europe) was about 5% less than in 1950 though 20% more than prewar; it gave 13,600,000 tons of sugar, or 9% less than the 14,900,000 tons of 1950–51, but exceeded the 1935–39 average of 11,800,000 tons.

World prices reached a level of about seven and four-tenths cents per pound free alongside ship Cuba in June, but thereafter declined almost two cents per pound. (J. K. R.)

Suicide Statistics.

The mortality record for suicide in the United States during 1951 was appreciably under that for 1950, according to indications provided by the industrial policyholders of the Metropolitan Life Insurance company for the first nine months of both years. The improved suicide situation may be a reflection of the increased tempo of business activity and also of the war in Korea; corresponding situations were observed during World War I and again in World War II. It was estimated that the United States had 17,179 suicides during 1950, so that the rate was 11.4 per 100,000 total population, identical with that for 1949. The 1950 record for Canada was much lower than that for the United States; with 1,054 deaths from suicide, Canada had a rate of only 7.6 per 100,000 total population. England and Wales recorded 4,476 suicides during 1950, and a rate of 10.2 per 100,000 total population.

According to a 10% sample of death certificates gathered by the national office of vital statistics during 1951, the monthly suicide rates per 100,000 total population in the United States were: January, 7.8; February, 9.9; March, 11.1; April, 11.1; May, 11.9; June, 11.3; July, 10.5; and August, 10.5. The rise in rates from a low in winter to a high in spring is typical of the seasonal fluctuation in suicides.

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Sulphur.

After declining from 5,940,000 short tons in 1948 to 5,820,000 tons in 1949, world sulphur production advanced to 6,380,000 tons in 1950, a new record high. More than 90% of the world total comes from the United States. A dozen minor producers have outputs of a few thousand tons, but the only countries with outputs of significant proportions are Italy and Japan; the former turned out 207,835 tons in 1949 and 234,939 tons in 1950, and the latter 68,784 tons and 101,853 tons in the same years.

United States.—The U.S. bureau of mines reported data on the industry as shown in the table.

Data on Sulphur Industry in the United States

(In thousands of short tons)

	1945	1946	1947	1948	1949	1950
Production	4,203.6	4,322.8	4,974.1	5,453.5	5,314.4	5,815.2
Shipments	4,293.3	4,623.6	5,020.7	5,576.4	5,364.0	6,313.4
Exports	1,055.8	1,395.3	1,511.5	1,451.0	1,602.6	?
Available supply	3,237.5	3,228.3	3,509.2	4,125.4	3,761.4	?
Consumption	3,316	3,256	3,965	4,144.0	3,920.0	4,553.9
Stocks (producers')	4,484	4,221	3,771.5	3,612.0	3,471.2	2,973.1

In the first 10 months of 1951, production was 4,954,618 short tons and shipments 4,703,371 tons. (G. A. Ro.)

Support Prices: *see* AGRICULTURE.

Supreme Court of the United States.

The annual term of the court began Oct. 2, 1950, and ended June 4, 1951. There were no changes in the personnel of the court. Resolutions of the bar adopted at meetings held to commemorate the life and works of Justices Frank Murphy and Wiley B. Rutledge, who died during 1949, were presented to the court at mid-term.

Cases disposed of totalled 1,216 as compared with 1,308 at the previous term. There were 91 signed majority opinions, all but 12 of which involved either the federal or state governments.

The 16 five-to-four decisions rendered represented an increase of 10 over the number of cases decided by one vote at the preceding term. The number of dissenting opinions was the same, or 54.

The number of cases filed totalled 1,181, a decline of almost 100 from the previous term and 300 from the 1948 term.

Members of the Court.—The United States supreme court was composed in 1951 of the following members (dates indicate year appointment was confirmed by the senate): chief justice, Frederick M. Vinson (1946); associate justices, Hugo L. Black (1937), Stanley F. Reed (1938), Felix Frankfurter (1939), William O. Douglas (1939), Robert H. Jackson (1941), Harold H. Burton (1945), Tom C. Clark (1949), and Sherman Minton (1949). (*See* also LAW.) (H. B. Wy.)

Surgery.

Whereas burns were formerly treated locally by occlusive and compression bandages, much emphasis was placed during 1951 upon the importance of the open or exposure treatment of burns. This was in reality a revival of the method of treatment used approximately a quarter of a century earlier. The exposure method of treating burns was abandoned at that time because of the bad results caused by infection. A. B. Wallace and T. G. Blocker showed that open air treatment of burns gave good results. Infections of burns were less likely to occur, and the patients got along better and required less transfused blood than those on whom the occlusive dressings or compression bandages were applied.

Although the importance of the administration of whole blood to patients who were severely burned had previously been emphasized, only recently had this method been used effectively. Because patients who are badly burned have an increased number of red cells, there is a tendency on the part of physicians not to give blood. Blood, however, is extremely valuable. If blood is not available, plasma should be used, and there are also other satisfactory substances which can be used in place of plasma. H. Rosenqvist and H. G. R. Thorsén used successfully a high molecular polysaccharide of glucose, known as macrodex, which was quite successful in the early treatment of burn shock.

Anaphylactic reaction is supposed to be diminished or abolished by the administration of ACTH or cortisone. Therefore, it was suggested that the use of homologous skin graft (grafts from other persons) could be made successfully if the recipient were given ACTH or cortisone. E. H. Ellison and his co-workers and P. A. Weisman and his associates showed that the transplantation of skin from one person to another was not successful even though ACTH and cortisone were administered to the person receiving the grafts.

In cases of cardiac arrest—a condition in which the heart stops and which is incompatible with life, if the action of the heart cannot be re-established quickly—Julian Johnson and C. K. Kirby emphasized that resuscitation can be successfully accomplished. Of greatest importance is immediate massage of the heart to maintain sufficient circulation so that the brain will remain viable. Not more than a few seconds should be allowed to elapse before the chest is opened and the heart is massaged. Johnson and Kirby showed that a continuous contraction of the heart which is spoken of as ventricular fibrillation may occur as a result of lack of sufficient oxygen. This fibrillation may be stopped by means of an electric shock. J. C. Callaghan and W. G. Bigelow used an electrical instrument to re-establish the normal contraction of the heart, and Jerome Kay and A. Blalock used calcium chloride together with other methods of resuscitation in patients with heart arrest.

In patients with cirrhosis of the liver, massive bleeding from the enlarged veins in the esophagus frequently occurs and there may be an associated accumulation of fluid within the abdomen. In order to control the undesirable effects of cirrhosis of the liver and the resultant back pressure on the veins emptying into the liver, J. K. Berman and his associates employed an operation which consists of tying off the main artery to the liver and the spleen. Because the pressure within the vein emptying into the liver is greatly increased in cirrhosis, ligation of these arteries decreases the venous pressure and tends to control haemorrhage and other symptoms associated with cirrhosis of the liver.

Persons who have their gall bladders removed occasionally have persistence of pain which is thought to be caused by spasms of the outlet of the duct leading from the liver into the intestine. This condition was successfully treated by George Crile, Jr. and D. W. Miller by cutting the vagus nerves. A relatively rare condition which consists of a chronic inflammation of the pancreas (chronic pancreatitis) was treated by R. F. Bowers and J. Greenfield by making a new opening between the outlet of the duct leading from the liver and the intestines. In five cases in which this operation was done, all were benefited.

Before the introduction of cortisone, it was impossible to remove both adrenal glands because complete absence of adrenal secretion is not compatible with life. However, with the availability of cortisone and other hormones, it became possible to remove the adrenals and maintain life. Charles Huggins and D. M. Bergenstal successfully treated, by bilateral removal of the adrenal, extensive cases of carcinoma of the prostate, in which satisfactory results had been temporarily obtained by the administration of the female sex hormones, but in which progression of the disease had occurred because the adrenal glands had taken over some of the function of the female sex glands. In these cases, dramatic relief of symptoms and regression of the metastatic prostatic tumours occurred. H. A. Zintel and coworkers successfully treated patients with severe hypertension by removal of the suprarenal glands. As in the patients with cancer of the prostate, these patients with hypertension, who had the suprarenal glands removed, required the administration of cortisone in order to maintain life.

Alton Ochsner *et al.* showed that in the Charity Hospital of Louisiana at New Orleans, in spite of conservative treatment, there was a progressive increase in the incidence of vein clotting. Tying of the veins in certain cases of clotting within the vein was popular. John McLachlin and J. C. Paterson showed that tying the vein is likely to fail in preventing death from the detachment of a clot, because the clot is located on the heart side of the ligature. This was corroborated by Ochsner and his associates, who advocated in such cases tying the large vein (inferior vena cava) and draining the lower extremities and pelvis.

C. T. Klopp and his associates treated inoperable cases of cancer with some success by injection of nitrogen mustard into the artery leading to the tumour in order that the chemical action on the tumour could be more effective. (*See* also Medicine; Physiology.)

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Surinam (Dutch Guiana). Surinam lies between French Guiana and British Guiana, in northeastern South America, with an area of 54,291 sq.mi. It consists of a plain slightly above sea level, and seldom attaining a depth of 100 mi., and a high plateau, rich in timber and minerals. The bulk of the population (est. 1951, 211,000) lives on the coastal plain, and includes more than 85,000 indigenous and mixtures of indigenous and European elements, 20,000 Afro-Americans, 35,000 Javanese, and more than 50,000 who were either born in India or descended from persons born there. Approximately 2,000 were born in Europe. The capital is Paramaribo with an estimated population of 78,000 (1951). No other community exceeds 5,000. All citizens of Surinam are Netherlandish subjects. The official language is Netherlandish, but other languages and dialects are widely used. Governor during 1951: J. Klaasesz.

History.—Early in Jan. 1951 a member of the Netherlands cabinet, J. R. H. van Schaik, visited Surinam, announcing the forthcoming conferment of political autonomy. During June, the future financial and economic relations between Surinam and the Netherlands were explored at The Hague, and in December a formal agreement was concluded. Steps were taken to arrange for a comprehensive round table conference between Netherlandish, Surinam and Antilles representatives in the spring of 1952, to settle future constitutional relations.

A mission from the International Bank for Reconstruction and Development reviewed major economic problems of Surinam late in 1951, but its report had not yet been submitted by the end of the year. It was expected to provide a ten-year development program. In the election of March 14, the National party won 12 of the 21 seats in the legislative council, the Hindustani party 6, the Javanese 2. The cabinet was headed at the end of the year by J. A. E. Buiskool. (*See* also NETHERLANDS ANTILLES.) (C. ME.)

Education.—On Jan. 1, 1950, there were 118 elementary schools with 30,381 pupils and 768 teachers, 10 higher elementary schools with 2,866 students and 106 teachers and 1 secondary school with 18 students.

Finance.—The monetary unit is the Surinam guilder, valued at $0.530264 U.S. currency, official rate in 1951. The 1951 budget estimated expenditure at 27,863,000 guilders and revenue at 27,895,000 guilders. Actual revenue in 1950 was 26,829,000 guilders.

Trade and Communications.—Exports in 1950 totalled 31,477,145 guilders; imports were 39,814,281 guilders. Principal customers were the U.S. (80%) and the Netherlands (7%); the chief suppliers were the U.S. (42%), the Netherlands (28%), Trinidad (7%), the United Kingdom (6%) and Canada (3%). Important exports included bauxite (about 70%), rice, citrus fruit, timber, gold, balata and coffee.

Internal transportation is largely by water; in 1950 there were 83 mi. of railway and about 250 mi. of roads. Motor vehicles at the end of 1949 included 908 automobiles, 408 trucks and 127 buses. In 1948 there were 1,505 telephones and 500 mi. of wire.

Production.—The major economic activity is the extraction of bauxite, most of which is exported to the U.S. Production figures in 1950 included bauxite 2,302,705 short tons; gold 4,545 troy ounces; balata 196 short tons; sugar 3,181 tons; rice 55,587 tons; and coffee 478 tons. There were 43,000 cattle in 1949. (J. W. MW.)

Swains Island: *see* SAMOA, AMERICAN.
Swaziland: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

Sweden. A democratic monarchy of northern Europe. Area: 173,390 sq.mi.; pop. (Dec. 1950): 7,047,000. Capital: Stockholm (pop. Dec. 31, 1949) 732,281. Other principal cities (pop. Dec. 31, 1949) were Göteborg 349,323; Malmö 189,391; Norrköping 84,228; Hälsingborg 71,263; Örebro 65,630; Uppsala 61,561. Religion: Lutheran Christian. Ruler in 1951: King Gustav VI Adolf. Prime minister in 1951: Tage Erlander.

History.—The debate on Sweden's "alliance-free" policy was intensified in 1951. The majority of Swedes seemed to approve participation in the United Nations and for this reason many questioned the government's hypercautious attitude in the United Nations on such questions as Chinese trade.

In the autumn of 1951 the Swedes were shocked by revelations of espionage within their own ranks. On Sept. 29 a chief petty officer of the Swedish navy, Ernst Hilding Andersson, confessed that for two years he had been gathering and transmitting information for the U.S.S.R. The security police had intercepted his report on the Karlskrona naval base, intended for W. Orlov of the soviet embassy. Orlov's recall was demanded immediately, and Andersson was tried and sentenced to life imprisonment.

Even before the espionage cases the government had raised its defense appropriations to unprecedented heights. The total for 1951–52 was estimated at 1,380,000 kronor ($266,400). This represented from 5% to 6% of the total national production and 20% to 25% of the national budget.

Inflation was a serious danger, and revaluation of the krona was repeatedly suggested—and refused. Wage increases for about 1,000,000 organized workers averaged 16.6% by May 1, when the major agreements were concluded. But the cost of living index had risen 19% since the outbreak of the Korean war. People dependent on social welfare benefits felt a decline of 20% since 1947 in the real value of their grants. For workers, however, real wages had increased 30% since 1939.

PRINCESS SIBYLLE of Sweden handing an award to 17-year-old Mona-Lisa Englund, chosen sportswoman of the year at a festival in the Royal Tennis hall, Stockholm, early in 1951

Since 1945 the Social Democrats had guided the government, but in 1951 demands for a coalition increased. The Socialists had only 112 of 230 members in the second chamber, and 79 out of 150 in the first chamber. At last the leading party yielded and on Oct. 1 created a government in coalition with the Farmers Union (Agrarians). Most notable in the general shift was the retirement of Gustav Moeller, "father of the Swedish social security system." Another significant replacement was the appointment of Torsten Nilsson, formerly minister of communications, as defense minister to replace Allan Vougt.

Coalition with the Agrarians added 30 votes to the government side in the second chamber and 25 in the first chamber, giving a clear working majority in each house. But it was yet to be seen whether the Farmers and the Socialists could pull together consistently. One basic difference was hard to reconcile: farmers wanted high agricultural prices and low industrial prices; the labourers' immediate interest was just reversed. All parties watched such issues, conscious of the general elections scheduled for the fall of 1952.

Problems of the Baltic and its border peoples were more acute than usual in 1951. In July Sweden joined Denmark in a request to Moscow that the soviet claim for a 12-mi. limit off its Baltic shores be submitted to The Hague for adjudication; at the end of August the U.S.S.R. rejected the plea, asserting that it had the sole right to set its own limits. Repeated landings of refugees from Poland and the Baltic states brought Russian demands for return of the fugitives, but Sweden maintained its right of asylum. By the autumn the Balts who had fled to Sweden in 1944 had fulfilled the required seven years of residence and could apply for citizenship; it was expected that about 20,000 of the 25,000 still in Sweden would do so. Another 5,000 had emigrated to Canada, the United States and South Africa.

On May 19 a new law on religious dissenters was passed, the result of 40 years' agitation. It made easier an individual's renunciation of Lutheranism, permitted establishment of monasteries and convents and approved marriage by ministers of other than the state church. (F. D. S.)

Education.—Schools (1950): elementary 28,850, pupils 611,869, teachers 20,093; secondary 404, pupils 134,843, teachers 7,822; technical, pupils 147,359; teachers' colleges 29, students 6,512, professors and lecturers 1,102. Universities 4 and institutions of higher education 12, students 11,142, professors and lecturers 1,484. Illiteracy: nil.

Finance and Banking.—Budget: (1950–51 actual) revenue 5,821,000,000 kronor, expenditure 6,260,000,000 kronor; (1951–52 est.) revenue 6,406,000,000 kronor, expenditure 6,650,000,000 kronor. National debt (Jan. 1950) 12,055,000,000 kronor. Currency circulation (Oct. 1951) 3,755,000,000 kronor. Gold reserve (Sept. 1951): 664,000,000 kronor. Deposit money (July 1951): 3,400,000,000 kronor. Monetary unit: krona (pl. kronor) with an exchange rate (Dec. 1951) of 5.18 kronor to the U.S. dollar.

Foreign Trade.—(1950): Imports 6,101,000,000 kronor, exports 5,710,000.000 kronor.

Transport and Communications.—Roads (1951): 90,474 km. Motor vehicles licensed (Jan. 1951): cars and buses 260,049, trucks 84,904. Railways (1951): 16,516 km.; passenger traffic (1950), 6,252,000,000 passenger-km.; freight traffic (1950) 8,016,000,000 ton-km. Shipping (Jan. 1951): number of merchant vessels 2,202; total tonnage 2,135,183 gross tons. Air transport (1950): km. flown 10,764,000; passenger-km. 223,692,000; cargo net ton-km. 6,768,000. Telephone subscribers (1950): 1,591,473. Radio receiving set licences (1951): 2,153,000.

Agriculture.—Main crops (metric tons, 1951): wheat 484,000, barley 250,000, oats 820,000, rye 176,000, potatoes (1950) 1,734,000. Livestock (Sept. 1950): cattle 2,648,000; sheep 279,000; pigs (1949) 1,238,000; horses 440,000; poultry (1949) 8,204,000. Fisheries (salt): total catch (1949): weight 182,419 metric tons; value 104,000,000 kronor.

Industry.—Industrial establishments (1948) 17,491; persons employed 666,344. Fuel and power: electricity (1950) 18,348,000,000 kw.hr. Raw materials (metric tons, 1950): iron ore 13,728,000; pig iron 784,800; crude steel 1,440,000. Manufactured goods (metric tons): cement (1950) 1,944,000; wood pulp (1949) 2,886,000. Timber (1949) 5,250,000 cu.m.

BIBLIOGRAPHY.—*The Northern Countries*, published by foreign ministries of the five countries (1951); Royal Institute, *The Scandinavian States and Finland* (1951); Franklin D. Scott, *Scandinavia Today* (1951).

FILMS OF 1951.—*Angermanland, Christmas in Sweden, Dalarne, The Heart of Sweden, Holiday Time in Sweden, Sunlit Nights Land Cruise* (Films of the Nations Distributors, Inc.); *Meet The Swedes* (Almanac Films, Inc.). (E. J. L.)

Sweet Potatoes: *see* POTATOES.

Swimming.

The London *Daily Mail's* second annual swimming contest across the English channel was held in Aug. 1951. Eighteen of twenty starters survived the exhausting trip from France to England. Hassan Hammad of Egypt, a 34-year-old member of King Farouk's bodyguard, was first to complete the route in 12 hr. 12 min., landing one minute ahead of Roger le Morvan of France, who had also been second in 1950. Brenda Fisher of England, 23, led the women in 12 hr. 42 min. and broke the women's record of 13 hr. 23 min., set by Florence Chadwick of the United States. Later in the season Miss Chadwick became the first woman to have spanned the channel from either side by swimming from England to France in 16 hr. 19 min.

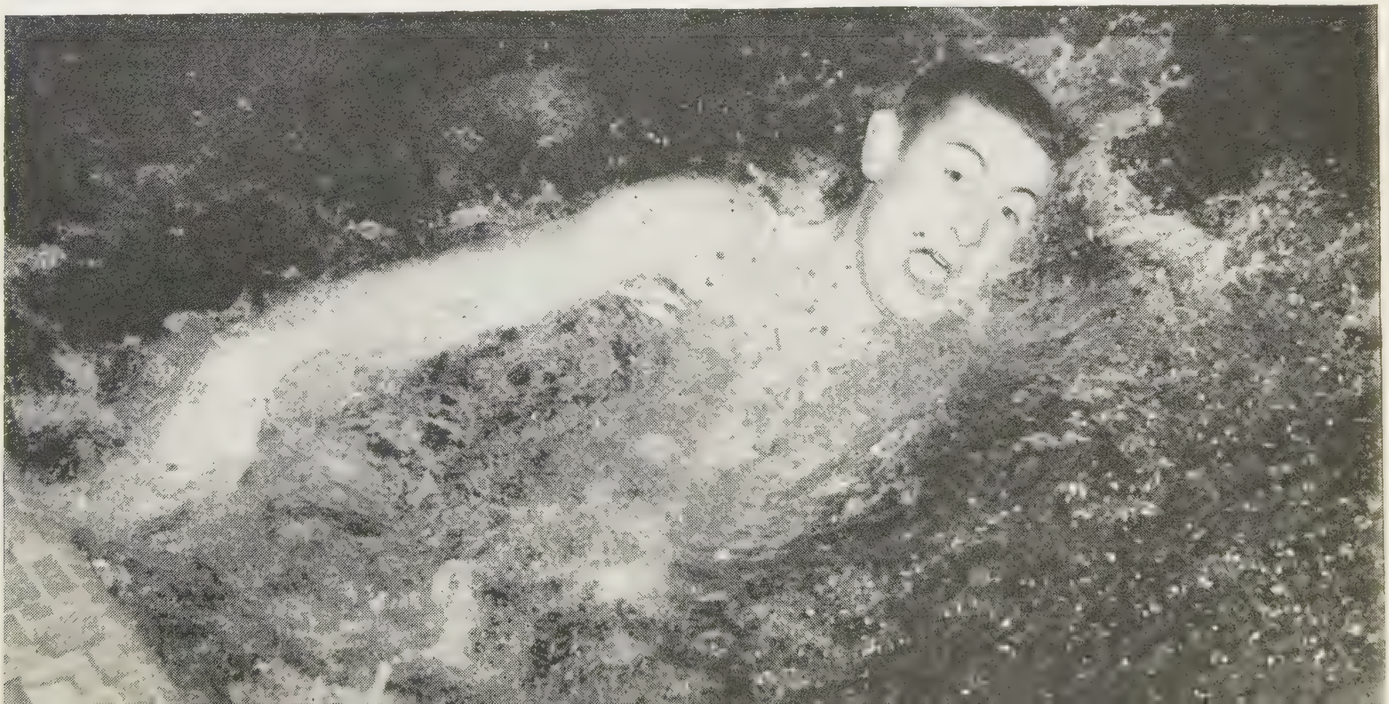
Ford Konno, 18, of Hawaii, swimming in a 100 m. pool at Honolulu, covered 200 m. free style in 2 min. 8.8 sec., 400 m. in 4 min. 34.8 sec., 800 m. in 9 min. 30.7 sec. and 1,500 m. in 18 min. 25.6 sec. Only the time for 800 m. bettered the world record officially, but if the gain afforded by the racing turns were estimated, all four of these feats would be materially faster than the listed standards of 2 min. 4.6 sec., 4 min. 26.9 sec., 9 min. 35.5 sec. and 18 min. 19 sec. Allowing for the differences in length of course, in fact, Konno's marks represented an approximate pace of 2 min. 1.8 sec., 4 min. 20.8 sec., 9 min. 22.7 sec. and 18 min. 10.6 sec. under the conditions prevailing when the records were set.

John B. Marshall, a Yale university student from Australia, clipped three standards officially, dropping the free style marks for 400 m. to 4 min. 27.9 sec., 440 yd. to 4 min. 28.1 sec. and 500 m. to 5 min. 43.7 sec. U.S. fours cut the relay times for 400 yd. to 3 min. 21.6 sec., 400 m. to 3 min. 47.9 sec. and 800 yd. to 7 min. 40.6 sec, while a French quartet lowered the relay figures for 800 m. to 8 min. 33 sec. L. Meshkov of the U.S.S.R. and H. Klein of Germany brought down the breast stroke marks for 100 m. to 1 min. 6.6 sec. and 200 m. to 2 min. 27.3 sec.

In the women's field Gretjen Wielema of the Netherlands reduced the record for 150 yd. back stroke to 1 min. 40.4 sec., and Dutch trios sliced those for the 300 yd. and 300 m. medley relays to 3 min. 19.4 sec. and 3 min. 35.9 sec.; Hungarian girls bettered breast stroke standards, E. Szekely shaving the time for 100 m. to 1 min. 16.9 sec. and E. Novak that for 200 yd. and 200 m. to 2 min. 34 sec. and 2 min. 48.5 sec.

H. Furuhashi of Japan, international free style topnotcher in 1949, turned in two sparkling feats in the national championships, thrashing 200 and 400 m. in 2 min. 8 sec. and 4 min. 38.8 sec. in a 50 m. pool.

The Pan-American games were held in Buenos Aires, Arg., and U.S. entrants garnered premier aquatic laurels, winning four events for men and six for women. The first Mediterranean games took place at Alexandria, Egy., with the competition con-


JOHN MARSHALL, Australian sophomore at Yale university, shown during a 1951 meet. Marshall set 36 swimming records of the National Collegiate Athletic association during the 1950–51 season

SWISS TROOPS working to clear houses and streets buried under an avalanche which hit the centre of Airolo, Switz., in Feb. 1951. At right are some of the buildings unharmed by the avalanche

fined to men, and France's contenders dominated the pool fixtures, capturing every first place, except in the water polo tourney, won by Spain.

Films of 1951.—*Crawl Stroke, The Breast Stroke, Side Stroke, and Underwater Swimming* (United World Films-Govt.); *Learning to Swim* (Young America Films, Inc.); *Ornamental Swimming* (Skibo Productions). (L. de B. H.)

Switzerland. A republican confederation of 22 cantons in west central Europe, Switzerland is bounded west by France, north by Germany, east by Austria and Liechtenstein and south by Italy. Area: 15,940 sq.mi. Pop.: (1950 census) 4,714,992. Languages: German 72.6%; French 20.8%; Italian 5.2%; Romansch 1.1%. Religions: Protestant 57.6%; Roman Catholic 41.1%; Jewish 0.5%. Chief towns (pop., 1946 est.): Berne (cap., 136,700); Zurich (360,500); Basle (170,300); Geneva (137,600); Lausanne (99,300). President of the confederation for 1951: Eduard von Steiger; vice-president of the federal council (government): Karl Kobelt.

History.—Switzerland appeared to be increasingly prosperous during 1951, for the industrial boom and the expansion of foreign trade, the first signs of which had become evident in Aug. 1950, continued. Nevertheless, the unsolved problem of the year was to find the money to finance the rearmament program approved by the parliament in Oct. 1950. Many schemes were brought forward, and after the elections of Oct. 28 the federal council in November went back to the recommendation of a plan put forward in February which involved heavy taxes on luxury foods and on drinks, but this was opposed by the powerful hotelkeepers' interest and was again shelved by a parliamentary commission. Meanwhile, prices and, with them, administrative and military costs were rising, so that at the end of the year a budget was brought forward for 1952 which envisaged a deficit of 250,000,000 Fr.

The elections to the council of nationalities were held on Oct. 28; on the same day most of the cantons elected or re-elected their representatives in the council of states. There were even fewer changes than had been foreseen. For the Communist party (called the Partei der Arbeit or Parti Ouvrier Populaire), which had been expected to disappear except in Geneva, was reduced—by the loss of two seats in the Vaud canton—only from seven to five. The three large parties—Radical, Catholic Conservative and Social Democrat—were returned, respectively, with 51, 48 and 49 representatives as against 52, 44 and 48 in the previous parliament, while the smaller but important Peasant party increased its seats from 21 to 23. (Because of the increase of population to 4,714,992 officially recorded in the census taken on Dec. 1, 1950, the number of parliamentary seats was increased from 194 to 196). The smaller parties virtually disappeared, with the exception, not only of the Communists, but also of the so-called Landesring der Unabhängigen, the followers of the erratic Gottlieb Duttweiler, owner of a chain of stores. While this independent party increased its seats in the council of nationalities from eight to ten, its leader, who had been elected to represent the canton of Zurich in the council of states in Sept. 1949, was defeated by a radical, Ernst Vaterlaus. Zurich had hitherto been regarded as Duttweiler's stronghold and he barely succeeded in saving his face by taking one of the council of nationalities seats won by his party in Berne.

After the election the two in some ways most prominent federal councillors (or ministers) resigned. One was the outgoing president of the confederation, a member of the Peasant party and minister of justice and police, Eduard von Steiger, who had held office since 1940. The other was the minister of finance, Ernst Nobs, the first Social Democrat to become a federal councillor (in 1943). They represented respectively Berne and Zurich, the two most important cantons. When the new federal assembly (council of nationalities sitting with the council of states) met in December it elected as their successors Markus Feldmann (Berne, Peasant party) and Max Weber (Zurich, Social Democrat). On the same day Karl Kobelt was elected president of the Swiss confederation for 1952 and Philip Etter vice-president of the federal council.

Toward the end of November the federal council brought a case against Pierre Nicole, son of Léon Nicole, the president of the Swiss Communist party. Pierre Nicole had published articles abroad accusing the federal council of abandoning Swiss neutrality by associating the country with the "aggressive" United States and the western anti-Communist bloc; he was condemned to 15 months' imprisonment for calumny and for undermining the independence of his country.

Education.—Schools (1948–49): primary, pupils 434,498, teachers 14,136 (5,460 women); secondary and lower middle, pupils 78,587 (girls 36,266), teachers 3,275 (women 427). Universities (1949–50) 7, students 14,903, professors and lecturers 1,379; institutions of higher education 2, matriculated students 3,957, teachers 453.

Finance and Banking.—Budget: (1950 est.) revenue 1,622,000,000 Fr., expenditure 1,466,000,000 Fr.; (1951 est.) revenue 1,577,000,000 Fr., expenditure 1,901,000,000 Fr. National debt (Dec. 1950): 11,176,000,000 Fr. Currency circulation (Sept. 1951): 4,919,000,000 Fr. Bank deposits (Aug. 1951): 6,927,000,000 Fr. Gold and foreign exchange (Sept. 1951): 1,425,000,000 Fr. Monetary unit: franc, with an exchange rate of 4.36 Fr. to the U.S. $1.

Foreign Trade.—(1951) Imports 5,900,000,000 Fr.; exports 4,600,000,000 Fr. Main sources of imports (1950): U.S. 13.8%; France 11.3%; Germany 11.0%; U.K. 8.1%. Main destinations of exports: U.S. 13.2%;

Italy 13.2%; Germany 9.3%; France 9.2%. Main imports: machinery 4.5%; coal 4.1%; fruit and vegetables 4.1%; raw cotton 3.8%; cars 3.7%. Main exports: machinery 22.1%; watches 18.7%; instruments and apparatus 6.6%; paint 5.7%; cotton fabrics 3.2%.

Transport and Communications.—Roads (1949) 10,250 mi. Licensed motor vehicles (Dec. 1950): cars 146,998, commercial 41,514. Railways (1949): total 3,345 mi.; state 1,812 mi.; passenger-miles (1950) 3,356,000,000; freight, ton-miles, 1,215,000,000. Shipping (1951): number of merchant vessels 20; total tonnage 100,000 tons; freight handled (1949) 2,252,020 metric tons. Air transport (1950): passenger-miles 91,487,000; cargo net ton-miles 2,450,000. Swissair traffic (1950): passengers flown 196,625; freight carried 2,349 metric tons; mail carried 1,554 metric tons; miles flown 5,618,309. Telephones (1950): subscribers 574,400. Radio receiving sets (1949): 986,679.

Agriculture.—Main crops (metric tons, 1951): wheat 207,000; rye 32,000; barley 46,000; oats 55,000; sugar, raw value (1950) 28,000; potatoes (1950) 1,130,000. Wine production (1950) 720,000 hl. Livestock (April 1950): cattle 1,530,000; pigs 908,000; goats 180,000; sheep 180,000; horses 134,000; chickens (April 1951) 6,268,000; geese, ducks and turkeys 85,000. Meat production (1950) 69,600 metric tons. Dairy produce (1950): butter 18,800 metric tons; cheese 52,100 metric tons.

Industry.—Industrial establishments (1950): 11,568; persons employed 492,563. Fuel and power: manufactured gas (1949) 299,000,000 cu.m.; electricity (1950) 9,120,000,000 kw.hr. Index of industrial activity (1938=100; 1950) building 116; cotton 99.5; silk 119.5; embroidery 108; metals 136; watchmaking 123; chemicals 162; foodstuffs 129. Index of employment in manufacturing (1937=100; 1950) 125.

Films of 1951.—*Let's Look at Switzerland, Skiing in the Swiss Mountains, The Swiss Riviera* (Films of the Nations Distributors, Inc.); *Understanding the Swiss* (Association Films, Inc.). (E. Wi.)

Symphony Orchestras: *see* Music.

Synthetic Products: *see* Plastics Industry; Rayon and Other Synthetic Fibres; Rubber; Standards, National Bureau of.

Syphilis: *see* Venereal Diseases.

Syria.

An independent Arab republic, formerly under French mandate, Syria is bounded by the eastern Mediterranean, Turkey, Iraq, Jordan, Israel and Lebanon. Area: 72,200 sq.mi. Pop.: (1938 census) 2,930,107, including the inhabitants of Hatay, ceded to Turkey in 1939; (1950 est.) 3,516,000. Language: Arabic is the mother tongue of about 86% of the population, but Kurdish, Armenian, Turkish and Circassian are also spoken. Religions: Moslem 82% (mainly Sunni Arabs); Christian 14%; other 4% (Druze, Jewish, Yezidi, etc.). Chief towns (pop., 1947 est.): Damascus (cap. 312,000); Aleppo (331,000); Homs (109,000); Latakia (90,000); Hama (80,000). Presidents in 1951: Hashem el Atassi and (from Dec. 3) Col. Fawzi Silo. Prime ministers: Nazim el Kodsi; (from March 27) Khalid el Azam; (from Aug. 9) Hassan Hakim; and (on Nov. 28, for nine hours) Maruf ed Dawalibi.

History.—Early in Jan. 1951 there was the first resumption of internal trade between Syria and Lebanon since Syria's denunciation of the Lebanese-Syrian customs union in March 1950; but in June it was reported that resumed negotiations for the re-establishment of the union had broken down. Meanwhile, local Syrian development projects were being pursued such as the reclamation of the Ghab valley in the northeast of the country and the development of cotton cultivation in the Euphrates valley, while in April bids were invited for the improvement of the port of Latakia and for the building of a railway from there to Aleppo. In March there arose serious Israeli-Syrian tension in the upper reaches of the Jordan river, where Israel claimed the right to extend its drainage work in the Lake Huleh swamps while the Syrian authorities asserted that, as the area was part of the demilitarized zone between the two countries, no work of this nature could be undertaken without their approval. There followed a series of clashes between the frontier posts on both sides and on April 5 the Israelis bombed a Syrian frontier position. These outbreaks brought the Arab League into action with offers of assistance from Saudi Arabia, Lebanon and Iraq, while the Syrian chief of staff proceeded to Cairo to consult Egyptian army authorities. Clashes of varying intensity continued through April and the first week in May when the U.N. Security council, whose services had been solicited by both parties, stepped in, and on May 15 both Syria and Israel agreed to cease hostilities.

In March, Nazim el Kodsi, who had been prime minister for seven months, resigned, and Khalid el Azam succeeded him. In July, however, he in his turn resigned following a strike of government employees against his labour policy. He was succeeded by Hassan Hakim.

In September Syria, with the other Arab delegates, rejected the proposals put forward by the U.N. Conciliation Commission for Palestine for a settlement. In October, after the abrogation by Egypt of the Anglo-Egyptian treaty of 1936 and of the Sudan condominium convention of 1899, Syria expressed its support of the Egyptian action. Later in the month there were anti-British demonstrations in Damascus. Meantime, the proposals for the organization of a middle east command had been rejected by Egypt, and on Oct. 23 the Syrian foreign minister, Faydi Atassi, denounced the four-power proposals. In November, however, the prime minister, Hassan Hakim, in a newspaper interview, announced his approval of Syrian participation in the four-power defense scheme and criticized Egypt for not having consulted the other members of the Arab league before its rejection of the four-power offer. On Nov. 10 the prime minister resigned, giving as his reasons the differences within the cabinet as to Syrian participation in the four-power scheme. He also sent a letter to the president of the Syrian chamber of deputies, affirming his support of the defense plan and of the U.S. mutual aid program, which, he stated, would strengthen the economic and military position of Syria and enable the country to resist Israeli aggression. In November the soviet government, in a statement to all members of the Arab league, warned them against the four powers' defense plan, which, it asserted, would forfeit them soviet friendship and ultimately lead to their loss of independence.

After Hakim's resignation and a three-week ministerial crisis, Maruf ed Dawalibi, the leader of the People's party, succeeded in forming a cabinet on Nov. 28. As he appointed himself defense minister and therefore showed his intention of controlling army and police, he was overthrown by the army nine hours after his nomination. The coup d'état was engineered by Col. Adib el Shishakly, chief of the general staff. On Dec. 2 President Atassi resigned. On Dec. 3 the higher military council, headed by Shishakly, appointed Col. Fawzi Silo as chief of state, prime minister and minister of defense. (O. M. T.)

Education.—Schools (April 1951): elementary 1,759, including private 228, foreign 38; total elementary pupils 260,759, including private 48,817, foreign 6,715; secondary 136, including private 69, foreign 18; total secondary pupils 28,595, including private 10,127, foreign 2,227. (1950) Technical schools 8 (including 2 private); university 1.

Finance and Banking.—Budget: (supplementary est., January-June 1951) balanced at L.S. 67,800,000; (1951–52 est.) balanced at L.S. 197,000,000. Currency circulation (April 1951) L.S. 225,000,000. Monetary unit: Syrian pound, with an exchange rate (Nov. 1951) of L.S. 2.20 to the U.S. $1.

Foreign Trade.—The Lebanese-Syrian customs union was terminated in March 1950. (April-December 1950): imports L.S. 198,000,000; exports L.S. 207,900,000.

Transport and Communications.—Roads (1950): 9,740 mi., of which 3,021 mi. are usable all the year. Licensed motor vehicles (Dec. 1950): cars 4,172; commercial 5,476. Railways (1949): 539 mi. Telephones (1948): 6,200. Radio receiving sets (1950 est.): 50,000.

Agriculture.—Main crops (metric tons, 1950): wheat 889,000; barley 357,000; maize (1948) 39,000; oats 5,000; potatoes (1948) 15,000; rice (1948) 20,000; cotton, ginned, 40,000; cottonseed 73,000. Fruit production (metric tons, 1950): grapes (1949) 150,000; olives 40,000; olive oil 5,000; oranges and tangerines 2,000. Livestock (Dec. 1949): sheep 2,750,000; goats 17,323,000; cattle 368,000; horses 98,000; donkeys (Dec. 1948) 245,000; mules 54,000; chickens (Dec. 1950) 2,171,000.

Industry.—Production: cotton textiles (1950 est.) 5,600 metric tons; natural and artificial silk textiles (1950) 26,700,000 m.; box calf and kidskin leather (1947) 29,000 sq.m.; salt (1947) 18,800 metric tons; cement (1950) 67,700 metric tons; asphalt (1947) 14,500 metric tons.

See Philip K. Hitti, *History of Syria* (1951).

Syrup, Sorgo and Cane: *see* Sugar.

Table Tennis.

The 1951 world table tennis championships were played in Vienna, Aus., March 4 to 11; 35 nations took part in the tournament. The Swaythling cup was won by Czechoslovakia (Ivan Andreadis, Bohumil Vana, Y. Tereba). The Corbillon cup for women's teams was won by Rumania (Angelika Roseanu, Sari Szasz); men's singles by Johnny Leach (England); women's singles by Angelika Roseanu (Rumania); men's doubles, Ivan Andreadis and Bohumil Vana (Czechoslovakia); women's doubles, Rosalind and Diana Rowe (twins, England).

The 21st U.S. national table tennis championships were played at St. Louis, Mo., April 6–8, 1951. The following were the winners: men's singles, Richard Miles (New York city); women's singles, Mrs. Leah Neuberger (New York city); junior miss singles, Sharon Koehnke (Glen Ellyn, Ill.); boys' singles, Al Holtmann (St. Louis, Mo.); senior singles (35 or over), Tibor Hazi (Washington, D.C.); esquire singles (50 and over), Paul Jackson (Providence, R.I.); men's consolation, Alexander Hayday (Minneapolis, Minn.); women's consolation, Arlyn Shapiro (Los Angeles, Calif.); men's doubles, William Holzrichter (Chicago), M. Reisman (New York city); mixed doubles, L. Neuberger and Doug Cartland (New York city); senior doubles, Bill Gunn and Tibor Hazi (New York and Washington, D.C.).

English open championships played at Wembley, London, Nov. 28 to Dec. 2, 1950, produced the following champions: men's singles, A. Ehrlich (France); women's singles, Trudi Pritzi (Austria); men's doubles, Jack Carrington, Johnny Leach (London); women's doubles, Rosalind Rowe and Diana Rowe (England); mixed doubles, Victor Barna (England), Helen Elliot (Scotland).

The finals of the first U.S.S.R. championships were held in Moscow in November. The tournament was played on all-play-all system, winners being placed in order of results. Vilius Variskojis (Lithuania) won the men's title and Ona Zalivicute took the women's crown.

In the Canadian national championships, played at Toronto, Ont., Sept. 6, 7 and 8, the winners were as follows: men's singles, M. Reisman (New York city); women's singles, Mrs. Leah Neuberger (New York city); men's doubles, M. Reisman and M. Silvert (New York city); women's doubles, L. Neuberger and Jessop (Toronto); mixed doubles, L. Neuberger and Sol Schiff (New York city); junior miss, Sharon Koehnke (Glen Ellyn, Ill.); junior boys' singles, Bobby Gusikoff (New York city). In team matches the United States defeated Canada 6 to 0. (P. W. R.)

Taft, Robert Alphonso

(1889–), U.S. senator, was born on Sept. 8 in Cincinnati, O., the son of William Howard Taft, 27th president of the U.S. He graduated from Yale university, New Haven, Conn., in 1910, and from the Harvard law school in 1913. During World War I he served as assistant counsel of the U.S. Food administration, and after the war he helped organize relief services to Europe. He served in both houses of the Ohio legislature, and was elected to the U.S. senate in 1938 and re-elected in 1944 and 1950. He was a strong contender for the Republican nomination for the presidency in the 1940, 1944 and 1948 national conventions.

Throughout 1951 Taft was a leading critic of Pres. Harry S. Truman's foreign policy, and of most of his domestic policy as well. On Jan. 5 he declared that the president had not the right to send troops to Korea without the consent of congress. He held similarly that a limit should be imposed on the number of U.S. troops that could be committed to the defense of Europe. He declared that attempting to halt communism by ground forces in Asia was futile, and advocated the use of superior air and naval power instead. Urging that the nationalist Chinese on Formosa be given full U.S. support, he charged that the policies of Secretary of State Dean Acheson would ultimately turn both Korea and Formosa over to red China.

Taft was rated as a strong contender for the 1952 Republican presidential nomination and late in the year began stumping the U.S. for delegates to the 1952 convention.

Taft-Hartley Act: *see* NATIONAL LABOR RELATIONS BOARD.
Tahiti: *see* FRENCH UNION.

Talal I

(1909–), King of Jordan, was born at Mecca. He succeeded his father King Abdullah who was murdered in Jerusalem on July 20. He received the education customary in a ruling Arab family and, after the setting up of the emirate of Trans-Jordan in close relationship with Great Britain, was sent to the Royal Military college, Sandhurst. In later years he took little part in affairs of state. He went to Beirut for treatment in June 1951 and afterwards left for Geneva to continue treatment there. The Emir Naif, Talal's younger brother, accepted the regency on his father's death on July 20 until his brother could return. Talal summoned Said Pasha el Mufti, minister for the interior, to Geneva on Aug. 7. By Aug. 25 Talal's health was pronounced restored. On Sept. 5 both houses of the Jordanian parliament proclaimed him king. He reached Amman by air the following day and took the oath. He stated that he intended to maintain the same friendly relations with Britain as his father had done. King Talal visited Saudi Arabia in November as the guest of the Emir Faisal. (R. JAN.)

Tanganyika: *see* BRITISH EAST AFRICA; TRUST TERRITORIES.
Tangerines: *see* FRUIT.

Tangier.

Tangier has been, since 1912, an international and demilitarized zone of Morocco on the southern shore of the Straits of Gibraltar. Area: 232 sq.mi. Pop. (mid-1950 est.): 111,000 including 30,000 Europeans. Languages: Arabic, French and Spanish. Religion: mainly Moslem. On Oct. 11, 1945, the international administration was re-established with a committee of control composed of the resident consuls general of France, Great Britain, the United States, the U.S.S.R., Belgium, the Netherlands, Portugal and Spain. The soviet representative refused to take his seat on the committee as long as Franco Spain was represented. Italy was readmitted to the committee on March 8, 1949. The committee of control appoints a legislative assembly of 26 members (4 French, 4 Spanish, 3 British, 3 U.S., 1 Belgian, 1 Dutch, 1 Portuguese, 3 Jewish and 6 Moslem). Tangier remained under the nominal sovereignty of the sultan of Morocco, and his representative (the *mendoub*) was Hadj Mohammed el Tazi.

It was announced on July 25, 1951, that Jonkheer H. L. F. C. van Vredenburch (Netherlands) had terminated his three-years appointment as administrator and was succeeded by Jose Luis Archer, the Portuguese resident consul general.

History.—Allal el-Fassi, leader of the Moroccan Istiqlal (Independence) party, was arrested on March 9 to face charges before the mixed tribunal of spreading false rumours about the French policy in Morocco. Habib Bourguiba, leader of the Neo-Destour (New Constitutional) party of Tunisia, was banned on Nov. 2 from the international zone when he was conferring with Moroccan Nationalist leaders. Banking authorities estimated that about 50,000 kg. of gold worth more than $60,000,000 was stacked away in vaults of the tax-free city of Tangier.

Tanks: *see* MUNITIONS OF WAR.

Tariffs.

Three principal developments characterized world tariff history during 1951. Probably the most important of these was the further expansion of the General Agreement on Tariffs and Trade as a consequence of the Torquay conference. The second most noteworthy trend was adoption of new tariffs by a substantial number of countries. In contrast with these two rather comprehensive developments was the fact that minor tariff changes affecting duties on individual import items were much less in evidence than in previous years.

The Torquay Conference.—The Torquay Tariff conference, which had been in session since Sept. 1950, came to a close in April 1951. This terminated the third set of multilateral tariff negotiations sponsored by the member countries (contracting parties) of the General Agreement on Tariffs and Trade (G.A.T.T.). The first of these negotiations was held at Geneva, Switz., in 1947 and the second at Annecy, Fr., in 1949. At Torquay, Eng., as at Annecy, the contracting parties held a session during the conference to consider general issues under the agreement.

Thirty-four countries participated in the tariff negotiations at Torquay. Twenty-seven of them were already members of G.A.T.T., whereas seven—Austria, western Germany, Korea, Peru, the Republic of the Philippines, Turkey and Uruguay—were negotiating with a view to accession. One of these, Uruguay, had also participated in the Annecy negotiations, but had not yet acceded to the general agreement. As at Geneva and Annecy, the negotiations were conducted on a bilateral basis between pairs of countries. At Torquay, 147 such bilateral negotiations, ultimately involving 8,700 individual concessions, were completed; nearly three-fifths of these bilateral negotiations were between G.A.T.T. members and acceding countries; virtually all the remainder were between pairs of G.A.T.T. members. Compared with the aggregate of tariff concessions previously negotiated at Geneva and Annecy, those granted at Torquay were of relatively small importance, both in terms of the number of items negotiated and trade coverage. The Torquay conference, nevertheless, broadened the total trade coverage of the general agreement and established a working basis for the accession of seven more countries. By the close of the year all the aforementioned countries except Korea, the Philippines and Uruguay had signed the Torquay protocol and thereby entered into full membership in the general agreement.

At Torquay the contracting parties agreed to extend for three years the period of "firm validity" for the Geneva and Annecy concessions (except those modified or withdrawn at Torquay under article 28 of G.A.T.T.; *see* below). Thus, the contracting parties agreed that most of the Geneva and Annecy concessions, as well as the Torquay concessions, could not be modified or withdrawn before Jan. 1, 1954, without joint action by the contracting parties. As a result of the Torquay conference, therefore, import duties applicable to a large portion of world trade were stabilized, at least until 1954.

Reversals under G.A.T.T.—Until 1951 the countries participating in the General Agreement on Tariffs and Trade had made rather constant step-by-step progress toward the reduction of world tariff barriers. In 1951, however, certain developments resulted in measures which, directly or indirectly, offset in part the further progress attained at Torquay.

An important phase of the Torquay conference was the so-called article 28 negotiations. Under that article of the general agreement, individual G.A.T.T. members were permitted to modify or withdraw any of their Geneva or Annecy tariff concessions after Jan. 1, 1951, without joint action by the contracting parties. Sixteen countries availed themselves of this privilege at Torquay; they were the Benelux customs union, Brazil, Chile, Cuba, Denmark, Finland, France, Haiti, Italy, New Zealand, Sweden, the Union of South Africa, the United Kingdom, and Uruguay. As a consequence, 295 concessions were withdrawn or modified. To offset the loss of benefits to the other participating countries, the aforementioned 16 countries granted compensatory concessions on other commodities; presumably, therefore, there was no diminution in the over-all level of tariff concessions in the general agreement as a result of action under article 28.

Following the dissolution of their customs union, Lebanon withdrew from the general agreement in Feb. 1951 and Syria in Aug. 1951. The Chinese nationalist government had previously withdrawn. By the close of 1951, therefore, the bulk of the concessions made by and to China, Lebanon and Syria in the general agreement were no longer in effect.

In Nov. 1951 the United States and Czechoslovakia, both contracting parties, suspended the application of all trade-agreement concessions to imports from one another. The action by the United States was one of several taken to administer section 5 of its Trade Agreements Extension Act of 1951. That section directed the president to suspend, as soon as practicable, the application of all trade-agreement concessions to imports from Communist-dominated countries or areas. During the last five months of 1951, therefore, the United States made such suspensions effective as rapidly as was commensurate with its international commitments; it announced, however, that suspension of concessions on imports from the U.S.S.R., Poland and Hungary would not be effective until 1952, inasmuch as commercial treaties according most-favoured-nation treatment to those countries could not be terminated until then. As a result of these suspensions, the United States now had, in effect, a two-column tariff on a great many items: a trade-agreement rate applicable to imports from most countries and a higher rate —usually that originally specified in the Tariff Act of 1930—applicable to imports from most Communist-dominated areas.

The United States Trade Agreements Extension Act of 1951, which extended the authority of the president to negotiate trade agreements for a period of two years, became law in June 1951. While not changing a previous statute limiting reductions in duties to 50% of the 1945 rate of duty, the act contained several features which, in a sense, circumscribed the freedom of the president to grant tariff concessions or to maintain them in effect. First, the act included so-called peril-point provisions similar to those in the extension act of 1948. Those provisions required the United States tariff commission to report to the president, for each item listed for consideration in pending trade-agreement negotiations, the maximum concessions which could be made without causing or threatening serious injury to a domestic industry. If in concluding an agreement the president exceeded the "peril point" on any item, the law further provided that he must report that fact to the congress and that the tariff commission would thereby be required to transmit to the congress the section of its report dealing with that item. Second, the act directed that an "escape clause" be included in all future trade agreements and, as soon as practicable, in all existing trade agreements. Insertion of the escape clause in trade agreements had been a matter of executive policy rather than legislative directive. Third, as discussed above, the act required the president to suspend the application of all United States trade-agreement concessions to imports from the Soviet Union and Communist-dominated countries.

General Revisions of Schedules or Nomenclatures.—The trend toward comprehensive tariff revisions continued in 1951. World War II and the unsettled postwar years had constituted somewhat of a standstill period insofar as tariff revisions were concerned. In view of the time which had elapsed, therefore, three factors, among others, ultimately contributed to the need for revision of either schedules of import duties or tariff classifications by various countries. These were (1) the world-wide rise in prices, as well as the currency depreciation in individual countries, which seriously impaired the revenue and protective capacity of tariffs based principally on specific-type duties; (2) the changing composition of the import trade of many countries, together with the appearance in world trade of many new commodities (such as plastics, synthetic fabrics and antibiotics), which necessitated either the revision or modification of existing import classifications; and (3) the appearance of the "Brussels tariff nomenclature," which provided an additional impetus to countries considering replacement of outmoded tariff classifications with the more scientific model nomenclature originally sponsored by the League of Nations. In 1951, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Germany and Iran adopted, or were in process of adopting, new tariffs.

Brazil.—In August the Brazilian government created a commission to draft a new tariff. It appeared from the executive order authorizing the projected revision that Brazil was chiefly interested in adjusting rates of duty; increases in duties apparently were desired, not only to compensate for the decline which rising prices had caused in the revenue-raising capacity of Brazil's specific duties, but also to afford additional protection to domestic enterprises.

Colombia.—The revised tariff, officially described as "courageously protectionist," provided substantial increases in duty on manufactured products and smaller increases for semimanufactured articles; decreases in duty were provided for certain raw materials essential to Colombian processing industries.

Costa Rica.—A new schedule of duties, effective in October, was described as an "interim revision" to serve until a more comprehensive revision, then in project, could be completed. The interim tariff made only minor changes in the nomenclature previously employed; the principal modifications in the old tariff were increases in rates of duty.

Ecuador.—Early in 1951 Ecuador released a projected tariff which had been under consideration for some time. The new schedule, prepared in consultation with a United Nations mission, was scheduled to be placed in effect early in 1952. The projected tariff made almost exclusive use of specific rates of duty.

El Salvador.—Another tariff revision in project, but not completed at the close of 1951, was that initiated in El Salvador. As in Ecuador, this work was undertaken in consultation with a United Nations mission.

Germany.—The Federal Republic of Germany put into effect its new tariff in Oct. 1951. The schedule consisted primarily of ad valorem rates of duty, and the highest rate was reported to be 35%.

Iran.—Late in 1950 Iran introduced a new tariff with nomenclature which followed closely the League of Nations model. Although the new schedule of rates, like the preceding schedule, consisted largely of specific duties, ad valorem rates were employed more frequently than formerly.

(*See* also EUROPEAN RECOVERY PROGRAM; INTERNATIONAL TRADE.) (D. LH.; G. P. H.)

Taxation.

Pres. Harry S. Truman's message to congress in Jan. 1951 sought an immediate tax increase of $10,000,000,000, to be divided as follows: $3,000,000,000 from corporations, $4,000,000,000 from individuals and $3,000,000,000 from excises. He also stated that later in the year he would seek an additional $6,500,000,000 to make up the $16,500,000,000 deficit forecast in the budget for the fiscal year 1952. However, the latter proposal met with immediate congressional hostility and was abandoned. The Revenue Act of 1951, implementing the president's recommendation, was finally adopted in October but failed by almost 50% to meet President Truman's stated revenue requirements.

"FIRST SERVED," a cartoon by Page published in 1951 in the *Louisville Courier-Journal* (Ky.)

This legislation had an indicated additional yield, on the basis of a full year's operations, of $5,691,000,000, the increase being allocated $2,280,000,000 to individual tax increases, $2,207,000,000 to increases in corporation income and excess profits taxes and $1,204,000,000 to increases in excise taxes. The aggregate increase of $5,691,000,000 made it the second largest tax bill in the country's history, being exceeded only by the $6,100,000,000 tax bill enacted in 1950. These two bills, taken together with the $3,900,000,000 tax increase effected by the Excess Profits Tax act of 1950, brought to $15,691,000,000 the tax increases, on a full year basis, enacted since the beginning of the Korean war. For the fiscal year ending June 30, 1952, the federal tax load was estimated to amount to approximately $61,000,000,000. Assuming state and local taxes of $18,000,000,000 and a national income of $290,000,000,000, this meant that 28% of the national income during fiscal 1952 would be taken by taxes.

During 1951 federal tax collections exceeded $50,000,000,000, the highest on record and 15% more than the previous high of $43,000,000,000 collected in wartime fiscal year 1945.

U.S. Legislation.—Individual income tax increases, which represented the most important source of additional revenue under the Revenue Act of 1951, took the form of an increase equivalent to approximately 11.75% of the tax payable under prior law. This change was made effective as of Nov. 1, 1951, so that the increase for the calendar year 1951 was approximately 1.96%.

Next in importance were changes in corporate income and excess profits taxes. Increases in this field were made retroactive to April 1, 1951, and consisted primarily of an increase in the rate of normal tax from 25% to 30%. The surtax rate of 22% on all income of more than $25,000 was left unchanged but the combined effective maximum rate of slightly less than 52% represented an all-time high for this type of tax. The 1951 act retained unchanged the excess profits tax rate at 30% of corporate net income computed after deducting the applicable excess profits credit. Changes were made in the structure of the excess profits credit by providing that when this credit was computed on the basis of the average earnings of the best three out of four years of the 1946–49 base period, only 83% of such average should be taken rather than 85% as previously. This amendment was made effective as of July 1, 1951.

Another important corporate tax change involved the determination of the ceiling on corporate tax liability. In 1950 a ceiling of 62% of corporate income (before any deduction for the appropriate excess profits credit) was imposed upon the aggregate liability of a corporation for income and excess profits taxes. The 1951 law abandoned the approach of a ceiling on all corporate taxes and imposed a new ceiling on excess profits taxes alone. This ceiling, effective as of April 1, 1951, was set at 18% of corporate income computed before the deduction of the appropriate excess profits credit. The effect of this new ceiling was to increase slightly the excess profits tax liability of any corporation affected by the ceiling rate.

The new law increased the maximum rate of tax on capital gains recognized by both individuals and corporations from 25% to 26% for taxable years beginning after Oct. 31, 1951.

In excise taxes, congress confined itself to the increase of preexisting and the imposition of several new selective items. The 1951 law imposed higher excise taxes on liquor, beer, cigarettes, gasoline, autos, auto parts, trucks and buses. New taxes were imposed for the first time on many appliances, on diesel fuel, cigarette lighters, mechanical pens and pencils. The previously existing tax on electrical energy sales was repealed and the tax rate on pipe and chewing tobacco, telegrams and photographic equipment was reduced.

The movement for placing co-operatives, building and loan associations and various so-called mutual organizations on a comparable tax basis with ordinary business organizations achieved its first legislative success in the Revenue Act of 1951. This act subjected mutual savings banks, building and loan associations, co-operative banks and federal savings and loan associations to corporate income (but not excess profits) taxes, beginning with 1952, but allowed deductions for dividends paid to depositors or credited to their accounts and for additions to bad debt reserves until surplus, undivided profits and reserves reached 12% of deposits. Farm co-operatives also were subjected to corporate income (but not excess profits) taxes, but only on that portion of their earnings not paid out as dividends on capital stock or allocated to patrons with respect to their patronage.

While the 1951 act was designed chiefly as a revenue raising measure, it contained a number of important relief provisions. Corporations which commenced business after July 1, 1945, were granted substantial excess profits tax concessions. Individuals were freed from capital gains tax liability in the case of profits from the sale of a residence if the proceeds of such sale were invested within a year in the purchase of a new residence. The rule with respect to the taxation of family partnerships was liberalized by providing, contrary to a number of court decisions under previously existing law, that a person with a capital interest in a family partnership where capital is a substantial income-producing factor, must be recognized as a partner even though he received his interest through a gift from another partner. Finally a provision which had not been in the law after 1934 was reinstated to the effect that no gain should be recognized from the receipt of stock in corporate exchanges known as "spinoffs." A "spinoff" occurs when a part of the assets of one corporation is transferred to a new corporation in exchange for its stock and the stock in the new corporation is distributed to the shareholders of the original corporation without a surrender by them of any of their holdings of the original corporation's stock.

Long-standing uncertainty with respect to the treatment for federal estate tax purposes of property subject to a power of appointment was dispelled with the passage on June 28, 1951, of the Powers of Appointment Act of 1951. This legislation followed a liberalizing trend in estate tax legislation which began in 1948 with legislation permitting reduction of the taxable estate for certain property passing to a surviving spouse and continued with the Technical Changes Act of 1949 and the provisions of the Revenue Act of 1950 limiting the circumstances under which the government could claim that *inter vivos* transfers were taxable as being made in contemplation of death. In substance the Powers of Appointment Act of 1951 provided that only those powers were taxable which permitted the power holder to appoint to himself, his creditors, his estate or the creditors of his estate.

U.S. State Taxation.—The trend of state tax collections which had been steadily upward after 1933 continued throughout the fiscal year 1951. Total collections for the year amounted to $8,900,000,000, up 12.6% from 1950 collections of $7,900,000,000 and more than double the 1945 collections of $4,300,000,000. Reflecting the general inflationary situation, the rate of annual increase in state revenues was accelerated during 1951, the $1,000,000,000 rise during the year being larger than the rise which had occurred in either of the two preceding years. These figures for state tax collections do not include pay-roll levies for unemployment compensation since these receipts were transferred by the U.S. department of commerce in 1951 from the category of tax revenue to that of insurance trust revenue.

Although general sales and gross receipts taxes were in force in only 29 states during the fiscal year, and in one of these states only for the final quarter of the year, such taxes continued as the largest source of state tax revenue both absolutely ($2,000,000,000), and relatively (more than one-fifth of total collections). Comparable figures for 1950 were $1,679,000,000 and 18.7%.

During the year sales and use taxes were imposed for the first time in Georgia, South Carolina and Maine, bringing to 31 the number of states imposing a sales tax. West Virginia inaugurated a new use tax and Alabama and Rhode Island increased the rates of their previously existing sales taxes. Running counter to the general trend, the South Dakota sales tax, which had been earmarked for the payment of the veterans' bonus, was terminated when tax collections had been received in a sufficient amount to finance the bonus payments.

The next ranking source was the sales tax on motor vehicle fuel, which provided $1,710,000,000, $166,000,000 or 10.7% more than in 1950. Seven states increased their gasoline tax rates during the year while two effected reductions.

Taken together, general and selective sales and gross receipts taxes yielded $5,269,000,000, or nearly three-fifths of the total collected from all state tax sources.

The third major tax group from the point of view of yield was net income taxes on individuals and corporations which produced $1,492,000,000, up 13.9% from the 1950 figure of $1,310,000,000.

Tax Treaties.—The year 1951 witnessed a substantial increase in the area covered by international treaties seeking to eliminate double taxation. At the beginning of the year income tax conventions were in effect with Denmark, the Netherlands and Sweden, while both income and estate tax treaties were in effect with Canada, France and the United Kingdom. On Sept. 17, 1951, the senate ratified income and estate tax conventions with the Union of South Africa, Norway, Ireland and Greece, and a supplemental income and estate tax convention with Canada. At the same time income tax conventions were ratified with Switzerland and New Zealand. A signed income tax convention with Belgium awaited ratification at the end of the year.

Canada.—On April 10, 1951, the minister of finance, Douglas Abbott, presented certain budget resolutions dealing with the personal income tax, the corporation income tax and various excise taxes. The principal change in the individual income tax involved a defense surcharge of 10% of pre-existing tax liability for the calendar year 1951 and 20% for succeeding years. A similar surcharge of 20% for the calendar year 1951 was recommended for corporations. It was also recommended that the right to charge depreciation be deferred for three years beyond the date of acquisition in the case of certain capital assets acquired after April 10, 1951, which did not contribute to the defense effort. Whereas the United States during World War II had permitted accelerated amortization of new construction directly connected with the defense effort. the minister's proposal for deferred depreciation represented a novel method of channelling scarce materials into the types of construction thought to be most in the national interest. The budget resolutions included an increase in the sales tax from 8% to 10%, the imposition of new special excises on certain household goods such as gas and electric stoves, washing machines and refrigerators and the increase in the excise on automobiles, household electrical appliances, jewelry, furs and radios. The cigarette tax was increased and that on candy and chewing gum decreased.

The Excise Tax amendments received royal assent on June 20, the changes contained therein being effective as April 11, 1951. On June 30, 1951, the income tax amendments received royal assent.

On Oct. 25, 1951, the minister of finance presented his recommendations for financing old-age pensions. They included an additional 2% on the personal income tax with a maximum of $60 a year, an additional 2% tax on corporate income and the earmarking of 2% of the existing sales tax for old-age security. The proposed increases were to come into effect on Jan. 1, 1952, in the case of the corporate tax and on July 1, 1952, in the case of the individual tax. Legislation carrying out these recommendations received royal assent on Dec. 21, 1951. (*See* also BUDGET, NATIONAL; CO-OPERATIVES; DEBT, NATIONAL; LAW.)

(J. DE.)

Tea. Apparent civilian consumption of tea in 1951 in the U.S. was seven-tenths of a pound per person, slightly more than the 1950 or pre-World War II rates. Imports continued at the high 1949–50 level. British consumption continued under a weekly ration of two ounces per person. Trading in Mincing Lane, London, closed from 1939, in April 1951 replaced government bulk buying and allocation. Retail prices, firm since 1939, advanced 20% in London in November.

Tea Exports from Principal Producing Countries

(In thousands of pounds)

Country	1950*	1949*	Average 1935–39
India	391,000	490,000	332,735
Ceylon	289,099	297,573	221,568
Indonesia	69,873	52,743	153,175
China	25,000	20,000	79,483
Japan	15,944	16,049	43,280
Pakistan	15,935	27,265	†
Nyasaland	15,157	12,770	8,834
Formosa	15,116	24,000	22,779

*Preliminary †Included in India

World tea exports in 1950 approximated the pre-World War II level, but were 9% below the previous year. Indonesian production progressively recovered and east African production increased.

(J. K. R.)

Technicolor: *see* MOTION PICTURES.

Telegraphy. The centennial of the Western Union Telegraph company on April 1, 1951, marked 100 years of progress in rapid communications. The crowning achievement of the century of progress was the completion of a network of 15 high-speed message centres which could be compared to a giant spider web spun over the nation and even reaching out to foreign countries. This network doubled the capacity of the nation's telegraph system and vastly increased its efficiency of operation. The cost of the system and other improvements was $100,000,000.

HIGH-SPEED TELEGRAPHIC switching centre for the U.S. air force, installed at the Pentagon, Washington, D.C., in 1951. The new push-button system meant an eventual saving of more than $1,000,000 annually

Each high-speed message centre serves an area covering one or more states. The operator transmitting a message from a telegraph office may type a routing symbol at the beginning of each telegram. That symbol causes an "electrical brain" at the message centre to route and flash the message to its destination. Under this system, a telegram is typed only once, at the point of origin.

With high-speed switching of telegrams, plus the addition of more than 2,000,000 mi. of radio beam and carrier circuits, and improved methods of picking up and delivering telegrams, including the Desk-Fax miniature facsimile machine, telegrams and cablegrams could in 1951 move faster and more efficiently than ever.

Desk-Fax.—The Desk-Fax takes up less than one square foot of space and enables the user to send and receive telegrams and cablegrams automatically and instantly by the push of a button. During 1951 the Western Union company handled more than 3,000,000 telegrams over about 4,000 Desk-Fax machines in the offices of business firms in 25 key cities. Installation of another 5,000 Desk-Fax machines was planned in 1952.

World's Fastest Telegraph.—High-Speed Fax, the world's fastest practical communication method, with a faster-than-speech speed of 3,000 words a minute, was publicly demonstrated in March. Ten times faster than any previous facsimile telegraph, the new high-speed facsimile machine could transmit and receive over any distance with absolute accuracy.

Any written, printed or picture matter to be sent by High-Speed Fax is inserted into a horizontal, transparent cylinder. Closing the end gate of the cylinder automatically starts it revolving before a scanning photoelectric "eye" at 1,800 r.p.m. Instantaneous, automatic reception takes place at the destination city where a receiving machine ejects facsimile reproductions of the sent pages. A 90-page issue of a magazine could be flashed by High-Speed Fax to a distant point in one hour.

U.S. Air Force Network.—The U.S. air force formally inaugurated on April 9, 1951, a nation-wide push-button telegraph network that linked more than 200 of its stations in the United States with high-speed communications. Leased by the telegraph company to the air force, the network included more than 130,000 mi. of telegraph circuits interconnecting the stations and the five push-button switching centres at the Pentagon building at Washington, D.C., Sacramento, Dayton, Montgomery and Ft. Worth. One feature was simultaneous transmission of multiple-address messages by means of "dual control" and "master sending" push-button panels. Approximately 1,500 operators on the network included 350 members of the women's air force.

Also in 1951 the Western Union company added new push-button centres connecting many additional stations to the extensive private wire switching systems leased to the United States Steel corporation and the General Electric company. Networks leased to the Bank Wire, serving many banks, and to many large companies also were expanded.

Rates and Taxes.—More words in telegrams, as well as additional words at reduced rates, were offered under rate revisions introduced in 1951. For the basic charge, under the new rates, the public could send 15 words instead of 10 in telegrams, and 50 words instead of 25 in night letters.

The federal excise tax imposed on senders of telegrams was reduced 40%, effective Nov. 1. It was estimated that the reduction in this tax would save the public more than $14,000,000 annually.

Submarine Cable Amplifier.—At the close of the year the Western Union company was tripling the capacity of its transatlantic cable system by installing submerged amplifiers on the ocean bottom in five cables between the United States, Newfoundland and Ireland. The amplifiers would triple the speed of the cables and provide additional all-weather communication facilities to ensure secret, high-speed handling of military and diplomatic communications in time of emergency, and at the same time to meet the growing peacetime demand for rapid and dependable international service.

FILMS OF 1951.—*Communications and Our Town* (Carl F. Mahnke Productions). (W. P. MA.)

Telephone. The world total of telephones on Jan. 1, 1951, was estimated at 74,800,000, 58% of which were in the United States. The United Kingdom was second with 5,433,614 and Canada was third with 2,911,900 (*see* table on page 670).

The year 1951 marked the 75th anniversary of Alexander Graham Bell's historic invention. U.S. telephone activity during the year was high-lighted by the completion of the first transcontinental microwave radio-relay system and the inauguration on a trial basis of long-distance dialing by customers. At the same time progress continued in the industry's expansion and improvement program to meet growing defense and civilian needs.

Telephones in service in the U.S. increased by 2,450,000 during the year to bring the total to 45,450,000, of which 82% were operated by the Bell system. The rest were served by about 5,500 non-Bell companies.

Of all U.S. telephones, 31,800,000 were residence installations, with 64% of all U.S. households having telephone service. Evanston, Ill., continued to top the list in this respect, with an average of 97 telephones for every 100 households at the beginning of 1951.

The United States also led the world in proportion of instruments to population, with 28.1 telephones per 100 persons at the beginning of the year. Sweden was second with 23.9 and Canada third with 20.8. The world average was 3.1 telephones per 100 persons. New York city continued to lead the world's cities in the number of telephones, with 3,137,405 instruments at the beginning of the year—more than any country in the world except the United Kingdom. Greater London was second with 1,632,900 telephones and Chicago, Ill., third with 1,526,156. Washington, D.C., led the cities in telephones per capita, with 60.6 per 100 persons, while San Francisco, Calif., was second with 55.5 per 100 persons and Stockholm, Swed., third with 47.9.

Acceleration of the U.S. defense program and continued heavy usage by civilians combined to set new records for total telephone conversations during the 75th anniversary year of the telephone. An average of more than 175,000,000 local and long-distance calls per day were completed during 1951, an increase of 5,000,000 per day over 1950. Long-distance calls alone averaged more than 6,000,000 per day.

U.S. Plant and Equipment.—During 1951, $1,100,000,000 was expended by the U.S. telephone industry to expand and improve its facilities, bringing total investment in plant and equipment to about $12,150,000,000. For the Bell system, the total was approximately $11,000,000,000. Since the end of World War II, more than $6,700,000,000 had been spent by the industry to improve and enlarge the U.S. telephone system.

The transcontinental microwave radio-relay system represented one of the most important single plant additions of the year. Consisting of 107 relay stations, the new system utilized directional antennas to beam telephone and television signals from one station to the next. Opened for telephone service on Aug. 17, it added hundreds of toll telephone circuits along its 3,000-mi. route. Other new toll circuits added during the year increased the industry's toll wire network to 28,500,000 mi.

During the year the industry continued its program of conversion of nondial telephones. The total number of automatic Bell telephones in operation increased to nearly 29,000,000, more than 77% of all Bell instruments in service. About 72% of all U.S. telephones were dial-operated at the end of the year.

Shipments by the Western Electric company—manufacturing and supply unit of the Bell system—included 49,000,000,000 conductor feet of exchange cable, 2,500,000 telephone sets and enough local central office switching equipment to serve more than 2,000,000 additional telephone subscribers. Western Electric also devoted a large part of its productive capacity to government orders.

Although Bell Telephone companies alone installed 9,000,000 telephones and achieved a net increase of 2,089,000, the Bell system had a backlog of nearly 800,000 orders for new service at the end of 1951. In addition, the Bell companies had 1,800,000 requests on file for better grades of service.

Television.—The first coast-to-coast U.S. television program was carried over the transcontinental microwave system on Sept. 4, when millions of Americans watched Pres. Harry S. Truman open the Japanese Peace conference at San Francisco. The new microwave system added 12 television stations in three cities to the existing network and, with other stations added during the year, increased the potential audience for network television by 10,000,000 people.

During 1951 approximately 12,000 mi. of radio-relay circuits were installed, while 3,000 mi. of coaxial cable circuits were added. Both were capable of carrying video signals as well as telephone messages. The total television channel mileage at the end of the year was 24,000. (*See* also TELEVISION.)

Long-Distance Dialing.—Dialing of long-distance calls by customers was inaugurated on a trial basis in Englewood, N.J. on Nov. 10, 1951. Individual and two-party line customers in that city could now dial directly to any of 11,000,000 telephones in cities as far away as San Francisco. Other areas within dialing range of Englewood included Boston, Mass., Philadelphia, Pa., Providence, R.I., Pittsburgh, Pa., Cleveland, O., Detroit, Mich., Chicago, Milwaukee, Wisc., Oakland, Calif., Sacramento, *Telephones in Selected Countries of the World, Jan. 1, 1951*

Country	Total Telephones		Automatic (Dial)	
	Number	Per 100 popu-lation	Number	Per cent of total tels.
North America:				
United States	43,003,832	28.1	30,170,000	70.2
Alaska	17,919	13.8	6,206	34.6
Canada*	2,911,900	20.8	1,747,100	60.0
Cuba	120,668	2.2	100,938	83.6
Jamaica	13,700	1.0	13,087	95.5
Mexico*	285,600	1.1	191,738	67.1
Panamá	11,403	1.4	9,289	81.5
Puerto Rico	38,490	1.7	20,154	52.4
Trinidad and Tobago	14,794	2.3	12,397	83.8
South America:				
Argentina	798,391	4.6	613,783	76.9
Bolivia*	7,950	0.2	7,600	95.6
Brazil	549,700	1.0	424,000	77.1
Chile	134,869	2.3	90,230	66.9
Colombia	100,850	0.9	48,000	47.6
Ecuador	8,800	0.2	1,000	11.4
Paraguay	5,273	0.4	4,529	85.9
Peru	46,733	0.5	37,729	80.7
Uruguay	89,871	3.8	66,233	73.7
Venezuela	67,000	1.3	62,617	93.5
Europe:				
Austria	412,394	5.8	312,777	75.8
Belgium	687,012	7.9	514,599	74.9
Bulgaria*	59,000	0.8	26,000	44.1
Czechoslovakia*	385,000	3.1	230,000	59.7
Denmark	723,443	16.9	296,914	41.0
Finland	328,394	8.0	179,626	54.7
France	2,405,802	5.7	1,474,509	61.3
Germany, Eastern, & Berlin*	332,200	1.6	200,000	60.2
Germany, Western	2,393,013	5.0	2,050,637	85.7
Greece	81,905	1.0	77,020	94.0
Hungary*	116,000	1.2	85,800	74.0
Iceland	20,801	14.4	13,787	66.3
Ireland	82,031	2.7	52,634	64.2
Italy	1,244,152	2.7	1,147,179	92.2
Luxembourg	23,412	8.0	16,796	71.7
Netherlands	781,678	7.7	702,896	89.9
Norway†	451,727	13.8	263,084	58.2
Poland*	230,000	0.9	155,000	67.4
Portugal	152,580	1.8	75,045	49.2
Rumania	136,000	0.9	102,000	75.0
Spain	667,639	2.4	510,700	76.5
Sweden	1,685,200	23.9	1,083,774	64.3
Switzerland	896,398	19.1	863,324	96.3
Trieste	23,654	6.6	23,154	97.9
U.S.S.R.*‡	1,500,000	0.7	400,000	26.7
United Kingdom§	5,433,614	10.7	3,893,242	71.7
Yugoslavia*	85,000	0.5	55,000	64.7
Africa:				
Algeria*	96,400	1.1	68,500	71.1
Egypt*	115,500	0.6	66,700	57.7
Morocco	68,484	0.6	45,979	67.1
Tunisia	25,207	0.8	14,625	58.0
Union of South Africa	458,851	3.7	321,682	70.1
Asia:				
Ceylon	16,860	0.2	14,734	87.4
China	255,000	‖	178,000	69.8
Hong Kong†	28,705	1.3	28,705	100
India§	168,397	‖	70,800	42.0
Indonesia*	43,000	‖	1,000	2.3
Iran	28,620	0.2	10,725	37.5
Iraq	17,630	0.3	11,455	65.0
Israel	28,956	2.1	24,826	85.7
Japan§	1,802,558	2.1	667,667	37.0
Lebanon*	13,500	1.1	0	—
Malaya	23,694	0.4	8,569	36.2
Pakistan	18,771	‖	9,328	50.0
Philippine Republic	20,386	0.1	15,425	75.7
Singapore	18,601	1.9	18,601	100
Syria	11,516	0.4	7,376	64.1
Turkey	65,150	0.3	56,410	86.6
Oceania:				
Australia	1,158,202	13.9	720,981	62.3
Hawaii	109,579	21.9	103,177	94.2
New Zealand§	369,989	19.1	216,749	58.6

*Data partly estimated. †June 30, 1950. ‡Including all Asiatic territory of the U.S.S.R. §March 31, 1951. ‖Less than 0.1.

Calif., and New York city and several of its suburban areas. Automatic accounting equipment keeps track of the charges when a customer dials a long-distance call, summarizes the call information and prints it in final form on the customer's monthly bill. Customers using the new system could dial cross-country in a matter of seconds; 30 years before, when the first transcontinental call was made, it took about 14 min. to establish a connection.

The number of cities to which operators can dial long-distance calls directly also continued to increase during 1951. At year's end, approximately 1,250 localities could be dialed by operators, with 38% of all toll calls being handled in this manner.

Overseas Calls.—Bell system radiotelephone stations handled a total of 888,000 messages to foreign countries and ships on the high seas in 1951, representing an increase of 24% over the preceding year. During the year, telephone service was extended to British West Africa, Guam and Cyprus, making it possible for telephone users in the United States to reach approximately 90 foreign countries and territories, or all but about 4% of the total telephones in the world. Service to Korea was interrupted by war in January, but was re-established about one month later.

Mobile Service.—Bell system mobile telephone service was available at year's end in more than 500 communities. The Bell Telephone companies were providing general mobile service to 10,700 vehicles of all types, which were placing about 330,000 calls a month. The companies also furnished 5,500 mobile telephones for the exclusive use of specific customers. (*See* also FEDERAL COMMUNICATION COMMISSION.)

FILMS OF 1951.—*Communications and Our Town* (Carl F. Mahnke Productions). (C. F. CG.)

Telescopes: *see* ASTRONOMY.

Television.

The freeze on construction of new U.S. television stations imposed by the Federal Communications commission late in 1948 was still in effect throughout 1951. As a result, only one additional station, authorized before the freeze, went on the air in 1951, making a total of 108. Practically all were operating profitably. The hearing which began in Oct. 1950 about reallocation of the 12 VHF channels and of the ultra-high frequency (UHF) television band, was concluded early in 1951. The decision included a revised allocation plan based on testimony received during the hearing. Channels in specific cities representing about 10% of the total assignments were reserved for noncommercial educational television. The petition of the American Telephone and Telegraph company for 30 mc. of the UHF television band for multichannel mobile radio-telephony was denied in favour of television broadcasting. The commission's revised allocation plan was scheduled for hearing in May 1951 but all parties agreed that, because of the complexity of an oral hearing and in the interest of lifting the freeze as quickly as possible, a written proceeding would be acceptable. All parties submitted their direct testimony and engineering data, followed by countercomments, on a prearranged timetable so that the final information was in the hands of the commission on Nov. 26, 1951.

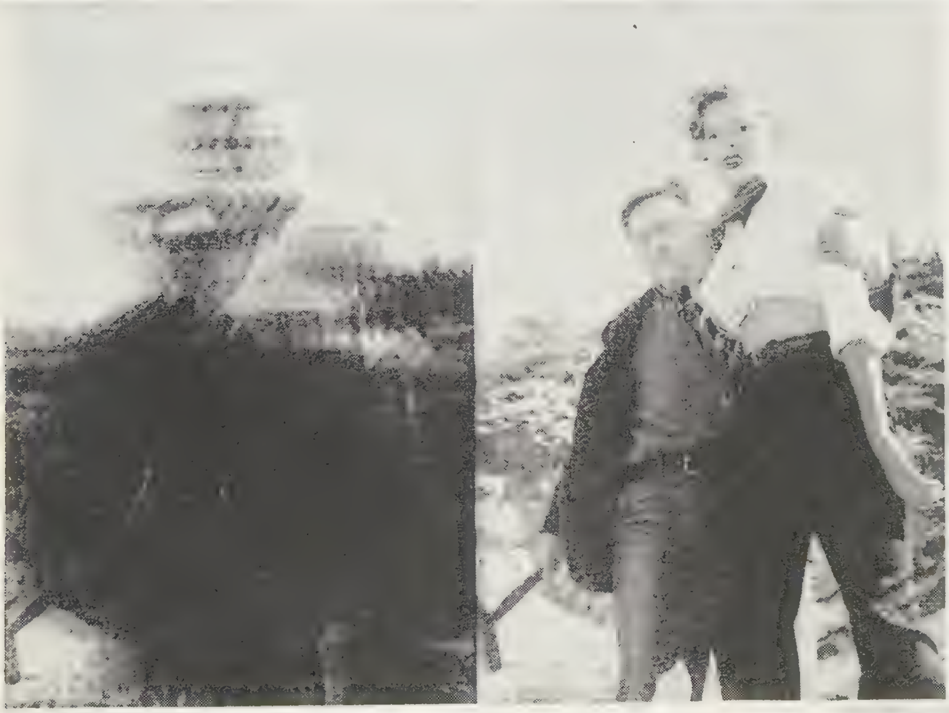
During the year the commission relaxed its freeze order slightly by permitting stations which had been required to operate their transmitters below maximum rating to increase their effective radiated power and utilize full transmitter power. Although the increase was small in most cases, there were a number of instances where a substantial increase in service area was possible. The new standards proposed by the commission would permit maximum effective radiated power of 100 kw. on very-high frequency (VHF) channels 2–6 and 200 kw. on the higher VHF channels and on all UHF channels. The existing ceiling was 50 kw. A number of applications were pending before the commission for increases to the higher value.

Extensive use was made of the RCA-NBC experimental UHF television station KC2XAK at Bridgeport, Conn., which was operated throughout the year on a regular schedule carrying the same programs as the WNBT-VHF transmitter in New York. A large number of television receiver manufacturers used the Bridgeport station as a proving ground to test their UHF receiver designs and to demonstrate the ease of converting VHF receivers to receive signals from UHF stations.

Colour Television.—The decision issued by the commission late in 1950 adopting the CBS colour television system was appealed to a three-judge district court by RCA and several other radio manufacturers. On Dec. 20, 1950, the court, by a 2 to 1 majority, sustained the FCC order. This decision was appealed to the supreme court by RCA and at the end of May 1951

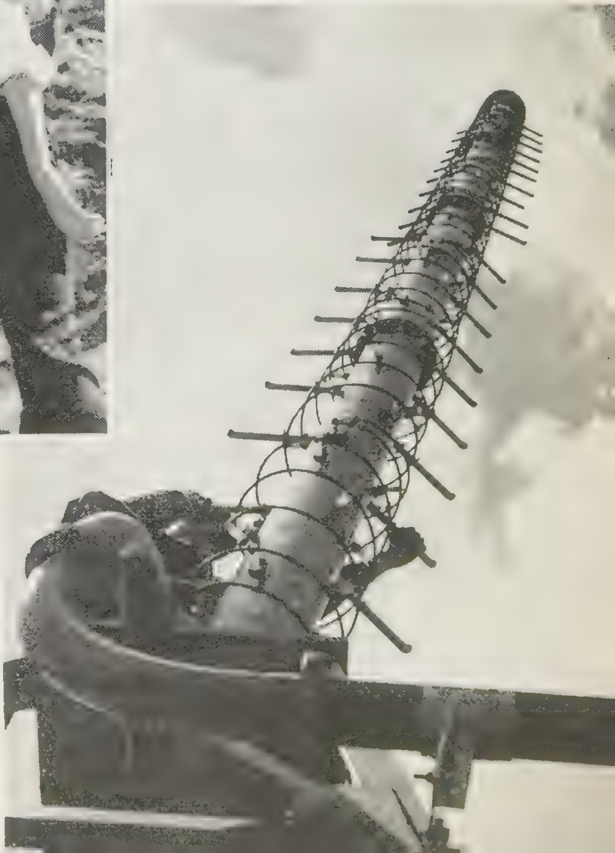
Above: TELEVISION VIEWER installed in a motorcar in 1951 for the convenience of rear-seat passengers. Controls were installed in one armrest and an aerial attached to the trunk

Above: IMOGENE COCA, TV comedienne, using salt to catch a faun in her parody of the ballet *Afternoon of a Faun.* Miss Coca was featured on *Your Show of Shows*, a 1951 program of the National Broadcasting company



Above: PHONEVISION, a 1951 experiment in televised films begun in Chicago, Ill., by the Zenith Radio corporation. Subscribers were billed $1 per showing for receiving the unscrambled picture at right; nonsubscribers received only the scrambled image at left

Below: "HELICAL" ANTENNA for ultrahigh-frequency television transmission, which increased TV transmitting power 20 times. It was developed by engineers of the General Electric company at Syracuse, N.Y., in 1951



the supreme court affirmed the district court's judgment sustaining the order of the commission. The commission revised its rules to include standards for the field sequential (CBS) colour system, and CBS began daily broadcasts of colour a half-hour in the morning and a half-hour in the afternoon. All or part of these broadcasts were carried by stations in New York city, Boston, Mass., Philadelphia, Pa., Baltimore, Md., Washington, D.C., and Chicago, Ill.

The commission's order provided that the door was still open for further hearings on colour systems provided they could meet certain criteria. RCA announced that it would continue development of its all-electronic system. The Radio-Television Manufacturers association also outlined a program for development and field testing of a compatible colour television system according to standards agreed upon by the colour television panel of the R.T.M.A.-sponsored National Television Systems committee. Tests of experimental colour systems over existing commercial television broadcasting stations were limited by the commission to periods outside normal program hours. Under experimental authorization, RCA conducted colour television tests in New York city and Washington, D.C., including remote pickups, microwave relay and coaxial cable transmissions. Tests of the N.T.S.C. compatible colour television standards were conducted during the latter part of the year by RCA, Philco, General Electric, Hazeltine and others.

In June, CBS stockholders approved the purchase of the tube manufacturing facilities of Hytron and its radio receiver subsidiary, Air King. A schedule for the production of colour television receivers was announced and a special request for materials was submitted to NPA. On Oct. 19 Charles E. Wilson, director of defense mobilization, denied the request and banned the production of commercial colour television receivers by the radio industry. CBS immediately announced that it would comply and would also discontinue the broadcasting of colour television programs.

Receivers.—Based on actual production figures for the first ten months, the total 1951 production of television receivers was estimated at 5,200,000—70% of the number produced in 1950. Picture tube production was estimated at 5,900,000 units. The trend toward larger picture tubes which was evident in 1949 and 1950 continued; the majority of receivers produced used 17-in. or larger picture tubes. The reduction in television receiver production in 1951 was attributed more to a lack of demand than a shortage of materials.

Television Broadcasting.—At the end of 1951, 108 stations were operating on a regular schedule in 63 metropolitan areas—an increase of only one station during the year. Fifty-four cities were interconnected by television networks. The most important addition to network facilities in 1951 was the completion by the American Telephone and Telegraph company of the microwave relay chain between Omaha, Neb., and San Francisco, Calif., linking the east and west coasts. This circuit was opened early in September, ahead of schedule, at the request of the department of state to permit the nationwide televising of the signing of the Japanese peace treaty in San Francisco. At the end of September, regular commercial programs were being exchanged between the east and west coasts.

One of the most significant events in television broadcasting during the year occurred during March when the proceedings of the senate crime committee under the chairmanship of Sen. Estes Kefauver were telecast from New York and Washington. For several weeks audience surveys taken during these proceedings indicated a television audience in excess of 18 times the size of the average weekday morning audience, and even higher figures in the afternoon and evening.

In October, the department of justice filed a civil suit in Philadelphia charging the National Football league with entering into an agreement to restrain trade and commerce in the broadcasting and telecasting of professional football games in violation of the Sherman Anti-Trust act.

Sales of Networks Involving Television Stations.—The General Tire and Rubber company purchased from the estate of Thomas S. Lee enterprises for $12,300,000 radio and television properties which included the Don Lee and Yankee regional networks. In addition to a few AM and FM broadcast stations, this property included television stations KHJ-TV in Los Angeles, Calif., and WNAC-TV in Boston, Mass. In October, a plan to merge the General Tire interests with those of the R. H. Macy and Company (General Teleradio, Inc.), owners of WOR-TV in New York, was revealed.

At the end of 1951, an application was pending before the Federal Communications commission for the purchase of the American Broadcasting company network by United Paramount Theaters. It was planned to transfer the control of ABC to United Paramount for $24,000,000 and establish a new company which might function more efficiently in the public interest. This transaction was claimed to be the largest in radio history and included five television, five standard broadcast and four FM stations. The FCC set this proceeding for hearing early in 1952.

Theatre Television.—Interest in theatre television increased substantially, and at the end of 1951 approximately 60 theatres had either installed or were installing projection equipment. Several sporting events of widespread interest were presented in about 13 cities exclusively by theatre television, utilizing the intercity television facilities of the American Telephone and Telegraph company. Competition thus developed between the theatres and television broadcasters for the rights to sporting events of general interest.

The Federal Communications commission announced in April that a hearing to determine whether or not a band of radio frequencies should be allocated to theatre television would be held in September. The commission's preoccupation with television broadcast allocation matters made it necessary to postpone the hearing to November, and again to Feb. 1952.

In Oct. 1951 considerable interest was aroused by a series of theatre television demonstrations in colour given by RCA at the Colonial theatre in New York. The colour system employed in these demonstrations was the all-electronic compatible colour television system which RCA advocated for home television.

Subscription Television.—At the beginning of the year the Zenith Radio corporation, under an experimental authorization from the Federal Communications commission, conducted public tests of its system of subscription television in the Chicago area. The system, known as "Phonevision," involved the transmission of a program over a regular television broadcast station which is "scrambled" in such a way that it cannot be received satisfactorily in the normal manner. A coded signal is transmitted via telephone lines to the homes of persons desiring to subscribe to the Phonevision service which is applied to the receiver to unscramble the program. A nominal fee is charged for each program received in this manner.

The Zenith tests lasted for three months and were received in about 300 homes. The programs consisted of grade A motion picture films not previously shown on television; a fee of $1 per film was charged (during these tests all fees collected were donated to charity). The results of these tests were to be submitted to the Federal Communications commission and it was expected that Zenith would file a petition for rulemaking proceedings to establish this service on a regular basis.

Meanwhile, other subscription television systems were proposed. Skiatron corporation of New York tested its system over WOR-TV, New York, during the year. The Skiatron system, known as "Subscriber-Vision," differed from Phonevision in that telephone line connections were not required. The Skiatron system employed a coded card inserted in a receiver equipped with the necessary decoding device.

Wired Television.—Interest increased in systems designed to bring television to areas outside the normal service range of existing stations. The basic arrangement of these systems includes a community antenna at the best possible location near the area to be served and a cable system from the antenna to the various receivers in the area. A number of manufacturers who had made antenna and distribution systems for receivers in hotels and apartment houses found this type of antenna system ideally suited for serving small communities. (*See* also ADVERTISING; EDUCATION; HUMOUR OF 1951; LAW; MOTION PICTURES; MUNITIONS OF WAR; RADIO.) (G. L. Bs.)

Europe.—In spite of the claims of rearmament on factories producing television equipment, television made progress throughout western Europe in 1951. Public services continued in France on 441 and 819 lines from transmitters in Paris and Lille. In England a third transmitter, at Holme Moss, Yorkshire, was added in October to the two already in service (Alexandra Palace, London, and Sutton Coldfield, near Birmingham) on 405 lines. Limited public services on 625 lines were established in western Germany in the summer and in Denmark and the Netherlands in October. Considerable preparatory work, including experimental transmissions for the establishment of services, was carried out in Belgium, Sweden, Switzerland and Spain. It was announced that a public service would begin in Madrid and Barcelona during the first half of 1952. In Norway a government television committee was appointed in April to advise on the establishment of a service in the Oslo area. Radio Italiana studied the question of television for northern Italy and Rome but announced no specific plans for a public service. Arrangements were made in November to establish a television-radio link between Paris and London via Lille, Calais and Dover, converting from 819 to 405 lines between Calais and Dover, to be in operation by July 1952; this would enable programs broadcast from Paris to be seen in London, and vice versa.

In Great Britain the outstanding achievement was the opening of the north of England transmitting station at Holme Moss, which brought television within the reach of about 11,000,000 new viewers and increased the coverage to nearly 60% of the population. The new station, similar in design to that at Sutton Coldfield, was situated about 1,700 ft. above sea level in the Pennines near Huddersfield. The vision transmitter had an output power of approximately 45 kw. on a frequency of 51.75 mc./sec. (5.8 m.). The sound transmitter had an output power of 12 kw. and was identical with that at Sutton Coldfield except that its frequency was 48.25 mc./sec. (6.22 m.). The extension of the service necessitated the extension of the network operated by the general post office over which the programs were passed from the studios in London to the transmitting stations. The G.P.O. network would eventually be extended by radio link to Kirk o'Shotts (between Glasgow and Edinburgh), the site of the Scottish television station under construction.

A separate coaxial cable link would be provided from London to Bristol and Cardiff to feed the station being built at Wenvoe, Glamorganshire.

Problems of television in schools were examined in July by the B.B.C. and a committee of the Schools Broadcasting council of the United Kingdom. It was decided that though television would be of great value as an aid to teaching, a pilot scheme should first be operated on a closed circuit among a few schools in London before any general plans could be drawn up.

Tellurium: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Tennessee. A south central state, 16th to enter the union. Tennessee is called the "Volunteer state." Land area 41,797 sq.mi., water area about 447 sq.mi. Population (1950): 3,291,718; rural 1,839,116, urban 1,452,602, rural farm 1,016,204; white 2,760,250, nonwhite 531,468.

The population of principal cities in 1950: Nashville (capital) 174,307; Memphis 396,000; Chattanooga 131,041; and Knoxville 124,769.

History.—The state commissioners, appointed by Gov. Gordon Browning, were in 1951: agriculture, Edward Jones; conservation, C. P. Swan; education, James A. Barksdale; finance and taxation, Clarence Evans; highways and public works, C. W. Bond; institutions, Houston Brown; public welfare, J. O. McMahan; insurance and banking, M. O. Allen; labour, J. L. Case; public health, R. H. Hutcheson; safety, Sam K. Neal; employment security, E. K. Wiley. Railroad and public utility commissioners elected by the people were: Hammond Fowler, John Hammer and J. B. Avery.

The constitutional officers were: James H. Cummings, secretary of state; W. N. Estes, state treasurer; Cedric Hunt, state comptroller.

In 1951 a proposal was made to elevate Memphis State college to university rank affiliated with the University of Tennessee, but this failed of passage. However, the University of Tennessee Junior college at Martin was made a four-year affiliate of the university.

A proposed constitutional amendment to prevent diversion of the gasoline tax failed of passage.

The Tennessee Valley authority was constructing a large steam plant to generate electricity in the Swan Pond area of Roane county.

Education—Enrolment in elementary schools in 1950 was 539,445, an increase of 2.6% over 1949. High school enrolment was 120,340, an increase of 6.2%. Total net enrolment in 4,632 schools was 659,785. There were 4,284 county and 348 city schools, 3,686 white and 946 Negro. The total number of teachers was 23,067.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Sept. 1951 the total amount of assistance was $2,955,080 to 123,798 cases; 62,429 old-age recipients received $1,814,385; 58,623 dependent children $1,038,047; and 2,746 blind received $102,649. The decrease in payments compared with Oct. 1950 was 13.7%.

There were in 1950–51 seven correctional institutions in the state with expenditures of $6,134,432. A school was maintained for the blind and deaf, three state hospitals for the insane, a home for the feeble-minded and an industrial school.

Communications.—Of the 65,351 mi. of public road in 1950, 7,862 mi. were state highways; expenditure for construction of highways was $49,513,652. There were 3,491 mi. of railroad. As of June 1951 there were 74 civilian airports, of which 23 were commercial, 25 municipal, 1 CAA intermediate and 16 private. There were 672,168 class A and B telephones in Tennessee, 185,075 business and 487,093 residential. Water-borne commerce on the Tennessee river in 1950 amounted to 3,051,162 short tons: Cumberland river 1,478,543 (1949); Mississippi river 18,709,423 (1949); and 2,480,413 (1949) at the port of Memphis.

Banking and Finance.—In June 1951 there were 74 national banks and 221 state banks; assets $1,527,380,000 for national and $595,763,573 for state banks; deposits $1,422,890,000 for national banks and $544,070,080 for state banks. Savings and loan associations numbered 40 with assets of $72,077,935. Federal associations constituted 36 of these with assets of $71,717,960.

State revenue collected for the fiscal year 1950–51 was $166,164,844. Federal aid amounted to $49,500,000; proceeds from bonds sold, $12,400,000. Debt outstanding was $100,197,500, an increase of $3,507,500 during the year. Receipts increased by $19,511,029 over 1950, expenditures by $12,530,439. Of total expenditures of $245,300,000, $69,076,717 was for education, highways $47,338,089, welfare $42,672,410 and distribution to cities and local governments $22,446,324.

Agriculture.—The gross value of agricultural production in 1950 was

Table I.—*Principal Crops of Tennessee*

Crop	1951	1950	Average 1940–49
Corn, bu.	60,360,000	69,582,000	65,294,000
All hay, tons	1,685,000	1,963,000	2,211,000
Cotton, bales	540,000	409,000	559,000
Cottonseed, tons	213,000	165,000	219,000
Soybeans, bu.	3,202,000	3,528,000	877,000
Wheat, bu.	3,022,000	3,050,000	4,762,000
Oats, bu.	4,732,000	5,975,000	4,988,000
Barley, bu.	980,000	1,054,000	1,729,000
Tobacco, lb.	135,083,000	132,810,000	126,185,000
Potatoes, bu.	1,539,000	2,300,000	3,088,000
Sweet potatoes, bu.	990,000	1,764,000	3,189,000
Apples, bu.	280,000	430,000	360,000
Peaches, bu.	134,000	108,000	804,000

Source: U. S. Department of Agriculture.

Table II.—*Mineral Production of Tennessee*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Barite	?	?	13,376	$ 137,120
Cement (bbl.)	6,663,427	$14,682,487	5,992,571	12,857,600
Clays	787,403	3,093,526	623,774	2,399,337
Coal	5,069,800	27,360,273	4,172,272	21,894,594
Coke*	243,950	?	213,378	?
Ferroalloys	93,482	7,659,133	53,756	3,924,274
Lime	98,232	958,325	117,053	1,108,139
Phosphate rock	1,550,610	10,028,404	1,503,322	9,065,588
Sand and gravel	4,152,684	4,411,105	4,056,398	4,054,463
Stone	7,978,590	13,802,288	7,613,530	13,026,948
Zinc	35,326	10,032,584	29,788	7,387,424
Other minerals		?		5,417,063
Total		?		$81,272,550

*Values for processed materials are not included in the totals.

$539,797,000; cash farm income $437,079,000. Cash income from crops was $216,811,000, from livestock $213,533,000 and from government payments $6,735,000. The value of home consumption was $102,718,000. The forest area was 12,641,000 ac.

Manufacturing.—According to the 1947 census of manufacturing, 3,346 manufacturing plants employed 221,454 persons, wages and salaries being $473,211,000. Value added by manufacture was $957,539,000, led by chemical industries $162,578,000, food $132,489,000 and textiles $121,294,000. (C. E. A.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951. Tennessee ranks second among the states as a producer of phosphate rock.

Tennessee Valley Authority.

The installed capacity of the TVA integrated power system was increased by 475,000 kw. during 1951, bringing the total to 3,520,000 kw. Construction was under way or planned to nearly double the capacity by 1954. The increase in capacity was dictated by increasing demands for power for national defense, particularly for atomic energy plants, superimposed upon rapidly growing conventional demands for electricity in the region.

About half the new capacity added during the year was in the first two of six 112,500-kw. generating units at Johnsonville steam plant, on the east bank of Kentucky reservoir. Among other installations during the year were 180,000 kw. at the Center Hill and Wolf Creek dams of the U.S. army engineers on the Cumberland river, from which TVA purchases the output, and 35,000 kw. at TVA's new South Holston dam in upper east Tennessee.

TVA started construction of three new steam plants: Shawnee near Paducah, Ky., 540,000 kw., to provide power for a new atomic energy plant under construction in west Kentucky; Kingston, near Kingston, Tenn., 540,000 kw.; and Colbert, seven miles below Wilson dam, Ala., 360,000 kw. Two dams, Boone and Fort Patrick Henry, were under construction in east Tennessee.

Power generation for the fiscal year ended June 30, 1951, was 18,000,000,000 kw.hr. Total operating revenues were $70,000,000. Net operating revenues of $26,717,000 represented a return of 5.4% on the average net power investment. Operating revenues of the 145 municipal and co-operative systems, which sold in excess of 8,000,000,000 kw.hr. to more than 1,170,000 consumers in the fiscal year, were $94,300,000. Net operating revenues were $20,300,000, representing a return of 8%. Average residential use was 3,609 kw.hr. per customer and average cost was 1.38 cents per kilowatt hour compared with national averages of 1,975 kw.hr. and 2.84 cents per kilowatt hour.

Freight traffic continued to rise on the 630-mi. navigation channel provided by TVA's multipurpose system of dams. With sharp increases in petroleum products, grain, iron and steel products and chemicals, traffic amounted to 589,000,000 ton-miles in 1950, up 16% from the year before. Savings to shippers were estimated at more than $7,000,000.

The TVA reservoirs reduced a moderate flood by ten feet at Chattanooga, Tenn., thereby averting an estimated $350,000 in flood damages and bringing the total damages averted at that industrial city to more than $45,000,000.

The world-wide sulphur shortage focused attention of fertilizer manufacturers and agriculturalists more sharply on TVA's phosphate fertilizer processes which, contrary to ordinary commercial processes, require no sulphur or sulphuric acid. In view of the sulphur shortage and the continuing high demand for fertilizers, TVA reversed a decision it had made to discontinue production of concentrated superphosphate June 30, 1951, in line with its policy of leaving the field to private industry once processes have been fully developed and the product established in farm use. During the fiscal year TVA produced 143,000 tons of concentrated superphosphate, 31,300 tons of calcium metaphosphate, 17,500 tons of fused tricalcium phosphate and 136,000 tons of ammonium nitrate. Considerable amounts were used in farm test demonstrations, but most was sold through co-operatives and a few private companies advocating use of the materials in soil- and water-conserving types of agriculture.

At the end of 1950, a survey showed about $28,000,000 had been expended for recreational facilities on TVA lakes and shores by states, local agencies and private interests and individuals. Examination of more than 6,000 blood films revealed no evidence of malaria along the lakes in 1950.

The board of directors consisted of Gordon R. Clapp, chairman, and H. A. Curtis. There was one vacancy caused by the retirement of James P. Pope at the end of his nine-year term. He had served since Jan. 5, 1939. (*See* also DAMS; ELECTRICAL INDUSTRIES; PUBLIC UTILITIES.) (K. R. K.)

Tennis.

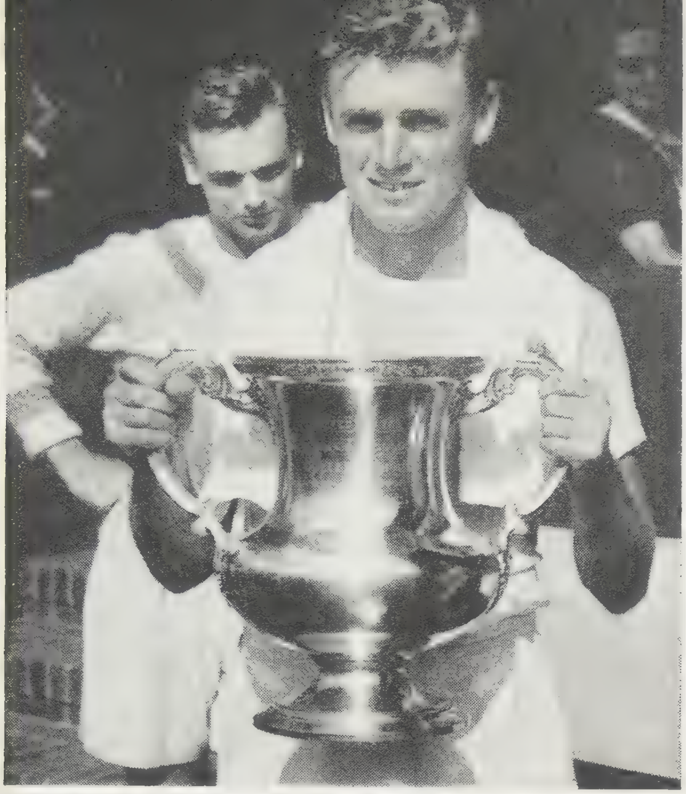
International tennis events at Paris, Fr., Wimbledon, Eng., Forest Hills, N.Y., and in Australia attracted capacity crowds as young players came to the fore and new champions were crowned.

Outstanding were the surprising rise of Richard Savitt of the United States, who won the Australian and English championships; the achievement of the 16-year-old California girl, Maureen Connolly, in winning the U.S. women's singles championship; the overthrow of the Mrs. Margaret Osborne du Pont-Louise Brough dynasty by Doris Hart and Shirley Fry which occurred at Wimbledon; and the establishment of Australia's Frank A. Sedgman as the leading amateur of the world as a result of his easy win of the U.S. championship and his decisive victories in the Challenge Round which enabled Australia to retain the Davis cup by defeating the U.S., 3–2.

Savitt singlehandedly defeated Australia's 1950 victorious Davis cup team—Sedgman, John Bromwich and Kenneth McGregor—to capture his first important international title in Australia in January. Jaroslav Drobny, the former Czech, was outstanding during the early season in Europe and climaxed his successes by winning the French championships in which most of the world's leading players competed. At Wimbledon, Savitt defeated Arthur Larsen and Herbert Flam of the U.S., winner and runner-up respectively in the 1950 U.S. championship, and repeated his Australian victory over McGregor in the final.

In the U.S. Vic Seixas and Tony Trabert, who did not play abroad, set the pace. Trabert won the U.S. Intercollegiate and USLTA Clay Court events and the Southampton Invitation while Seixas won the Bermuda, Spring Lake and Pennsylvania titles. Seixas reached the final of the U.S. championship played at the West Side Tennis club, Forest Hills, N.Y. He eliminated Flam and Savitt, who was handicapped by a leg infection, but bowed to Sedgman 6–4, 6–1, 6–1 in the final. By capturing the U.S. doubles championship Sedgman and McGregor set a record by winning in one year the four major doubles championships of the world, the others being those of Australia, France and England.

Of the 26 nations which challenged Australia for the Davis



FRANK SEDGMAN, first Australian to win the U.S. amateur lawn tennis singles trophy, shown after the match at Forest Hills, N.Y., on Sept. 4, 1951. He defeated Victor Seixas (left), 6–4, 6–1, 6–1

cup, Sweden in the European zone and the United States in the American zone made clean sweeps to gain the interzone final which was played in Melbourne, Austr., in Dec. The U.S. won when Trabert and Frederick R. Schroeder, Jr., defeated Lennart Bergelin and Sven Davidsson, 5–0. The Challenge Round was played in Sydney, Austr., late in December in White City stadium. Sedgman downed Schroeder in four sets and then after winning the doubles with McGregor over Schroeder and Trabert, captured the deciding point for Australia by defeating Seixas 6–4, 6–2, 6–2. The U.S. scored its two points when first Seixas and then Schroeder defeated Mervyn Rose in the other two singles matches.

The accomplishment of Miss Connolly, second youngest player to win the U.S. women's championship, overshadowed performances by Miss Hart and Miss Fry, whom Miss Connolly defeated in the semifinal and final respectively at Forest Hills. Miss Fry defeated Miss Hart, the defending champion, for the French title and together the two Americans retained their French doubles championship. Miss Hart beat Miss Fry for the English championship at Wimbledon after Miss Fry had eliminated Miss Brough, champion for the previous three years.

Miss Hart and Miss Fry also captured the Wimbledon doubles title from the four-time winners, Mrs. Du Pont and Miss Brough. Having suffered a sore arm, Miss Brough withdrew from tournament play after Wimbledon and so did Mrs. Du Pont, thus terminating their nine-year reign as U.S. doubles champions as Miss Hart and Miss Fry also annexed that title for their third major doubles championship. Miss Hart and Sedgman likewise won the mixed doubles championships of France, England and the U.S.

The U.S. again was successful in its defense of the Wightman cup against England. The matches, played at Chestnut Hill, Mass., were more closely contested than the 6–1 score might indicate. The English girls showed marked improvement, and Jean Quertier scored a notable win over Miss Fry. (E. S. Br.)

Terramycin: *see* CHEMOTHERAPY.

Texas.

A west south central state of the United States, Texas is known as the "Lone Star State" from the single star in the flag of the Texas republic, 1836–1845. Land area, 263,513 sq.mi.; inland water, 3,826 sq.mi.; total 267,339 sq.mi. Population (1950 census) 7,711,194, 20.2% over 6,414,824 in 1940. Urban population, 4,838,060 or 62.7%; rural 2,873,134 or 37.3%. Total white population (preliminary), 6,825,000 or 88.5%; nonwhite, 886,000 or 11.5%. Capital: Austin, with 132,459 population in 1950. Other cities ranked by population in 1950: Houston 596,163; Dallas 434,462; San Antonio 408,442; Fort Worth 278,778; El Paso 130,485; Corpus Christi 108,287; Beaumont 94,014; Waco 84,706; Amarillo 74,246; Lubbock 71,747; Wichita Falls 68,042.

History.—The 52nd legislature, January 9–June 8, 1951, enacted approximately 500 general statutes, the more notable of which were greater restrictions on gambling, election code revision, redistricting of legislative districts, driver responsibility (insurance) and auto inspection, restrictive labour legislation and new tax levies. Five constitutional amendments were submitted for Nov. 13, 1951, and two for Nov. 4, 1952. Of the five submitted in 1951, only one carried, providing for issuance of $75,000,000 of state bonds to provide loans to World War II veterans for farm and ranch purchases. The principal state officials for the biennium beginning Jan. 1, 1951, and ending Dec. 31, 1952, were: governor, Allan Shivers; lieutenant governor, Ben Ramsey; attorney general, Price Daniel; comptroller of public accounts, Robert S. Calvert; treasurer, Jesse James; state commissioner of education, J. W. Edgar; commissioner of agriculture, John C. White; commissioner of general land office, Bascom Giles.

Education.—The public school system during 1951–52 consisted of 947 independent and 1,317 common school districts; total 2,264, according to the state department of education. Scholastic census, 1,603,010; average daily attendance (1950–51) 1,218,288; total apportionment from

CIRCULAR PLAYHOUSE opened in Houston, Tex., in Feb. 1951, for the year-round presentation of "Broadway hits, the classics and original plays." Shown here are players in Sean O'Casey's *Red Roses for Me* state (1951–52) $99,386,620; per scholastic $62. In addition to this apportionment, there was state equalization and local district aid amounting to approximately $175,000,000. The permanent public school fund was valued at $182,418,278.67; the number of classroom teachers (estimated) was 46,640; total state expenditure for education during the fiscal year ended Aug. 31, 1951, was $215,607,939.47.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average number on old-age assistance rolls during the fiscal year ended Aug. 31, 1951, was 224,487. The average monthly payment per recipient was $32.82. The number of dependent children was 55,387, representing 19,506 families; average monthly payment per child was $15.54 or $44.11 per family. The number of needy blind was 6,060; average monthly payment was $37.21. Total expenditures for public welfare for the fiscal year ended Aug. 31, 1951, was $120,445,328.86.

Transportation and Communication.—Texas public road mileage Aug. 31, 1950, was 34,929.39 mi. state maintained and 164,707.85 mi. county maintained; total 199,637.24 mi. All but 511.98 mi. in the state system were hard surfaced. County road mileage included 8,032 mi. paved, 36,818 mi. gravel surface, and 119,857 mi. graded dirt or unimproved. State-federal highway expenditures for the fiscal year ended Aug. 31, 1951, were $136,823,782.46. Motor vehicle registration, 1951 (prelim.) was 3,183,500, of which 2,360,000 were private passenger cars. There were 15.559.27 mi. of first main line railroad track and 6,044.81 mi. of auxiliary track in Texas, Jan. 1, 1950, according to the state railroad commission. Tonnage through Texas ports, 1949, according to U.S. corps of army engineers, was 122,630,943, of which 17,874,674 was foreign and the remainder coastwise, internal (canal) and intraport. There were 638 airports, March 27, 1951, according to the U.S. Civil Aeronautics administration. Eleven airlines served the state. There were 1,814,852 telephones in operation Jan. 1, 1951. There were 212 radio stations Aug. 1, 1951, including 176 AM, 30 FM and 6 TV.

Banking and Finance.—State government receipts for the year ended Aug. 31, 1951, were $622,080,973.69; expenditures, $569.500,332.15. Principal receipts were from gross receipts and production (largely petroleum) taxes, $143,722,663.48; highway motor fuel tax, $114.872,323.28; ad valorem tax, $33,843,359.47; cigarette tax, $33,292,320.87; automobile licences, $32,576,399.32. Principal expenditures were for public schools, $183,049,609.97; highways, $136,823,782.46; public welfare (pensions) $120,445,328.86; higher education, $32,558,329.50; eleemosynary and correctional, $30,113,674.95. The state's bonded debt was $4,100,000 of old bonds against the credit of the state, and $100,000,000 of veterans' land purchase loan bonds backed by mortgages and the credit of the state. Total debt of all civil subdivisions, 1949, was $948,862,623.54. On Jan. 1, 1951, there were 442 national and 449 state banks; total 891. National bank deposits were $6,076,006,000 and resources $6,467,275,000. State bank deposits were $1,338,539,519 and resources $1,427,679,687. Total bank deposits $7,414,545,519; total resources $7,894,954,687.

Agriculture.—Harvested acreage, 1951, was 24,695,000 ac. (U.S. department of agriculture), 2% above the 1950 acreage. Total crop was valued at $1,313,683,000 compared with $1,226,198,000 in 1950. Drought caused most 1951 crops to fall below 1950, but higher market values more than compensated for lower production.

The number and value of livestock on farms, Jan. 1, 1951, were as follows: all cattle, 9,260,000, valued at $1,314,920,000; milk cows only, 1,309,000 valued at $236,929,000; hogs, 1,786,000 valued at $43,578,000; sheep, 7,119,000 valued at $154,962,000; goats, 2,433,000 valued at $23,114,000; horses, 324,000 valued at $9,072,000; mules, 120,000 valued at $4,920,000; chickens, 25,884,000 valued at $29,767,000; turkeys, 755,000 valued at $3,775,000.

Manufacturing.—Total employment in manufacturing industries in Texas, Oct. 1, 1951, was 409,900, according to the Texas employment commission, of which 195,700 was in durable goods industries and 214,200 in nondurable goods. Principal employment in durable goods industries was as follows: transportation equipment, 57,200; lumber and wood products, 32,500; machinery, except electric, 31,000. In nondurable goods: food, 61,400; petroleum products, 45,900; chemicals, 37,000. Increase in industrial employment from 297,053 in 1947 (last census) to 409,900 in 1951, indicated an increase from $1,727,464,000 value added by manufacture in 1947 to $2,380,000,000 in 1951. (S. McG.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000 and corresponding data for 1950, so far as they were available at the close of 1951. With only a small output of metallics and a moderate output of nonmetallics, Texas holds first place in the value of mineral production by virtue of an output of petroleum and natural gas that alone is more than double the value of the total mineral output of the next largest producing state. Texas is also outstanding as the only producer of helium.

Table I.—*Leading Agricultural Products of Texas*

Crop	1951	1950	Average 1940–49
Cotton lint, bales	4,100,000	2,946,000	3,049,000
Cottonseed, tons	1,691,000	1,232,000	1,249,000
Wheat, bu.	17,307,000	18,992,000	63,486,000
Sorghum for grain, bu.	71,085,000	144,566,000	69,694,000
Corn, bu.	42,143,000	58,420,000	62,517,000
Rice, 100-lb. bags	12,408,000	11,568,000	8,264,000
Sorghum for forage, tons	2,078,000	2,220,000	3,620,000
Peanuts, lb.	109,890,000	330,750,000	303,934,000
Hay, tons	1,346,000	1,418,000	1,437,000
Flaxseed, bu.	75,000	1,268,000	625,000
Oats, bu.	8,145,000	25,818,000	30,912,000
Barley, bu.	518,000	1,625,000	4,010,000
Tomatoes, bu.	3,670,000	4,593,000	...
Potatoes, bu.	2,204,000	2,403,000	4,648,000
Sweet potatoes, bu.	1,365,000	3,910,000	5,378,000
Grapefruit, boxes	250,000	7,500,000	17,387,000
Onions, 50-lb. sacks	3,304,000	4,483,000	...
Oranges, boxes	350,000	2,700,000	3,616,000
Pecans, lb.	9,000,000	39,000,000	30,615,000
Peaches, bu.	1,189,000	783,000	1,777,000

Source: U.S. Department of Agriculture.

Table II.—*Mineral Production of Texas*

(In short tons, except as noted)

Mineral	1949		1950	
	Quantity	Value	Quantity	Value
Cement (bbl.)	14,741,805	$33,409,347	17,281,521	$39,677,804
Clays	1,234,607	3,001,975	1,454,485	3,576,797
Coke*	497,019	?	686,407	?
Gypsum	843,292	2,178,569	1,076,251	2,771,812
Helium (000 cu. ft.)	51,501	688,795	80,889	1,027,913
Iron ore	636,969	?	1,332,145	?
Lime	173,724	1,739,185	216,439	2,074,367
Magnesium*	12,977	5,320,689	15,726	8,879,023
Natural gas (000 cu.ft.)	2,588,921,000	118,832,000	2,920,000,000	140,160,000
Natural gasoline (gal.)	1,987,718,000	138,924,000	2,274,349,000	158,556,000
Petroleum (bbl.)	744,834,000	1,932,050,000	829,231,000	2,145,350,000
Petroleum gases (gal.)	1,247,561,000	45,108,000	1,655,998,000	47,527,000
Salt	1,641,171	2,419,963	1,852,138	2,848,789
Sand and gravel	14,997,506	13,467,849	17,972,105	15,707,724
Stone	4,158,430	5,289,647	4,893,150	5,580,463
Sulphur	4,119,580	66,208,000	4,758,531	80,300,000
Other minerals	...	16,475,873	...	?
Total	...	$2,379,793,203	...	?

*Values for processed materials are not included in the totals.

Textile Industry.

Activity of the U.S. textile industry in 1951 was limited not by demand, but by supply. Spending capacity was at a high level, and would have continued upward if raw material had been available. Such increase as developed in specific sections of the industry resulted from military demand; the drain on textile materials for civilian purposes was unusually high and at a record price.

Total consumption of cotton in 1951 was approximately 4% lower than in the latter part of 1950, whereas total wool consumption was approximately 8% lower.

Government orders of woollen and worsted woven goods increased from approximately 4,400,000 yd. in the last quarter of 1950 to 32,000,000 yd. in the third quarter of 1951. Conversely, other orders for wool goods decreased from nearly 90,000,000 yd. to approximately 36,800,000 yd. during the same period.

The effect of the international situation was shown sharply in the imports of silk into the United States; they decreased from an average of about 1,170,000 lb. a month in the latter part of 1950 to about 500,000 lb. monthly in 1951.

Major attention in the textile industry continued to be centred on progress in the development of synthetic fibres, both in quantity and in new types. It was increasingly apparent that more and more of the balance of power in the textile industry was coming to rest in the synthetic branch.

(D. G. Wo.)

Great Britain.—Political and economic uncertainty, raw material supplies and prices, labour and power difficulties were the main problems contributing to a disappointing year in the textile industry in the United Kingdom. Despite these adverse factors, however, production of yarn and cloth was well maintained and steadily increased in several instances. The cotton industry suffered from the effects of inadequate supplies of raw cotton—chiefly from the United States—but at the close of 1951 estimates of U.S. (15,000,000 bales of 500 lb. weight), British empire (1,000,000 bales) and Indian growths revealed substantially increased acreages and production. The total Egyptian crop in 1950 was 8,302,906 cantars (cantar=99.05 lb.), the smallest since 1947.

The total weekly average yarn production in the cotton industry in the second period of 1951 was 16,950,000 lb. as compared with 16,080,000 lb. in the corresponding period in 1950. In the same periods the weekly averages for spun rayon were 1,610,000 lb. (1,380,000, 1950); similarly cotton and wool yarns were 70,000 lb. (60,000), and cotton and rayon 330,000 lb. (190,000). Employment in the spinning section was higher at 111,160 (107,510). Weekly averages in weaving in the second period of 1951 revealed that production of gray and coloured woven cotton fabrics totalled 44,480,000 linear yards, as compared with 41,020,000 linear yards in the same period of 1950. Total rayon and mixture fabrics for the same periods were 15,190,000 yd. (13,570,000), and the numbers employed totalled

145,450 (139,270). On the same basis, U.K. exports of cotton yarns were 18,100,000 lb., as compared with 16,900,000 lb. in 1950, and exports of cotton piece goods 247,000,000 sq.yd. as against 183,000,000 sq.yd.; exports of wholly rayon fabrics in the same periods were 28,300,000 sq.yd. (24,300,000). A total of 430,000,000 lb. of raw wool was imported by the U.K. wool industry in the first ten months of 1951, as compared with 595,000,000 lb. in the same period in 1950.

Approximately 42,100,000 lb. of wool tops were exported in the first ten months of the year as against 62,000,000 lb. in 1950. Exports of woollen and worsted yarns in the same periods were respectively 4,400,000 lb. (4,800,000) and 14,400,000 lb. (20,000,000). Similarly, exports of worsted cloth reached 34,200,000 sq.yd. (32,700,000), and exports of woollen cloth 62,800,000 sq.yd. (62,500,000). In September, the number of operatives engaged was 204,000 (209,000 in 1950).

In the cotton industry more progress was made in renewing machinery and equipment than in any year since World War II. The installation of modern opening, carding, drawing and ring spinning machinery proceeded satisfactorily, also the conversion to shortened systems of processing and greater use of high-drafting equipment on speed frames, rings and mules. Although the majority of looms were still nonautomatic, it was encouraging to observe that automatic looms in place totalled about 40,000 as compared with the 17,500 at the end of World War II.

Europe.—The output of the French textile industry from June 1951 to the end of the year declined steadily, particularly in cotton, woollen and rayon yarns and piece goods. Several machinery developments were noticed, however, including a new high draft cotton ring frame incorporating a double-apron two-zone system claiming excellent draft control. Swiss machinery progress centred around highly efficient precision sizing machines, with automatic tension control in the drying chamber and 2 x 1 box silk, and multishuttle, shuttle changing looms. In Germany a new ring frame featured a novel high draft system, a stationary ring rail and positively gear-driven spindles, with centralized lubrication. In Belgium, improved methods for decorticating and retting flax were announced. All European countries were handicapped by restricted supplies of raw materials, *e.g.* fibres and chemicals and metals.

Commonwealth.—In Australia, the cotton spinning and weaving industry had more than 90 mills in operation, producing an extensive range of goods. The 170 woollen mills, employing 25,000 people, produced more than 12,000,000 sq.yd. of worsted cloth and more than 4,000,000 sq.yd. of flannel.

The second largest employing industry in India was the hand loom industry employing 1,434,000 full-time, 750,000 part-time workers producing 1,842,000,000 yd. of cloth on 2,325,000 hand looms, 72% being engaged on cotton. Canadian cotton mill operations slackened appreciably toward the close of 1951. Defense orders accounted for a substantial proportion of business and had a stabilizing effect on the falling off in demand for domestic purposes. Canada remained one of the best markets for U.K. textile specialties. (*See* also COTTON; LINEN AND FLAX; RAYON AND OTHER SYNTHETIC FIBRES; PLASTICS INDUSTRY; WOOL.) (A. DR.)

Thailand

(SIAM). A kingdom of southeastern Asia, Thailand is bounded west and northwest by Burma, northeast and east by French Indochina and south by Malaya. Area: 198,272 sq.mi. Pop.: (1937 census) 14,464,105; (1947 census) 17,317,742; (1950 est.) 18,480,000. The 1937 census revealed only 524,062 Chinese (3.6%), but it included as Siamese the Chinese born in Thailand, whose number already in 1929 was 113,050. Chief towns (1947 census): Bangkok (cap., 884,197); Khon Kaen (590,664); Chiengmai (534,628); Chiengrai (481,621). Language: Thai (Siamese) 75%; Chinese 20%; Indian and Malayan 5%. Religion (1947 est.): Buddhist 95%, Moslem 4%. Ruler: King Phumiphon Adundet; prime minister: Marshal Luang Pibul Songgram.

History.—Thailand suffered two political crises during 1951. On June 29 the prime minister, while attending a ceremony at the Bangkok docks when a dredger presented by the United States was being formally handed over, was kidnapped by a party of marines and removed to the warship "Sri Ayudhya" which lay near by. The naval signals station then issued a radio statement that a new cabinet had been formed, including a number of moderately liberal politicians, though it later appeared that the affair was organized entirely by naval officers and that the politicians were not implicated. The premier's supporters in the army, air force and police acted promptly and fighting went on for two days in Bangkok until the "Sri Ayudhya" was sunk by bombing. The prime minister then managed to swim ashore and rejoin his friends. This ended the disturbances and the army later occupied the naval base at Sattahib without resistance. About 700 naval personnel were arrested, including the commander in chief, Admiral Sindhu, and 73 of these were detained for trial on a charge of treason; but most of the ringleaders, who were junior officers, escaped abroad.

The next disturbances took a different form. On Nov. 28 a group of officers, led by General Phin, the commander in chief of the army, effected a coup d'état: they declared that the existing government was no longer in power and that the parliament had ceased to function. A committee of ten officers assumed authority. The grounds given were that the former government had failed to eradicate corruption, keep down the cost of living or resist communism. The coup was effected without any resistance. A new cabinet was formed, but it still included Marshal Pibul as prime minister, and the deputy premier, the defense, finance, foreign, justice, health and industry ministers of the evicted cabinet also returned to office. The only important change was the removal of the minister of education, Nai Luang Chayakarn. Besides these not very radical changes in the ministry, however, it was announced that the constitution established in 1949 was abrogated and that the less liberal constitution of 1932 would be reintroduced. In pursuance of this, it was announced that instead of a senate and a house of representatives, parliament would consist of a single chamber, half of whose members would be elected and half nominated by the crown; and that pending elections the chamber would consist entirely of nominated members; 123 members were then named, including all the coup leaders and consisting entirely of those favourable to their action. These events occurred immediately before the return to Thailand of King Phumiphon, who arrived from Switzerland on Dec. 2.

In September judgment was pronounced in the trial of those accused of assassinating King Ananda in 1946. A royal page was sentenced to death, but two other accused were discharged for lack of evidence; and the court refused to pass judgment on the exiled statesman Nai Pridi, who had also been named in connection with the charge, since he could not be tried *in absentia*.

The government continued throughout the year its policy of supporting the United Nations action in Korea, where a force of Thai troops participated in the war; and it also maintained its friendly co-operation with the Malayan authorities on the southern frontier. (B. R. P.)

Education.—Schools (1948): government 440, pupils 63,581; local public and municipal 18,670, pupils 2,081,414, teachers 62,028; private 1,501, pupils 167,629; universities 5, students 10,494.

Finance and Banking.—Budget: (1950–51 est.) revenue 1,596,700,000 baht, expenditure 2,052,100,000 baht; (1951–52 est.) revenue 2,200,000,000 baht, expenditure 2,500,000,000 baht. Currency circulation (Dec. 1950): 3,043,000,000 baht. Bank deposits (Dec. 1950): 1,234,000,000 baht. Monetary unit: baht or tical with an official exchange rate of 35 baht to the pound and 12.50 baht to the U.S. dollar.

Foreign Trade.—(1950): imports 2,880,000,000 baht; exports 3,624,000,000 baht. Main sources of imports (1949): Hong Kong 17.3%; U.S. 15.7%; Singapore 13.4%; U.K. 8.7%. Main destinations of exports: Singapore 19.5%; U.S. 15.3%; India 13.4%; Penang 9.1%. Main imports: textiles 19.4%; foodstuffs 11.7%; metal manufactures 8.3%; yarns 6.8%. Main exports: rice 50.7%; rubber 15.7%; tin and tin ore 9.7%; teak 4.1%.

Transport and Communications.—Roads (1949): 3,536 mi. Licensed motor vehicles (Dec. 1950): cars 8,500, commercial 6,570. Railways (1949): 2,033 mi.; passenger-miles (1950) 892,000,000; freight net ton-miles 298,000,000. Merchant shipping (1949): vessels of 200 tons and over 13; total tonnage 4,709. Air transport (1950): miles flown 1,265,000; passenger-miles 11,500,000; cargo ton-miles 267,000; mail ton-miles 30,400. Telephones (Bangkok, 1948): 5,586. Radio receiving sets (1950): 100,000.

Agriculture.—Main crops (metric tons, 1950): rice 6,018,000; sugar, raw value 73,000; groundnuts 55,000; tobacco 21,300; cotton 6,000; jute 3,000 (1949); cottonseed 30,000; soya beans 8,000; sesame 1,900. Livestock (Dec. 1949): cattle 5,000,000; pigs 2,000,000; buffaloes 5,000,000; horses 230,000.

Industry.—Electricity production in Bangkok (1950): 53,000,000 kw.hr. Raw materials (metric tons, 1950): rubber (net exports) 114,019; tin in concentrates 10,529; cement 165,000.

Theatre. Although 1951 marked no notable progress in the development of the U.S. drama, the American theatre—fighting hard against the powerful odds of television, radio and motion picture competition and saddled with increasing production costs and exorbitant taxes—held its own and thrived financially if not always artistically. In New York city the chronic theatre shortage continued, but there was no shortage of theatre goers for the favoured offerings. *The King and I* and *Top Banana* of 1951 and *Guys and Dolls* and *South Pacific*—held over from previous seasons—earned from $44,000 to $50,000 weekly.

Sidney Kingsley turned an Arthur Koestler novel of the 1937 Moscow treason trials, *Darkness at Noon,* into a play and with it won the Drama Critics' Circle award, though the general public was less enthusiastic despite a fine performance by Claude Rains as the imprisoned former commissar. A second critical choice was Louis O. Coxe's and Robert Chapman's *Billy Budd,* based on the famous Herman Melville short story of martyred innocence. Though a better play than Kingsley's, it met a similar fate at the box office. Tennessee Williams' smothering melodrama of passion among the Sicilian emigrants living along the Gulf coast, *The Rose Tattoo,* was more successful.

Lillian Hellman's tragic-comedy of wasted lives, *The Autumn Garden,* contained much muddled writing and some excellent acting by Florence Eldridge, Ethel Griffies and Fredric March. Robert E. Sherwood's doctoring of Philip Barry's last play, *Second Threshold,* failed to enliven a weak script, and neither Arthur Miller's version of Ibsen's *An Enemy of the People* nor Paul Green's version of Ibsen's *Peer Gynt* were improvements on the earlier translations by William Archer. John van Druten made a skilful adaptation of some Christopher Isherwood stories of pre-Hitler Berlin in *I Am a Camera,* and Paul Osborn's adaptation of John P. Marquand's novel, *Point of No Return,* served Henry Fonda as a useful acting vehicle.

Elmer Rice wrote a comedy of a spinster schoolmarm's European holiday in *The Grand Tour* and Maxwell Anderson a pretentious drama of Socrates' life in *Barefoot in Athens.* There were amusing moments in John Patrick's ghost play, *Lo and Behold,* which Leo G. Carroll acted delightfully, and a two-character play of married life, *The Fourposter*—from the Dutch of Jan de Hartog—caught the paying public's fancy. *Remains to be Seen,* a murder play by Howard Lindsay and Russel Crouse with the motion picture actor Jackie Cooper in the leading role, and *Love and Let Love,* by Louis Verneuil with another cinema performer, Ginger Rogers, were moderately profitable ventures. A greater success was *The Moon Is Blue,* a light sex play by F. Hugh Herbert, and a comedy-drama of life in a German prison camp during World War II, *Stalag 17* by Donald Bevan and Edmund Trzcinski, enjoyed a long engagement.

The musical-comedy stage fared better financially than the nonmusical-comedy stage. There was a new and brilliant show by Richard Rodgers and Oscar Hammerstein, *The King and I,* based on Margaret Landon's novel, *Anna and the King of Siam,* in which Gertrude Lawrence was Anna and Yul Brynner the king. Beautifully staged and possessing a melodious score, it towered above its rivals. There were musical versions of Booth Tarkington's *Seventeen,* Betty Smith's *A Tree Grows in Brooklyn* and Ferenc Molnar's *The Good Fairy* (known as *Make a Wish*) and all were of the second order. There was a huge musical of the California gold rush days, *Paint Your Wagon,* with James Barton, and a hilarious one of a burlesque comedian who enters the television studios, *Top Banana,* with Phil Silvers. Bert Lahr and Dolores Gray were seen in a rather commonplace but successful revue, *Two on the Aisle,* and there was a pleasant revival of Jerome Kern's 20-year-old operetta, *Music in the Air.*

There were some interesting importations and many revivals. An Irish play, *The King of Friday's Men* by Michael J. Malloy was botched by poor staging. The American National Theatre and Academy (ANTA) brought Louis Jouvet and his Parisian Athène theatre company to Broadway in Molière's *L'Ecole des Femmes.* The D'Oyly Carte company in its repertory of Gilbert and Sullivan operas again visited the United States, and *The House of Bernarda Alba,* by Federico Garcia Lorca was given a production in English.

The New York City Theatre company revived Shaw's *Captain Brassbound's Conversion,* G. S. Kaufman and Edna Ferber's *The Royal Family,* Maurice Evans in *Richard II,* Elmer Rice's *Dream Girl,* Robert E. Sherwood's *Idiot's Delight* and a Margaret Webster production of *The Taming of the Shrew.* ANTA brought back *Twentieth Century* by Ben Hecht and Charles MacArthur to star Gloria Swanson and José Ferrer, James M. Barrie's *Mary Rose* and *Night Music* by Clifford Odets, in addition to staging Edmund Wilson's curious play, *The Little Blue Light.* The Drama Quartette—Charles Laughton, Charles Boyer, Cedric Hardwicke and Agnes Moorehead—gave a reading of the "Don Juan in Hell" portion of Shaw's *Man and Superman* at Carnegie Hall and won such admiration that the reading was subsequently staged for an extended run. Mordaunt Shairp's *The Green Bay Tree, Springtime for Henry* with Edward Everett Horton, Mae West in *Diamond Lil* and Somerset Maugham's *The Constant Wife* with Katharine Cornell were other plays of former seasons to play return engagements.

The year closed impressively with the arrival of Laurence Olivier and Vivien Leigh and their London company in productions of Shakespeare's *Antony and Cleopatra* and Shaw's *Caesar and Cleopatra.* (T. Q. C.)

Statistics of the Theatre in New York City

	1951	1950
Productions	106	99
Musical comedies	29	28
Plays	77	71
Premières	52	47
Successful productions	19	20
Performers employed	1,852	1,873
Tickets sold	8,900,000	9,200,000
Approximate cost of production	$4,300,000	$4,100,000
Number of shows booked for other cities	67	68

Canada.—Canadian drama participants and supporters were disappointed when the report of the Massey royal commission on culture was published, for the commission was against the early building of a national theatre. However, the commission did favour "modest help from federal sources" to drama groups. The 12th national drama festival was held in London, Ont., and winners were: Bessborough trophy (highest) to Les Compagnons de St. Laurent (Montreal) for André Obey's *Les Gueux au paradis;* festival plaque (best French performance, excluding Bessborough), to Les Compagnons de Notre Dame (Trois Rivieres) for *Ma Petite ville,* a translation of Thornton Wilder's *Our Town;* festival plaque (best English performance, excluding

Bessborough), to Little theatre (Welland) for Sean O'Casey's *Juno and the Paycock;* Henry Osborne trophy (best male actor) to John Calicos for King Charles in the Shavian play; Nella Jefferis trophy (best female) to Doreen Richardson as Janet Spence in *The Gioconda Smile.*

Toronto's third annual open-air Shakespeare festival was a success.

The Canadian repertory theatre of Ottawa, the nation's only professional company, concluded a notably well-supported third season. Joseph Schull's *Shadow of the Tree* won the London little theatre's nationwide $1,000-prize competition. (C. Cy.)

Great Britain and Europe.—In the British theatre in 1951 the Festival of Britain exerted a great influence. Festival visitors had the chance to see almost all the best-known London actors and actresses, most of them in well-tried classical parts carefully chosen: Laurence Olivier and Vivien Leigh in the title roles in Bernard Shaw's *Caesar and Cleopatra* and Shakespeare's *Antony and Cleopatra;* John Gielgud, Diana Wynyard and Flora Robson in Shakespeare's *The Winter's Tale;* John Clements and Kay Hammond in Shaw's *Man and Superman,* with the long "Don Juan in Hell" act included on special occasions for playgoers of special stamina; Ralph Richardson, Margaret Leighton and Celia Johnson in Chekhov's *Three Sisters;* Alec Guinness as *Hamlet;* the Old Vic Company, with Peggy Ashcroft as Euripides' Electra and Shakespeare's Mistress Page, and Roger Livesey and Ursula Jeans in Shaw's *Captain Brassbound's Conversion;* Godfrey Tearle in Sir Arthur Pinero's *His House in Order;* and, in the offing, the Stratford-on-Avon Shakespeare company.

Only one new play by a British dramatist was staged during the festival season, Peter Ustinov's *The Love of Four Colonels* (Wyndham's, May 23). This was a flight of purely theatrical fancy, a satirical fairy tale which involved parodies of various types of play, and whose success could not have been foretold with any certainty. Fortunately, the jest came off, and the play ran strongly throughout the season. Another piece from Peter Ustinov's pen, *The Moment of Truth,* produced at the Adelphi on Nov. 21, after the festival was over, aimed higher but did not hit its target so cleanly.

At the Edinburgh festival, drama was represented by, among other productions, Sir David Lindsay's 16th century morality play *Ane Satyre of the thrie Estaitis* and Thomas Kyd's *Spanish Tragedy.* (W. A. Dn.)

France.—Although there was much talk of *crise* (hysteria) in French theatrical circles, there was also evidence of great activity. Jean Anouilh's *Colombe* was not considered one of his good plays, nor did Jean-Paul Sartre's *Le Diable et le Bon Dieu,* or Jean Cocteau's *Bacchus* attain to the best standards of either writer. A modest presentation by the Georges Vitaly company of Georges Schéhadé's *Monsieur Bob'le* was hailed by many for its poetic qualities. Other successful plays of the year: *Lorsque l'Enfant paraît,* by André Roussin; *Le Complexe de Philémon,* by Jean-Bernard Luc; *Ami-Ami,* by Pierre Barrilet and Jean-Pierre Grédy; *Un Soir à Samarcande,* by Jacques Deval; *La Belle Rombière,* by Jean Clervers and Guillaume Hanoteau, offered little else than light entertainment. Notable exceptions were the Jean-Louis Barrault production of Paul Claudel's sombre *L'Echange* (1893), and Raymond Hermantier's presentation in French of Friederich Schiller's *Marie Stuart.* (M. Jol.)

Germany.—New German authors of distinction were slow to appear, and the lack of good new plays led to a revival of interest in little-known works of authors of the previous generation. Heinz Hilpert produced a new version of Hugo von Hofmannstahl's *Der Turm* at the second annual festival at Monschau, and Nuremberg saw the first performance of *Der Graf von Ratzeburg* by Ernst Barlach.

SCENE FROM *GUYS AND DOLLS,* which won triple honours as the best musical comedy of the 1950–51 season, including the award of the New York Drama Critics' circle. The book was by Abe Burrows and Jo Swerling; music, by Frank Loesser

An important addition to the number of established festivals was that held in western Berlin in September. Among dramatic contributions, Boleslaw Barlog's production of Schiller's *Wilhelm Tell* appropriately opened the new Schillertheater, and was followed there by the first performance in Berlin of Carl Zuckmayer's *Der Gesang im Feuerofen.* (R. H. Cn.)

Films of 1951.—*Curtain Call* (Encyclopædia Britannica Films, Inc.); *Life Hangs by a Thread* (Brandon Films, Inc.); *On Stage* (The March of Time Forum Films); *Producing a Play Series* (7 films) (International Film Bureau, Inc.); *Summer Theatre* (Almanac Films, Inc.).

Theiler, Max (1899–), South African-U.S. medical scientist, was born on Jan. 30 at Pretoria, U. of S.A. He studied at Rhodes University college and at the medical school of the University of Capetown from 1916 to 1918, then went to England to continue his medical studies. He received his diploma from the London school of tropical medicine and hygiene in 1922 and in the same year became a member of the Royal College of Surgeons. In 1923 he accepted a teaching position in tropical medicine at Harvard university medical school and remained in the United States thereafter, although he did not become a U.S. citizen. In 1930 he became a staff member of the international health division of the Rockefeller foundation. There he continued the research he had begun at Harvard with the virus of yellow fever. In 1939, after many experiments in inoculating mice and monkeys with the yellow fever virus, he discovered the vaccine called 17-D which proved successful in combating the disease.

During World War II the vaccine was used extensively; in the years 1940–47 alone the Rockefeller foundation prepared 28,000,000 doses of 17-D for free distribution among troops and civilian personnel of the Allied governments. For this and related work Theiler on Oct. 18, 1951 was named winner of the 1951 Nobel prize in physiology and medicine.

Therapy: *see* CHEMOTHERAPY; MEDICAL REHABILITATION OF THE DISABLED; PSYCHIATRY.

Throat: *see* EAR, NOSE AND THROAT, DISEASES OF.

Tibet. A country of central Asia, north and northeast of the Himalayas, Tibet is nominally a Chinese dependency. It had been in practice independent and was the only country in the world entirely under ecclesiastical control. Area: *c.* 469,294 sq.mi. Pop. (1948 est.): *c.* 3,000,000. Capital: Lhasa. Language: Tibetan. Religion: Buddhist. Ruler: Ling-Erh-La-Mu-Fan-Kha (formerly Lhamo Dhondup), the 14th dalai lama, born June 6, 1935, and enthroned in the Petala, or chief palace, on Feb. 13, 1940.

History.—The year 1951 opened with the Chinese Communist troops still little further than Chamdo and the dalai lama encamped at Phari Dzong, on the border of Sikkim. Reassuring messages were sent to him from Peking, and on May 23 a treaty was signed in Peking providing for the establishment of a Chinese military and administrative mission in Tibet, the maintenance of the dalai lama's authority, but the return to Tibet of the panchen lama (born in 1937 at Yuehsang, Chinghai province, or Tuteng Chueh-chi) and an undertaking by Tibet to unite behind the Chinese People's government's policy of opposing "imperialism."

Gen. Chang Ching-wu, the leader of the Chinese mission and one of the four signatories of the treaty on the Chinese side, arrived in Lhasa on Aug. 8 and declared that the interests of Tibetans would be carefully considered. Reports showed that the Chinese had started to build roads, lay down airstrips and link up key towns with radio communication.

On Aug. 17, the dalai lama returned to his capital at Lhasa. His supremacy in the secular sphere seemed to have been preserved despite the expected return of the panchen lama, who by end of the year was still at Sining (Chinghai), awaiting the word to cross the border to return to his monastery of Shigatse. It seemed probable that the panchen lama, theoretically a living deity, who ruled the spiritual lives of 10,000,000 lamaist Asians, was the tool of Chinese policy. A Chinese force of 3,000 entered Lhasa on Oct. 26.

On the whole, the year 1951 marked the end of Tibetan independence. Kalon Ngabo Ngavang Jigme and his four colleagues who signed the Peking treaty on the Tibetan side were obviously hoping that, for the price of surrendering to China the direction of foreign relations and defense, Tibet would be permitted to manage its domestic affairs. By the end of the year, however, this hope seemed slender. (E. HD.; X.)

Timber: *see* FORESTS; LUMBER.

Timor: *see* PORTUGUESE COLONIAL EMPIRE.

Tin. World tin production increased each year after 1945, and in 1950 was only 3% below the 1940–44 average; but it still fell far short of the prewar outputs. The mine production of the major producing countries is shown in Table I, as reported by the U.S. bureau of mines.

United States.—The salient features of the tin industry in the United States are summarized in Table II.

Table I.—*World Mine Production of Tin*

(In short tons)

	1945	1946	1947	1948	1949	1950
Australia	2,556	2,382	2,738	2,099	2,210	2,769
Belgian Congo	19,126	15,782	16,685	15,164	15,411	15,344
Bolivia	47,585	42,133	37,258	41,816	38,209	34,959
Burma	448	383	2,007	1,285	1,995	1,884?
China	1,680?	2,800?	4,800?	5,380?	4,700?	4,000?
Indonesia	1,176	7,189	17,825	34,229	32,441	35,951
Malaya	3,530	9,444	30,269	50,193	61,499	64,441
Nigeria	12,683	11,573	10,229	10,345	9,883	9,249
Thailand	1,988	1,183	1,569	4,749	8,755	11,608
United Kingdom	1,290	888	1,006	1,435	1,357	1,075
Others	7,918	4,843	3,814	4,105	4,740	5,120
Total	97,400	98,600	128,200	170,800	181,200	186,400

Table II.—*Data of the Tin Industry in the United States*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Imports, total	54.8	47.0	60.1	59.7	97.1	100.3	121.9
In concentrates	39.8	37.5	42.7	31.8	42.0	42.9	29.2
Metal	14.9	9.5	17.4	27.9	55.1	67.4	92.8
Smelter output	34.6	45.3	48.7	37.6	41.6	40.4	37.1
Secondary recovery	32.6	39.3	31.0	30.0	30.1	24.9	35.5
Consumption, total	100.8	93.6	90.6	98.7	101.7	81.0	117.0
Primary	66.3	62.3	61.2	66.3	67.0	52.8	79.7
Secondary	34.5	31.3	29.5	32.4	34.6	28.2	37.3
Stocks, industry	23.7	17.7	19.3	23.5	16.6	25.4	28.9

The reconstruction and rehabilitation of the oriental smelters greatly reduced the imports of tin ore into the United States, and there was a corresponding increase in metal imports. (*See* also CANNING INDUSTRY; MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. RO.)

Tires: *see* RUBBER.

Titanium: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Tito (JOSIP BROZOVICH OR BROZ) (1892–   ), Yugoslav prime minister, was born on May 25 at Kumrovec, Croatia. He served in the Austro-Hungarian army in World War I, was captured by the Russians, and in 1917 he joined the Red army and fought against anti-Communist Russian armies. In 1920 he was sent by the Comintern to Yugoslavia to organize the Communist party there. From 1928 to 1934 he was imprisoned for conspiracy, and in 1937 he became secretary-general of the Yugoslav Communist party. After the Germans overran Yugoslavia in 1941, Tito organized a leftist guerrilla group which effectively harried the axis occupation forces. Yugoslavia was liberated early in 1945, and Tito, who had appointed himself marshal, became prime minister and commander in chief. On June 28, 1948, the Cominform published a statement denouncing Tito for his "hateful policy in relation to the U.S.S.R." But from a correspondence between Belgrade and Moscow published later it was possible to learn that the real core of Tito's heresy was his brand of Yugoslav patriotism. "Even though we love the U.S.S.R. we cannot love our own country less," wrote Tito to Stalin on April 13, 1948. On Oct. 29, 1950, he paid tribute to the U.S. government, which was helping Yugoslavia in its food crisis without imposing any political obligations.

During 1951 Tito pursued his qualified approach to the west. Yugoslavia, he said, would fight "when aggression occurs and when, as a result, the independence of our country is threatened." This was amplified to refer to "not only . . . a direct attack against this country, but also one against Europe as a whole." In March he called on the west to withdraw from Korea because the war was "strategically futile," and in October protested against western attempts to "poison our people with propaganda."

Tito sought friendlier relations with Greece, and made a new approach to Italy on the Trieste question. On Nov. 14 he and George V. Allen, the U.S. ambassador, signed at Belgrade an agreement providing that the United States would "make or continue to make available" to Yugoslavia military equipment, materials and other services. (R. JAN.)

Tobacco. The U.S. 1951 crop of all tobaccos of 2,282,386,000 lb. was the second highest of record and comparable with 2,030,645,000 lb. in 1950 and an average for 1940–49 of 1,787,136,000 lb. A harvested acreage of 1,782,000 was 11% more than in 1950, but below the 1,829,000 ac. officially allocated. Yields, over-all, were a new record of 1,281 lb. per acre. The total value to producers of the 1951 crop was estimated at $1,178,203,000, compared with $1,048,639,000 in 1950.

The class I flue-cured types, produced mainly in the southeast coastal plain area and used in cigarettes and for export,

Table I.—*U.S. Tobacco Production by Leading States*

(In thousands of pounds)

State	1951	1950	Average 1940–49	State	1951	1950	Average 1940–49
North Carolina.	978,620	875,990	701,601	Fennsylvania . .	55,127	55,960	52,486
Kentucky . . .	444,094	363,525	395,536	Maryland . . .	42,900	40,000	32,966
South Carolina.	177,540	150,480	121,759	Florida	32,392	23,268	19,296
Virginia . . .	175,330	165,496	131,971	Ohio	24,555	24,610	24,361
Georgia . . .	136,806	102,120	90,527	Wisconsin . . .	23,576	31,434	32,968
Tennessee. . .	135,083	132,810	126,185	Connecticut. . .	22,111	27,806	23,688

amounted to 1,434,000,000 lb. (more than 60% of the total crop), 14% more than in 1950. Acreage harvested was increased to 1,110,100, 16% greater than in 1950. Yields, however, declined to 1,291 lb. per acre from the record of 1,312 lb. in 1950. Carry-over of these types amounted to 1,558,000,000 lb. on July 1, about 5% more than a year earlier. Early season auction market prices for all flue-cured types combined averaged 52.2 cents per pound, compared with 54.9 cents per pound in the early part of the 1950 season. The 1951 price support was 50.7 cents per pound; only 6% of the 1950 crop was placed under government loan.

Class II fire-cured types, produced mostly in Kentucky and Tennessee, yielded 62,451,000 lb., an increase of 6% compared with 58,698,000 lb. in 1950; the average for 1940–49 was 77,702,000 lb. Acreage of 51,000 was low compared with 53,000 in 1950 and 76,000 average for the previous decade, but yields were sharply higher: 1,225 lb. per acre compared with 1,108 lb. in 1950 and 1,030 lb. for 1940–49. The support price on the 1951 crop was 37.4 cents per pound.

The 1951 burley-type tobacco crop of 583,341,000 lb. was 17% larger than in 1950 and even larger in relation to the 487,860,000-lb. average for 1940–49. Harvested acreage of 455,600 was 12% larger than the 408,300 ac. of 1950 and well above the 425,590 ac. for 1940–49. The yield of 1,280 lb. per acre was also higher than the 1,222 lb. of 1950 or the previous decade average of 1,135 lb. The carry-over on Oct. 1 was 964,000,000 lb. It was anticipated that prices on the 1951 crop would exceed the average of 48.9 cents per pound received by growers for the 1950 crop.

The southern Maryland tobacco (type 32) crop of 1951 was 42,900,000 lb., compared with 40,000,000 lb. in the previous year and an average for 1940–49 of 32,966,000 lb. Carry-over supplies on Oct. 1 were 63,300,000 lb., a record high. The price on the 1950 crop averaged 47.8 cents per pound, a slightly lower figure than the 48.3 cents of the previous year.

The 1951 crop of dark, air-cured type tobacco was 33,471,000 lb., more than the 28,649,000 lb. of 1950 but below the 1940–49 average of 38,521,000 lb. Acreage (28,000) was slightly below 1950 and sharply under the 1940–49 average of 36,690; yields per acre of 1,195 lb. were much above the 998 lb. of 1950 and the average for the previous decade of 1,054 lb. The Oct. 1 carry-over was estimated at 73,400,000 lb., or 8% lower than a year earlier. The price support level for the 1951 crop was 33.2 cents per pound.

Cigar types in 1951 were produced to the extent of only 126,309,000 lb., compared with 146,845,000 lb. in 1950 and 135,364,000-lb. average for 1940–49. The acreage of 85,200 was off sharply compared with 100,700 ac. in 1950, but yields of 1,482 lb. per acre were moderately higher than in 1950 or the average for 1940–49.

Exports of tobacco leaf in 1950–51 amounted to 471,092,000 lb., valued at $273,262,000, representing, compared with the previous year, a 2% decrease in quantity and a 16% increase in value. Imports of tobacco leaf, especially for use in cigar wrappers and cigarettes, increased to 88,340,000 lb., valued at $75,821,000, from 80,642,000 lb. valued at $70,275,000 in the previous year.

Table II.—*Tobacco Production of the Principal Producing Countries*

(In thousands of pounds)

Country	1951*	1950	Average, 1935–39	Country	1951*	1950	Average, 1935–39
United States. .	2,282,386	2,030,645	1,460,054	Turkey .	210,000	186,229	128,505
India . . .	—	551,040	761,600	Italy . .	165,000	173,396	95,511
Brazil . . .	240,000	232,301	202,703	Canada .	151,165	120,298	76,556
Japan. . .	—	216,459	148,680	Greece .	139,324	128,043	132,819
				France. .	121,253	116,945	72,995

*Year beginning July 1.

Cigarettes, which absorb three-fifths of the annual disappearance of U.S. tobacco, attained a new record output in 1951 of 412,000,000,000, about 5% more than in 1950. About one-tenth of the total was exported to foreign countries or U.S. forces overseas. The excise tax was increased in November from seven to eight cents per pack. Cigar consumption was estimated at 5,800,000,000, a gain of 5% over 1950.

The world tobacco crop for 1951–52 was forecast at 7,435,000,000 lb., 6% more than the 7,125,000,000 lb. of the previous year and substantially more than the prewar average of 6,597,000,000 lb. Six hundred delegates from 43 countries met in Amsterdam, Neth., in September in a world tobacco congress.

(J. K. R.)

Tobago: *see* TRINIDAD AND TOBAGO.

Tobin, Maurice Joseph (1901–), U.S. secretary of labour, was born in Roxbury, Mass., on May 22. He worked for the New England Telephone and Telegraph company for a number of years, served in the Massachusetts legislature, 1927–28, was mayor of Boston, 1937–44, and governor of Massachusetts, 1944–46. In 1948 Pres. Harry S. Truman appointed him secretary of labour.

On April 26, 1951, Tobin announced that the U.S. would need 7,200,000 more men and women in defense industry and the armed forces by the end of 1952. On June 18 he issued a ruling making it possible for small manufacturers to pool their resources to obtain government contracts. Later in the year he advised white-collar workers to organize into unions, pointing out that they received an average of $15 a week less in wages than unionized factory workers.

Togoland: *see* BRITISH WEST AFRICA; FRENCH WEST AFRICA; TRUST TERRITORIES.

Tongan Island Protectorate: *see* PACIFIC ISLANDS, BRITISH.

Tongking: *see* INDOCHINA.

Tornadoes: *see* DISASTERS.

Toronto. Preliminary figures for the 1951 census gave Toronto a population of 670,945; greater Toronto, 1,108,532, compared with 909,928 for 1941, which revealed that Toronto's rate of growth was only a little more than half that of Montreal. During the year the amalgamation issue, the subway development and the housing shortage were among the main topics of interest. Year-long hearings by the Ontario Municipal board of Toronto's application for union with its 12 suburbs concluded early in June. By the end of the year the board had not announced a decision.

The study of city zoning begun in 1937 resulted in a 1951 report that recommended ten types of zones which did not disturb existing or projected building. A tax rate of 39.3 mills, highest in Toronto's history, was struck; the real assessment for 1951 tax purposes was set at $1,187,058,103, which was $22,219,120 over the 1950 figure, plus about $215,000,000 of business assessment. Indicative of the housing construction situation in the city was the report that during the month of November alone home building was down 31% compared with Nov. 1950.

Subway construction proceeded throughout the year, and, forecasting early completion of the job, a $4,000,000 contract for 11 of the 12 underground stations was negotiated. The Toronto Transportation commission boosted its fares in the hope of getting $6,300,000 additional revenue to overcome an expected 1951 $3,000,000 deficit and provide for additional capital outlays. School enrolment dropped off in 1951, indicating that Toronto was becoming a city of older people; nevertheless, the city's education budget was $21,400,000 for 1951–52, or $3,300,000 over the year before. (C. Cy.)

Torp, Oscar

(1893–), Norwegian prime minister, was born at Skjeberg, Östfold, on June 8. He was educated at an evening technical school as an electrician, and at 16 was an active trade union official. In 1918 he was elected a member of the executive committee of the Norwegian Labour party, which a year later joined the third (Communist) international. In 1922 Torp represented the Norwegian Labour party at the Comintern congress in Moscow, but in 1923 the party withdrew from this organization and Torp was elected its chairman; he remained in that office for the next 17 years. In 1934 he was also chairman of the Oslo municipal council and the next year was elected mayor of the capital but resigned after a few months when, as deputy minister of defense, he joined the first Labour government headed by Johan Nygaardsvold. From Nov. 1936 he served as minister of social affairs and from July 1939 as minister of finance. He kept this portfolio when the Norwegian government moved to London in 1940, but in 1942 became minister of defense. In Nov. 1945 he joined the new Labour government formed by Einar Gerhardsen as minister of supply and reconstruction but left the cabinet in Nov. 1947 to become chairman of the Labour group in the *storting*. Chiefly concerned with questions of defense and foreign policy, he accompanied Halvard Lange, the foreign minister, to Washington, D.C., in 1949 during the talks that preceded Norway's joining the North Atlantic treaty. In Nov. 1951 he succeeded Gerhardsen as prime minister.

Torquay Trade Conference: *see* TARIFFS.

Tourist Travel.

The number of Americans taking vacation trips climbed to a new peak during 1951, and so did the gross national travel expenditures. Estimates of the American Automobile association were that 72,000,000 persons travelled and spent approximately $12,000,000,000 travelling. As an industry, vacation travel came to rank with the country's biggest; more important in terms of national influence, almost half the population took at least one trip during 1951.

An important factor in this trend was the uninterrupted mass production of passenger automobiles, of which there were more than 43,000,000 in the U.S. in 1951. Approximately 85% of all vacation travel was by automobile, with an even higher percentage by that means to the national parks.

The average tourist automobile carried three occupants, covered 1,000 mi. in nine days of travel, with each occupant spending close to $150 while away from home. A breakdown of the motor vacationist's dollar showed that 25 cents went to retail purchases; 41 cents for food and lodging; 20 cents for transportation costs (gasoline, oil and automotive parts); 8 cents for theatre and other amusements; and 6 cents to confectioners and wayside stands.

Reflecting the heavy volume of automobile travel was an upsurge in construction of overnight accommodations along the roadside. The A.A.A. estimated a total of 40,000 motor courts in operation, while association field reporters noted a 50% rise in this type of facility in many sections. Among regions that experienced a heavy tourist building boom were Miami Beach, St. Petersburg and Daytona Beach in Florida, and Tucson and Phoenix in Arizona. Major new travel arteries were open to motor traffic during the year while construction work on others indicated they would be ready for use soon. (*See* ROADS AND HIGHWAYS.)

The 1951 travel year was marked also by the spread of the vacation period, which once was largely known to start with Decoration day and to end with Labor day. Many resorts were open in May and operating profitably until October. The inducements of "off-season" travel included reduced rates, wider choice of accommodations and less crowded highways. Perhaps the best example of 1951 off-season vacationing was in Florida, traditionally and almost solely a winter playground. The summer season, however, broke all previous records and for the first time almost equalled the winter months in terms of tourist volume.

Canada continued to be the major foreign objective of U.S. travellers, accounting for almost two-fifths of all travel expenditures outside the country. The number of passenger cars entering Canada with traveller's vehicle permits (distinguished from local traffic) was more than 2,000,000. Ontario led the provinces in attracting visitors, followed by Quebec and British Columbia. Alaska also was host to a large number of U.S. tourists and sought to draw more; the territorial legislature appropriated $40,000 for a tourist promotion program and a $3,000,000 hotel, Alaska's newest and biggest, opened in Fairbanks.

Mexico drew nearly 300,000 visitors by all means of transportation, two-thirds by private passenger car. The Mexico City chamber of commerce estimated that foreign travellers in the country spent $100,000,000, and the Mexican government statistical bureau reported that *turismo* was second only to agriculture as a revenue producer.

The islands of the West Indies, participating in a joint promotion program through the Caribbean Interim Tourist committee, enjoyed their biggest travel year. Old hotels were renovated and new ones were built in Cuba, Haiti, Jamaica, the Virgin Islands, Puerto Rico and Tobago. Air lines increased their schedules to these islands and more major cruise vessels visited the Caribbean than in any previous postwar year.

An all-time record number of travellers, citizens returning home and aliens coming from other countries, arrived in the United States during the fiscal year ending June 30, according to figures furnished by the immigration and naturalization service on the basis of passenger manifests used by all ships and planes. The total number of passengers was 1,274,878, an increase of 8% over the previous high set in 1950. The number of citizens was 745,155.

Europe ranked as the principal travel destination for Americans, with a total of 284,401. Steamship passengers totalled 177,688 and air passengers 106,713. The European travel year, however, was marked by an early slump, attributable to international tensions, and followed by an unusual upsurge in the late summer and early fall.

Motor touring abroad reached a new high in popularity, according to a report of the A.A.A.'s international travel department, which showed that nearly 4,000 tourists shipped their cars overseas, while others rented or purchased cars for use on arrival. A survey revealed that Americans driving in Europe spent an average of 11 weeks in touring at least four countries. (*See* also AMERICAN CITIZENS ABROAD; NATIONAL PARKS AND MONUMENTS.) (Ru. E. S.)

Town and Regional Planning.

The delegates to the council meeting of the International Federation for Housing and Town Planning, held at Hoddesdon, Eng., July 14–18, 1951, received reports on the progress of planning and housing in Great Britain and Europe.

The Festival of Britain, on the south bank of the Thames, stressed Britain's contributions to civilization, and concurrent celebrations throughout the British Isles included literary, scientific, artistic and dramatic presentations. The living exhibit at Lansbury in east London was a major redevelopment project. In the accompanying temporary exhibit, a "gremlin garage" demonstrated many common mistakes in construction and the Building Research pavilion showed how the faults could be corrected. In the Town Planning pavilion the battle for the land illustrated the many and often-conflicting uses for land. The ways in which the new towns were meeting the needs of the people were graphically presented. At Harlow, Stepney, Stevenage, Hatfield and in Welwyn, as well as in other new towns, progress was made in attracting industry and inhabitants from congested areas. By comparison with the new towns, the garden cities of Welwyn, Letchworth and Bournville, established a generation before, made a good showing in the summer of 1951.

Throughout Britain the county planning offices were engaged in developing area plans for submission to the ministry of housing and local government, as required by law.

In the United States, many cities prepared revisions of their zoning ordinances, embodying more realistic commercial districts, protected industrial districts, integration of zoning with urban redevelopment, off-street parking and loading, sharp curtailment of spot zoning and extension of zoned areas into the country.

Only a few of the proposed ordinances were enacted into law, pending consultations with citizen groups.

As the need for new and enlarged airports became apparent, the Civil Aeronautics administration of the department of commerce, as well as many cities, studied the factors for selecting locations and the effect of airports on surrounding land uses. Many suburban and regional shopping centres were developed but, in 1951, it was apparent that former estimates for space needed for off-street parking and loading had been too low.

Park Forest, Ill., as reported in the 1950 *American Planning and Civic Annual* and in the May 1951 *Architectural Record*, was a completely new town near Chicago which had attracted a good deal of attention. The town, which adjoins the Sauk Trail forest preserve, consisted of a tract of 2,500 ac., of which 1,500 ac. were being developed. Provision was made for about 3,000 rental units and ultimately there would be 5,000 homes for sale.

There was a shopping centre and "an industrial park for light industry."

The federal government designated certain critical areas in connection with defense production where construction of housing might proceed. In Bucks county, Pa., where the U.S. Steel company was building a $400,000,000 plant, the building of 16,000 houses was announced.

Redevelopment plans had been prepared or adopted in many cities and some land had been assembled, but in most cases construction was awaiting the release of critical materials. (*See* also ARCHITECTURE; HOUSING.)

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(H. Js.)

Track and Field Sports.

The year 1951 was marked by many outstanding feats and more international competition than ever was held in a single campaign. United States pole vaulters captured the headlines when Bob Richards of the Illinois Athletic club soared over 15 ft., an achievement which had not been accomplished by any athlete since Cornelius Warmerdam, the world's first vaulter to reach that height. Richards won at 15 ft. 1 in. in the Millrose games at Madison Square Garden, Jan. 27, and five other times indoors he went over 15 ft., his best effort coming in the *Chicago Daily News* meet March 17 when he won at 15 ft. 4¾ in. Richards added to his laurels by capturing the national decathlon championship with 7,834 points, a total exceeded by only two others in history.

Winning Amateur Athletic union crowns indoors and out as well as a title in the first Pan-American games, Richards won acclaim as the nation's athlete of the year and received the James E. Sullivan Memorial trophy presented annually to the amateur who by performance and good influence does the most to promote good sportsmanship.

Jim Fuchs of the New York Athletic club pushed his own shot-put mark up to 58 ft. 3½ in. and Tom Bane of Tufts college hurled the 35-lb. weight 60 ft. 11 in. for new indoor records. Henry Dreyer of the New York Athletic club set an American record for the 56-lb. weight with a toss of 41 ft. 7½ in. Although he retained his championship indoors, Fuchs was dethroned in the national A.A.U. outdoor games at Los Angeles, Calif., when Parry O'Brien of the Los Angeles Athletic club put the shot 55 ft. 9¼ in., the defeat being the first for Fuchs in 89 meets.

Fred Wilt, New York Athletic club, was the nation's leading distance runner and ended the long string of mile victories by Don Gehrmann when he won by six yards in 4 min. 8.4 sec. in New York city March 3. Gehrmann, a former University of Wisconsin ace, who had taken 39 consecutive mile races in three years, retired in the spring and Wilt became the leading Olympic hope. Wilt was timed at 8 min. 54.5 sec. for the fastest two miles ever covered by an American and won the national A.A.U. indoor mile and the outdoor 5,000-m. titles.

Roscoe Browne of the Pioneer club of New York city, who won the A.A.U. 1,000-yd. laurels, turned in the fastest time of the year, 1 min. 49.3 sec., for 800 m. in an overseas meet and did 2 min. 25.2 sec. for the best of the season at 1,000 m. Frank Held, San Francisco Olympic club, threw the javelin 249 ft. 8½ in. while overseas for the longest toss anywhere in 1951. Malvin Whitfield gained his third straight title in the A.A.U. 800-m. race when he defeated Browne.

Jim Golliday, a Northwestern university freshman, George Brown of the University of California at Los Angeles and J. Lewis Hall of the University of Florida were among the newcomers to sparkle. Golliday, a star abroad until he injured a leg, reached the heights in the United States outdoor games at Los Angeles June 22–23 when he tied the championship record of 10.3 sec. for 100 m. With Andy Stanfield of Seton Hall slowed by injury, Golliday gained distinction as the season's top sprinter. Stanfield, however, remained as a stellar performer, winning the A.A.U. indoor broad jump and the Intercollegiate A.A.A.A. 100-yd. and 220-yd. outdoors and 60-yd. sprint and broad jump indoors. George Brown, the National Collegiate Athletic association and A.A.U. champion, jumped into the distinguished group that had surpassed 26 ft. by leaping 26 ft. 1 in. Hall shone among the high jumpers, annexing the N.C.A.A. and A.A.U. titles, his best effort of the year being 6 ft. 8 in.

With the retirement of Gehrmann, whose indoor 4 min. 7.5 sec. was tops for the campaign, the mile again became an open event. Warren Druetzler, Michigan State college, moved into the front ranks in taking the N.C.A.A. run in 4 min. 8.8. sec., and

PHOTOTIMER PICTURE recording the finish of a 60-yd. high hurdles race at Madison Square Garden, New York city, in Feb. 1951. The phototimer camera had long been used in horse racing

Leonard Truex, young Ohio State university star, carried off the national 1,500-m. crown in 3 min. 52 sec. Highlight for the milers, however, came on April 28 at Philadelphia, Pa., where Roger Bannister of England defeated both Wilt and Gehrmann in a special race. The visitor set a record for the Penn relays by winning in 4 min. 8.3 sec.

Wilt was 15 yd. back and Gehrmann 30 yd. behind as the victor broke the tape.

In team competition, the Pioneer club of New York city ended the reign of the New York Athletic club as A.A.U. indoor ruler, and the Los Angeles Athletic club captured laurels outdoors. Southern California retained its N.C.A.A. championship, Manhattan college of New York city took the Intercollegiate A.A.A.A. indoor honours and Cornell university triumphed outdoors. With a new star, Mary McNabb, winning two sprints and aiding the victorious relay team, Tuskegee institute retained the women's A.A.U. outdoor crown. Stella Walsh of Cleveland, O., national broad jump queen, kept pentathlon laurels. The Police Athletic league kept the women's indoor title. Other leading team champions included the following: national A.A.U. junior, Olympic club; Western conference, University of Illinois; Southeastern conference, Louisiana State university; New England intercollegiate, Tufts college; Big Seven, University of Missouri; Heptagonal, Cornell university; Southern conference, University of Maryland; Metropolitan (N.Y.), Manhattan college; Missouri Valley, Oklahoma Agricultural and Mechanical college; Rocky Mountain conference, Kansas State college and University of Colorado (tied); Pacific Coast conference, University of Southern California.

The first Pan-American Sports congress, held at Buenos Aires, Arg., Feb. 25–March 9 saw the U.S. track-and-field team of 128 score a decisive triumph. The men tallied an unofficial 250 points as against Argentina's 192 points, while U.S. women just managed to defeat Chile for the team award, 75–73.

Outstanding U.S. Track and Field Performances (Outdoor), 1951

100 Yd.

9.5 sec.—Ford, Drake; Williams, Los Angeles State; Richard, U.C.L.A.; Blackburn, California
9.6—Stanfield, Seton Hall; Thresher, Mercersburg; Brock, Oregon State; Preston, Louisiana State; Work, U.C.L.A.; Bragg, Morgan State; Field, Duke; Price, Oklahoma; Walker, Falcon club

220 Yd.

20.6 sec.—Stanfield, Seton Hall; McKibben, Occidental
20.7—Rhoden, Morgan State
20.8—Dunn, Wyoming; Green, Los Angeles City college

440 Yd.

46.4 sec.—McKenley, Jamaica
46.5—Rhoden, Morgan State
47.2—Moore, Cornell
47.5—R. Maiocco, New York university
47.7—McSween, Illinois; Whitfield, U.S. air force; Bradley, Southern California

880 Yd.

1 min. 50.7 sec.—Barnes, Occidental
1:51.6—Mitchell, U.C.L.A.
1:52.1—Deady, Georgetown
1:52.5—Eischen, Washington State
1:53.1—Joyce, Georgetown; Mealey, Cornell

One Mile

4 min. 8.3 sec.—Bannister, Great Britain
4:8.8—Druetzler, Michigan State
4:9.0—McEwen, Michigan; McMillen, Occidental
4:10.3—Wilt, New York A.C.
4:10.7—Newcomb, Southern California

Two Mile

8 min. 54.5 sec.—Wilt, New York A.C.
9:3.2—McEwen, Michigan
9:7.7—McGuire, Missouri
9:10.9—McMillen, Occidental
9:11.9—Shea, Army

120-Yd. High Hurdles

13.6 sec.—Attlesey, Los Angeles A.C.
13.7—Davis, Southern California
14.1—Walker, Southern Methodist; Barnard, Southern California
14.2—Demedicis, Auburn
14.3—Hildreth, Arizona State; Triulzi, Santa Barbara; Halderman, Los Angeles A.C.; Brown, Lafayette

220-Yd. Low Hurdles

22.7 sec.—Moore, Cornell
22.9—Attlesey, Los Angeles A.C.; Stanfield, Seton Hall
23.0—Bless, Texas A. and M.; Johnson, Army; Davis, Southern California
23.1—Thomas, Michigan State

Broad Jump

26 ft. 1 in.—Brown, U.C.L.A.
25:9¾—Gourdine, Cornell
25:9—Stanfield, Seton Hall
24:9—Meeks, Texas
24:8½—Hairston, Columbus (O.) High school
24:7¾—Soble, Michigan

Shot-Put

57 ft. 9½ in.—Fuchs, New York A.C.
56:1½—Chandler, Olympic club
55:9¼—O'Brien, Southern California
54:7½—Hooper, Texas A. and M.
54:1½—Anderson, Indiana

Discus

175 ft. 6½ in.—Doyle, Montana A.C.
173:4—Mathias, Stanford
172:4—Frank, Collegiate T. and F. club, Philadelphia
167:5¾—Dillion, Auburn
166:4¾—Anderson, Indiana
165:9¾—Fuchs, New York A.C.

Javelin

241 ft. 11 in.—Young, Los Angeles A.C.
241:0¾—Held, Olympic club
237:10—Miller, Arizona State
232:1½—Seymour, Los Angeles A.C.
228:8½—Missfeldt, Oregon
227:0—Roylance, Brigham Young

Hammer Throw

184 ft. 2¾ in.—Felton, New York A.C.
182:8¼—Dreyer, New York A.C.
179:8¾—Bane, Tufts
177:10¾—Blair, Boston university
174:10⅞—Dillon, New York A.C.
173:5—Backus, Tufts

Pole Vault

15 ft. 1¾ in.—Laz, Illinois
15:0½—Richards, Illinois A.C.
15:0⅛—Cooper, Nebraska
14:6—Jensen, Southern California
14:4—Smith, San Diego State

High Jump

6 ft. 9¾ in.—Holding, East Texas State college
6:9—Davis, Texas A. and M.; Hall, Florida
6:7⅞—Miller, Arizona State
6:7¾—Severns, Kansas State

(T. V. H.)

Trade Agreements: *see* INTERNATIONAL TRADE; TARIFFS.

Trade Commission, Federal: *see* FEDERAL TRADE COMMISSION.

Trade Unions: *see* LABOUR UNIONS.

Traffic Accidents: *see* ACCIDENT PREVENTION; DISASTERS.

Trans-Jordan: *see* JORDAN.

Transportation: *see* AVIATION, CIVIL; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.

Trap-shooting: *see* SHOOTING.

Travel: *see* TOURIST TRAVEL.

Treasury, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S.

Trieste, The Free Territory of.

Trieste is a small state at the northern end of the Adriatic sea, between Italy and Yugoslavia, demilitarized and neutral, whose independence was declared from Sept. 15, 1947, by the Security council of the United Nations. Total area: 293 sq.mi. Total pop. (mid-1950 est.): 378,000. Military governors under provisional regime: zone A, British-U.S. (area, 96 sq.mi.; pop., 1949, 299,000), Maj. Gen. Sir John Winterton; zone B, Yugoslav (area, 197 sq.mi.; pop., 1949, 60,000), Col. M. Stamatovitch. Mayor of the city of Trieste: Gianni Bartoli.

History.—Since Trieste was more prosperous than the rest of Italy and since the Allied forces provided much employment which could otherwise not be replaced, many unpolitically minded Triestines genuinely desired the prolongation of the *status quo*, while others wished for the independence and union of the two zones. It was rumoured that the U.S.S.R. favoured the *status quo* as providing an excuse for barring the Austrian peace treaty and that the United States had no great desire to close down the U.S. bases in Trieste; Great Britain certainly had no interest in remaining in the free territory.

In March 1951 Marshal Tito made a speech in which he declared that the time was not ripe for a solution of the question of Trieste, but in April he suggested—what the western powers advocated—direct negotiation between Yugoslavia and Italy. In September the Yugoslav foreign minister, Edvard Kardelj, made several public pronouncements in favour of a compromise with Italy over Trieste. These contrasted sharply with his statements in 1950 and showed that Belgrade now felt it important that the question should really be solved. It was possible that the soviet note handed to representatives of the three western powers on Nov. 17, demanding that the peace treaty be at last carried out in Trieste, was a result of the Kremlin's fear of an Italo-Yugoslav settlement. (E. Wi.)

Finance.—Budget (1951–52 est.): revenue 12,730,000,000 lire; expenditure 15,680,000,000 lire. Monetary unit: lira, with an exchange rate (Aug. 1951) of 1,749 lire to £1 and 625 lire to U.S. $1.

Foreign Trade.—(1950): Imports 25,408,000,000 lire; exports 5,239,000,000 lire. Main sources of imports (1950): U.S. 23.9%; western Germany 5.5%; Austria 3.0%; Switzerland 2.6%. Main destinations of exports: Austria 18.7%; western Germany 11.4%; Greece 2.4%; Turkey 2.2%.

Trinidad and Tobago.

This British colony consists of two islands off the South American continent north of the Orinoco river delta. Area: 1,980 sq.mi. Pop.: (1946 census) 557,970 (27,208 in Tobago); (Dec. 1950 est.) 635,839 (31,000 in Tobago). Languages: English, Hindu, French, Spanish. Religions: Christian 70%; Hindu 23%; Moslem 6%. Chief towns (pop. 1950): Port of Spain (cap., 105,700); San Fernando (32,870). Governor in 1951: Maj. Gen. Sir Hubert Rance.

History.—Abnormally heavy rains during the first half of 1951 caused damage to sugar, cacao, citrus and coffee crops. Further efforts were made to diversify the economy by increased industrialization, and the Cement Industry (Development) act was passed toward the end of the year. Responsible trade unionism made satisfactory progress during 1951, and a new public service commission proved its worth. A local government department was established, and the first local government commissioner, Sir John Imrie, arrived in November.

A steady rise in the cost of living caused concern in Trinidad as in other colonies in the area. A new index of retail prices was to be brought into force early in 1952. The new currency board for the eastern group of colonies, with headquarters in Trinidad, was constituted at the end of 1950, and the first issue of unified currency notes for all the British Caribbean colonies with the exception of Jamaica and British Honduras was made on Aug. 15, 1951.

Education.—Pupils enrolled (1950): elementary 115,300; secondary 5,600. Government expenditure B.W.I. $5,287,000.

Finance and Trade.—Currency: British Caribbean or British West Indian dollar with an exchange value of 58.33 cents U.S. Budget (1951 est.): revenue B.W.I. $55,415,814; expenditure B.W.I. $53,832,725. Foreign trade (1950): imports B.W.I. $169,226,000; exports including re-exports B.W.I. $177,592,000. Production (1950): petroleum 20,632,000 bbl.; asphalt 121,850 tons; rum 2,120,000 proof gal.; cocoa 72,300 tons exported; sugar crop (1951) 140,600 tons. (P. H-My.)

Tripolitania: *see* LIBYA.
Trolley Coaches: *see* ELECTRIC TRANSPORTATION.

Tropical Diseases.

Trypanosomiasis.—African sleeping sickness presents the single greatest obstacle to the development of the equatorial region of Africa. Destruction of the wild game which act as the reservoirs of the trypanosomes had been advocated as one of the most efficient methods of control, but this procedure had not been universally effective in areas in which it was applied. Aerial spraying of insecticides, on the other hand, had accomplished eradication of the tsetse fly and subsequent disappearance of animal trypanosomiasis.

The drug antrycide proved to be extremely valuable in the treatment of animal trypanosomiasis. Intramuscular injection of pentamidine proved to be the most useful prophylactic agent available up to the close of 1951 for the prevention of the disease in human beings. It was recommended that it be administered once every six months.

Leprosy.—Family studies of the prevalence of leprosy in Java were advanced as evidence that transmission by family contact with a case of nerve leprosy had not been proved. In these studies it appeared that the most important factor influencing transmission within the leper's family is bed contact. The age at which this occurs and its duration are both important. The highest incidence was observed in the age group 0–14. The average duration of the incubation period including the period of bed contact in this age group was three and six-tenths years. After family contact but without bed contact it was seven and two-tenths years.

The sulphones continued to give great promise in the field of treatment. Although relapses occurred after apparent arrest of the disease and discontinuance of therapy, all types of the disease were benefited. In diffuse lepromatous leprosy and in tuberculoid cases small doses were advocated. Treatment should be continued for prolonged periods of time.

Filariasis.—Studies of the effectiveness of hetrazan indicated that this drug was the single most effective weapon in the control of Bancroftian filariasis. It was much less useful, however, in the control of onchocerciasis. In all forms of filariasis eradication or control of the vector must be incorporated in any optimal control operation.

In cases of Bancroftian filariasis, hetrazan was shown to have a permanent effect in reducing or abolishing the microfilariae in the blood, suggesting a lethal or sterilizing effect on the adult worms. Concurrently, there was frequently but not always amelioration of the clinical symptoms including permanent improvement in certain cases of elephantiasis. The drug appeared to be effective in the treatment of loiasis, and it was likewise reported to be of use in creeping eruption.

Hetrazan proved less useful in onchorcerciasis, although it caused disappearance of the microfilariae from the skin in most cases. This action was much slower than that on the Bancroftian microfilariae in the blood, and permanent disappearance occurred much less frequently. Examination of the subcutaneous nodules after treatment showed persistence of many living adult worms.

Schistosomiasis.—Certain phenol derivatives proved to be effective lethal agents against the intermediate snail host in dilutions as low as 9.5 parts per 1,000,000. However, these agents are likewise lethal to fish and most are too expensive for extensive control operations.

The eggs of the parasite are distributed by the blood stream to the liver, spleen and lungs and not infrequently to the brain, where serious lesions may be produced. Those in the lungs are an obliterating inflammation of the small arteries which may lead to heart failure and a clinical picture resembling that of rheumatic or congenital heart disease.

Swimmer's itch was shown to occur in many parts of the world and had become a problem of economic importance in certain resort areas. It is caused by the penetration of the skin of bathers by the infective forms of certain bird schistosomes. The reaction in man is characterized by dermatitis, and in many persons this tends to become more severe with repeated exposure.

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Trucial Sheikhs: *see* ARABIA.
Truck Crops: *see* VEGETABLES.
Trucks: *see* AUTOMOBILE INDUSTRY; MOTOR TRANSPORTATION.

Truman, Harry S. (1884–), president of the United States of America, was born at Lamar, Mo., May 8. He was elected to the U.S. senate in 1934, and re-elected in 1940. Elected vice-president in 1944, he became president on the death of Franklin D. Roosevelt on April 12, 1945. He was elected president on Nov. 2, 1948.

The year 1951 was, perhaps, Truman's most difficult year in the White House through aggravation of the "cold war" with the U.S.S.R., the Korean stalemate and casualties that passed 100,000, a series of embarrassing congressional investigations, intraparty dissension and domestic economic pressures resulting from the multibillion dollar rearmament effort.

He asked congress for a $71,594,000,000 budget and $16,500,000,000 in new taxes, though he subsequently reduced that figure to $10,000,000,000. He reiterated demands for enactment of the Fair Deal. A combination of Republicans and southern Democrats reduced the budget by $4,750,000,000 over his protests, raised taxes by only $5,691,000,000 and blocked action on his domestic program.

Early in the year he completed organization of the defense mobilization staff. Charles E. Wilson, former head of the General Electric Company, was director; Eric Johnston, president of the Motion Picture Association of America, Inc., became economic stabilization administrator; and Michael V. DiSalle, former mayor of Toledo, O., director of price stabilization. Their efforts to stabilize the economy provoked protests from labour, industry, consumers and congress.

President Truman's attitude toward the Soviet Union hardened steadily until it gave concern to British and French statesmen lest it provoke another global conflict.

In April, Truman relieved Gen. Douglas MacArthur as United Nations commander in Korea because MacArthur had advocated an all-out war against Korean and Chinese Communists. In a radio speech explaining his action, Truman said that MacArthur's proposals might have provoked World War III.

Congressional exposure of political corruption, favouritism and laxity in the Reconstruction Finance corporation, the department of justice and the bureau of internal revenue harried the administration. At first Truman brushed off the revelations as a "big lie and smear," and refused to accept proposals for reforms and personnel changes. He declared that "all my men are honest." As the year ended, however, he was engaged in "house-cleaning." He had allowed William M. Boyle, Jr., chairman of the Democratic national committee, an old friend accused of profiting from exerting pressure on RFC members, to resign. He approved the dismissal of more than 60 internal revenue officials, and requested and received the resignation of T. Lamar Caudle, head of the tax division of the department of justice.

Reversing his earlier position, he asked congress to place internal revenue officials under civil service. He proposed a law under which both elected and appointed federal officials, together with members of congress and top party officers, should register the sources of income, gifts and loans, if they earned more than $10,000 annually.

Important changes in appointive offices occurred during 1951. When Gen. George C. Marshall resigned as secretary of defense, his place was taken by Robert A. Lovett, a New York banker and former deputy secretary of defense. Thomas B. McCabe, a Pennsylvania Republican, was succeeded as member and chairman of the board of governors of the federal reserve system by William McC. Martin, Jr., of St. Louis, Mo. President Truman provoked protests from Protestant churchmen when he appointed Gen. Mark W. Clark as ambassador to the Vatican, and the senate recessed without acting on the nomination.

President Truman had numerous clashes with the press, in which he accused reporters at Washington and in Korea of "misrepresenting" the facts. As a result, he issued a security order restricting release of public information of a nonmilitary nature. It was criticized by some newspapermen as censorship.

On running again in 1952, the president remained secretive. He said that he had made up his mind about 1952 plans, but that he was not telling anybody. He did note, however, that the 22nd amendment barring a third term did not apply to him. In his most political speech of the year, he predicted that, although the Democrats would face a campaign of "the big lie" and "slush funds" in 1952, they would win. (*See* also DEMOCRATIC PARTY; ELECTIONS, U.S.; REPUBLICAN PARTY; UNITED STATES.)
(R. TU.)

Trust Territories. These include former German colonies and islands which became mandates after World War I and trust territories after World War II; South-West Africa, which remained mandated; and former Italian Somaliland which became a trust territory with Italy administering on April 1, 1950. Total area: 1,231,948 sq.mi.; total population *c.* 19,389,000.

History.—For the first time, the United Nations Trusteeship council had to handle reports from all the 11 trust territories in 1951. Partly because of its own experience and partly as a result of suggestions made by the general assembly, the council adopted a procedure by which it examined the Pacific reports at its winter sessions (January–March) and the African reports at its summer sessions (June–July) and by which it could at the same time consider petitions dealing with the territories and any current report by a visiting mission. Thus, once every year, the council would be able to fulfil its supervisory role by a comprehensive study of the political, economic, social and educational advancement of the inhabitants of all trust territories.

The soviet representative returned to the council. But little

Trust and Mandated Territories

Territory	Area (in sq. mi.)	Population		Administering Authority
South-West Africa*	317,725	(1951 cen.)	430,354	Union of South Africa
Togoland (Br. Adm.)	13,041	(1950 est.)	393,000	United Kingdom
Togoland (Fr. Adm.)	21,235	(1948 est.)	953,000	France
Cameroons (Br. Adm.)	34,081	(1950 est.)	1,025,000	United Kingdom
Cameroun (Fr. Adm.)	170,230	(1950 est.)	3,006,000	France
Tanganyika	362,688	(1950 est.)	7,600,000	United Kingdom
Ruanda-Urundi	20,120	(1951 est.)	3,796,727	Belgium
New Guinea, Territory of:				
Northeast New Guinea	69,700	(1950 est.)	1,071,000	Australia
Bismarck archipelago	19,200			
Certain of the Solomon Islands (Bougainville, etc.)	4,100			
Western Samoa (Savaii Upolu, etc.)	1,133	(1951 cen.)	82,493	New Zealand
Nauru	8	(1950 est.)	3,000	Australia
Pacific Islands North of Equator†				
Mariana or Ladrone Islands (except Guam)	687	(1951 est.)	56,178	United States
Caroline Islands with Yap Island and Palau Island				
Marshall Islands				
Italian Somaliland	198,000	(1949 est.)	971,879	Italy‡

*League of Nations mandate. †Former Japanese mandates. ‡From April 1, 1950.

change was observable in the soviet attitude of obstructive criticism, and of propaganda generalizations from a few handpicked items in reports, and in the demand for the abolition of tribal systems so that a transition could immediately be made to self-governing democratic principles. Nevertheless, the steady constructive progress of the council's work was beyond doubt. Increasing familiarity with on-the-spot problems of administration enabled it, more and more, to obtain a balanced view of conditions and to strike a happy medium between the desire, on principle, to see the advance toward autonomy or self-government made as rapidly as possible and a fair appreciation of the actual achievements by the administrating authorities to date. This constructive approach was marked in all the council's important tasks, and its continuation, as the president, Sir Alan Burns, pointed out, meant great promise for the future of the trusteeship system and of unbounded usefulness to the administrating authorities in protecting and advancing the real interests of the peoples in their charge.

In reviewing the annual reports the council recognized advance—more rapid in some territories than others, but common to all—in political development, economic improvement, betterment of social conditions and the spread of education. It freely commended specific achievements, such as the advancement in political responsibility of the indigenous population in Western Samoa, the economic improvement in British Cameroons and the spread of education in Belgian Ruanda-Urundi and, in spite of all difficulties, in the U.S. Pacific islands. It made many constructive suggestions proposing, for example, a loan from the International Bank for Reconstruction and Development to Italian Somaliland, the training of more teachers and the adjusting of administrative systems to enable indigenous peoples to pass more rapidly from junior to senior civil service posts. It also made recommendations for action by the administrating authorities on more than 250 petitions. The machinery for visiting missions was overhauled in the light of experience, and provision was made for the issue of a standard statement on the purposes, principles and structure of the United Nations to reach the widest possible area. In the summer a second visiting mission set out for East Africa to include Italian Somaliland, as well as Belgian Ruanda-Urundi and British Tanganyika.

The ninth session of the council was faced once more with the Ewe problem, arising from certain demands for both the unification of the Ewe peoples, who inhabit parts of British and French Togoland and of the Gold Coast, and the unification of the two Togolands. The two governments concerned, after taking a series of measures designed to remove difficulties between the Togolands and to find out the wishes and interests of all the peoples concerned, became convinced that no solution altering the boundaries or political allegiance could at present command general assent. As a practical solution, a joint council of representatives of the two Togolands was to be set up, associating the peoples more directly with all efforts to harmonize the policy of development in both Togolands as steps to self-government. The council concurred with this step and urged that all elements of the population of the two trust territories co-operate in the establishment of this joint council.

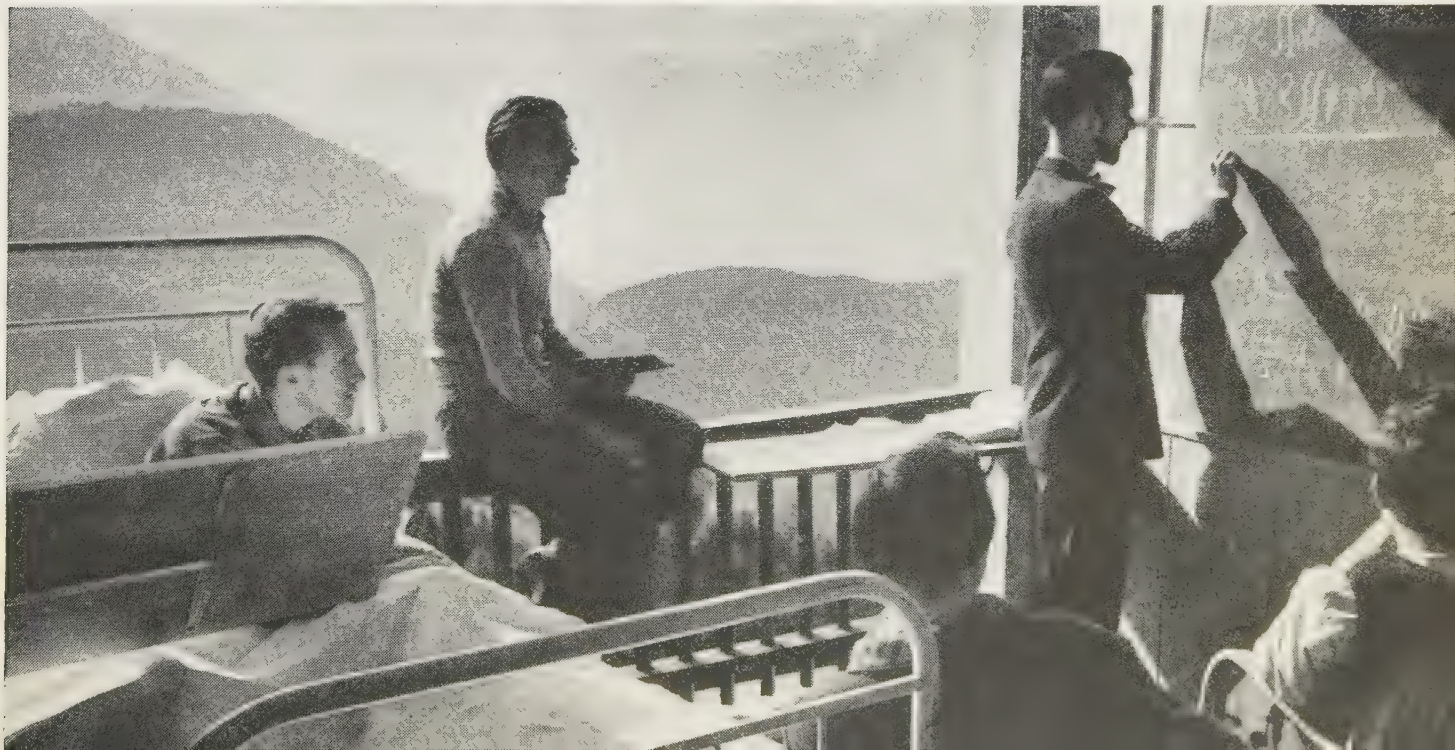
Complex trusteeship problems were also kept under almost continuous review. Throughout the year a special committee on rural economic development, set up in response to an assembly recommendation, made real progress in the first phase of documentation; the next stage involved the examination of land policies. (*See* also FRENCH WEST AFRICA; INTERNATIONAL LAW; SOMALILAND, ITALIAN; UNITED NATIONS.) (M. FE.)

Trust Territory of the Pacific Islands: *see* MARSHALL, CAROLINE AND MARIANA ISLANDS.

Tuberculosis.

During 1951 L. R. L. de Gouvea and associates, Brazil, reported 62 cases of tuberculosis complicated by pregnancy and emphasized the importance of postdelivery care of mother and child. B. Ratner, New York city, observed 260 infants of tuberculous mothers but saw no case of congenital tuberculosis. He found that when infants are removed from tuberculous mothers at birth and continue to remain in an environment free from tuberculosis, no tuberculosis develops among them. F. E. Amick, Washington, D.C., reported four cases of congenital tuberculosis. He stated that only 124 such cases had been described in the world's literature.

Treatment.—Streptomycin and para-aminosalicylic acid in combination was the most useful drug treatment. Viomycin, a new antibiotic, was studied experimentally by a number of work-



TUBERCULAR STUDENTS attending a lecture in advanced mathematics at the Sanatorium Universitaire in the Swiss Alps in 1951; patients could receive treatment without having to discontinue their studies ers, including A. C. Finlay, New York, who reported it to be an effective agent against tubercle bacilli in culture and in experimental animals. F. H. Belgorod, New York, found tibione (amithiozone) beneficial when used alone or in combination with streptomycin and para-aminosalicylic acid. A. G. Karlson, Rochester, Minn., found that in tuberculous animals cortisone prevented the restriction and healing of tuberculosis while streptomycin was being administered.

Excisional surgery was extensively employed. This consists of removing a diseased lung, a lobe, a segment or even a smaller part. The immediate results were usually satisfactory, but a true evaluation awaited much longer observation. Such excisional surgery partially replaced thoracoplasty. A. Lanari, Buenos Aires, Arg., removed a lobe from lungs of dogs and inserted another. Survival up to 25 days caused him to conclude that the insertion of a lobe of a lung is a possibility.

As of Jan. 1, 1951, there were 108,844 beds for tuberculous patients in the United States. This was an increase of 800 over 1950.

The United States Veterans administration operated approximately 14,800 beds, which were distributed in tuberculosis hospitals, general medical and surgical hospitals, and neuropsychiatric institutions. As of Dec. 31, 1950, the central tuberculosis case register of the Veterans administration contained 46,414 veterans.

M. D. Kogel, commissioner of hospitals of New York, emphasized that tuberculosis was the most significant single disease problem with which his department had to cope. In the first six months of 1951 the average daily tuberculosis census was 5,090, with a long waiting list for admission to the departmental tuberculosis hospital. Among the 19,170 people known to have tuberculosis in New York on June 30, 1951, 53%, one-third of whom were contagious, were without hospital care. The parliamentary secretary to the British ministry of health said that the waiting list for sanatorium beds in England and Wales was 10,400 on Dec. 31, 1950.

Transmission from Animals.—A. G. Karlson called special attention to the transmission of tuberculosis from animals to people and from people to animals. This emphasized the futility of attempting to control the disease in people without eradicating it from animals, and vice versa. Karlson said: "An animal that reacts positively to the tuberculin test is properly considered as a dangerous individual. . . . In spite of the great advances in control, there is a constant potential hazard as long as only a few infected animals exist." W. K. Hannover stated that in Germany 63% of all cow herds and 31% of all cows must be considered infected with tubercle bacilli. Veterinarians of the World Health organization pointed out that in central and southern Europe the level of tuberculous infection in cattle may reach 60%, while in some countries the disease had been virtually eradicated through tuberculin testing and removal of infected animals from herds. E. Hedvall stated that 72% of the area of Sweden was free from tuberculosis among cattle, and in the county of Uppsala approximately 95%. With the control of tuberculosis among cattle in Sweden since 1941, there had been a sharp decrease in tuberculosis in people. E. G. Sita, Lumsden, Eng., said that only 0.02% of Danish cattle reacted to tuberculin. A. K. Kuttler, Washington, D.C., reported that testing of 8,847,228 cattle in the United States in 1951 resulted in 0.14% reactors to tuberculin. Of the 12,422 reactors slaughtered, the carcasses of only 87 (0.7%) were unfit for food.

Immunization.—R. J. Dubos, New York, studied specimens of BCG (Bacillus-Calmette Guérin), which was being dispensed from various laboratories in Europe and America, and found that they differed in many of their properties. This was particularly true of degree of virulence. Moreover, each specimen, instead of containing a single bacterial form, was found to be composed of mixtures of different bacterial forms which differed in their properties, particularly in their extent of multiplication in experimental animals.

Contrary to former belief, BCG is carried from the site of administration to internal organs and lymph nodes in a short time. C. Gernez-Rieux, France, administered BCG to guinea pigs by the scarification method. Organisms were regularly recovered from the skin lesions on the 41st day, and occasionally on the 79th day. Regional lymph nodes revealed bacilli on the 175th day. BCG were found in the spleen on the 11th day, showing that even by the scarification method the organisms promptly reach the internal organs. L. Ström, Sweden, found that, when administered intracutaneously, some bacilli reached the nearest lymph node 18 cm. distant in 3 minutes, and about half had arrived at this point in 10 minutes. A considerable number of persons developed significant tuberculous lesions after having received BCG. Z. Hlouskova, Czechoslovakia, reported 64 cases of lymphadenitis, seven erythema nodosum, three phlyctenular conjunctivitis, three with tuberculous changes in lungs and nine with tuberculous meningitis. Hedvall recorded 12 persons in whom tuberculosis was later demonstrated. J. Meunier reported 14 adolescents who by accident received 750 times the usual dose of BCG. All developed local ulcerations.

P. Hauduroy injected BCG into 29 normal hamsters. All died from tuberculosis within 12 months.

M I. Levine, New York, made a follow-up study of 1,165 adolescents, of whom 601 had received BCG in infancy. He found no evidence that this procedure is capable of preventing reinfection tuberculosis in adolescence. E. R. Levine, Chicago, strenuously opposed the use of any vaccine such as BCG among school children, since, he said, the hope of eliminating tuberculosis by vaccination is a vain one. The Council on Pharmacy and Chemistry of the American Medical association reported on the status of BCG and stated that the general use of BCG vaccine for all infants, children and tuberculin-negative persons in the U.S. did not appear to be warranted and should not be encouraged. D. T. Smith, president of the National Tuberculosis association, said, "Tuberculosis cannot be eliminated from the United States by BCG vaccination regardless of how efficiently it is applied. The only sure way to eliminate the disease is to practice what we have been preaching for the last 50 years. Every individual with active tuberculosis must be detected and isolated and treated until he is no longer infected."

Because of the possible dangers of introducing living tubercle bacilli into humans, the use of dead bacilli was further recommended. In Italy, Petragnani-Salvioli vaccine consisting of bacilli killed by formalin was used in some places. A. Milzer, Chicago, reported that ultra-violet-killed tubercle bacilli vaccine is superior to BCG vaccine as a prophylactic agent.

Mortality.—In many countries, including those engaged in World War II, the tuberculosis mortality rate had decreased remarkably. The United States had the lowest rate (22.2 per 100,000 in 1950) of any major nation, and it was estimated that it was less than 20 per 100,000 in 1951. In ten states the rate was less than 12. The lowest was 3.8 in Wyoming.

The use of new drugs to suppress the disease and chest surgery may be partially responsible for decreased mortality in many countries. It did not appear that immunization procedures played a significant role, inasmuch as mortality rates decreased as much, and in some instances more, in countries where they were not employed. (*See* also BACTERIOLOGY; EYE, DISEASES OF; VETERINARY MEDICINE; X-RAY AND RADIOLOGY.)

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Films of 1951.—*Healthy Lungs* (Coronet Films); *Rodney* (National Tuberculosis Association). (J. A. My.)

Tungsten: *see* Mineral and Metal Production and Prices.

Tunisia.

A French protectorate in North Africa, Tunisia is situated between Algeria (west) and Tripolitania (east). Area: 48,332 sq.mi. Pop.: (1946 census) 3,230,952; (1950 est.) 3,475,000. Arabs and Berbers constitute 87.6% of the population; they are Moslem and speak Arabic. In 1946 there were 239,249 Europeans, including 143,977 French citizens (many of them Italian-born) and 84,935 Italians. There were also 71,543 Jews. Chief towns (1946 census): Tunis (cap., 364,593, including 119,222 Europeans); Sfax (54,637); Bizerta (39,327); Sousse (36,566). Ruler: Bey Sidi Mohammed el-Amin; prime minister: Mohammed Shenik; French resident general: Louis Périllier.

History.—Structural changes in the protectorate had begun when the Shenik ministry, including Neo-Destour representatives, was formed in 1950; they were continued, in agreement with the French government, in 1951. On Feb. 8 a corpus of reforms was promulgated: the council of ministers was henceforth to be under the chairmanship of the prime minister instead of that of the resident general; the certificate of the secretary general would no longer be necessary for ministerial decisions; and a proportion of the administrative offices, varying from three-quarters to one-third according to classification, would be reserved for Tunisians.

In May there were clashes between students of the Zitouna mosque-university who supported the ultranationalist Old-Destour movement, and Neo-Destour elements. The bey made a speech expressing the hope that he would be able to give his people a constitution soon. The resident general, Louis Périllier, advised ministers that an atmosphere of trust was required before progress could be made and that municipal reform was the first concern.

French settlers made known their fear that Tunisian emancipation would end in the eviction of the French. On the other hand, the Neo-Destour leader Habib Bourguiba tried to stir world opinion and sharply criticized the slowness of French policy in various articles and speeches at Karachi, New York city and London. In Paris, in October and November, Shenik and three of his ministers began conversations with a view to further reforms. In December the French government proposed that a mixed commission should be set up in 1952 to study reforms. Political parties and trade unions protested against the delay and against Tunisian Frenchmen's taking part in the country's government.

Rehabilitation of roads, railways and harbours was nearly completed. Land bought back from Italians was distributed to war veterans. Boring for petroleum was continued south of Bizerta, at Cape Bon and in the region of Gabes.

Education.—Schools, primary and secondary, pupils (1950): Moslem 113,300, French 37,600, Jewish 14,400, other 9,980.

Finance.—Budget (1950 est.): balanced at 33,640,000,000 fr. Monetary unit: Tunisian franc = metropolitan franc. In 1951 the exchange rate was 350 fr. = U.S. $1.

Foreign Trade.—(1950) Imports 51,210,000,000 fr. (including 40,000,000,000 fr. from France); exports 37,529,000,000 fr. (including 16,380,000,000 fr. to France).

Transport and Communications.—(1950) Railways 2,174 km.; roads 14,000 km.; motor vehicles 21,500. Ships entered (all ports): 2,928. Aircraft landed: 5,325.

Industry.—Mineral production (1950, metric tons): phosphate rock 1,530,000; iron ore 757,000; lead ore 30,000. (Hu. De.)

Tunnels.

Hydroelectric power developments were the primary force behind world tunneling in 1951, with water supply and vehicular projects in secondary positions.

North America.—Acting quickly on a U.S.-Canadian treaty of 1950 making more Niagara river water available for power, Ontario started a tunnel under Niagara Falls, Ont. To carry water to a new power plant in the Niagara gorge, the tunnel was to be 5 mi. long and 40 ft. in finished diameter. These dimensions would make it one of the largest tunnels yet built. United States plans for Niagara water use were tied up in a public *v.* private power disagreement over sponsorship.

Also started in the continent's northern reaches was a 4.4-mi. diversion tunnel for the Eklutna hydroelectric project in Alaska.

At two big hydro and flood control dams on the Missouri river, 20 short large-bore power-water and discharge tunnels were completed: at Ft. Randall dam, S.D., there were 12; at Garrison dam in North Dakota there were 8.

For the Colorado-Big Thompson power and irrigation project, Bald mountain tunnel, 1.3 mi., was begun and holed through. Eight other tunnels were holed through. These included the 5.6-mi. Pole hill tunnel, which was bored in 75% of the allotted time. Another U.S. bureau of reclamation project, the 5.9-mi. Duchesne tunnel in Utah's Provo river project, continued, its driving aided by roof bolting. This technique, previously used in underground mining, involves driving long bolts into the surrounding rock. The bolts have large washers or perforated steel plates at the rock face and hold unstable rock in place much less expensively than do arch ribs and lagging. Driving proceeded on the 6.4-mi. Tecolote water tunnel in California. The longest (6 mi.) of Los Angeles' three Owens valley power-project tunnels was holed through, and work was finished on the other two. Total project length was 9½ mi. In Washington, work began on the Columbia basin project's 1.8-mi. West canal-Frenchman hill tunnel.

Still the most important water-supply tunnels in 1951 were the Neversink and East Delaware tunnels of New York city's Delaware river water-supply project. The former, 6 mi. long, was being lined during the year. Driving progressed on the latter, 25 mi. long, from two portals and two shafts. Work was substantially completed on the Baltimore, Md., 10-mi. Liberty road-Patapsco tunnel. In Mexico the Lerma water-supply system for Mexico City was put into use. The project included a 9-mi. tunnel.

Chicago's south side interceptor sewer tunnel, 13.4 mi., was completed and placed in operation.

Sunken-tube tunnels were important in the vehicular category. One, under the Elizabeth river at Norfolk, Va., was 80% complete at the year's end. On another, at Baytown, Tex., all tubes were in place but approaches were not fully under contract. In San Francisco, Calif., the Broadway vehicular tunnels neared completion. Railroad tunnels included that of the Baltimore and Ohio railroad near Clarksburg, W.Va., where old mine workings made driving difficult. Work was 70% complete at the end of 1951. On another railroad tunnel, a 7,000-ft. one at a copper mine in Utah, 805 ft. was driven in 27 days—an unusual rate for standard railroad-size bore.

South America.—The longest tunnel in South America was Peru's 8-mi. Moyopampa tunnel, completed in 1951. It was driven for an addition to the Lima hydroelectric system. In Venezuela, three highway tunnels between Caracas and the port of La Guaira were under way. The first, 1,445 ft., 4-lane, was holed through in 1951. In Rio de Janeiro, Brazil, a ¾-mi. vehicular tunnel between the Laranjeiras and Catumbi sections of the city was under way.

Europe.—In England work continued on four main tunnels of the Manchester water-supply project, the 10.2-mi. Bowland forest tunnel being completed in November. Haslingden and Walmersly tunnels, 11.3 mi. total, were driven half way and the 2.3-mi. Mare hill tunnel was started.

In Switzerland the Maggai valley hydroelectric project, requiring 45 mi. of tunnels, continued. Palagnedra tunnel—the project's southern portion—was completed in 1951. About 14 mi. of the remaining 22 mi. had been driven. Work, begun more than 20 years before, was resumed on Spain's Viella tunnel, last link for the Pyrenees highway from Port Bou on the Mediterranean to Fuenterrabia on the Atlantic.

Scandinavian tunnels were principally for power. In 1951 Norway had 15 tunnels totalling 250 mi. under construction. Both public and private power interests in Sweden had 13 hydroelectric tunnels totalling 18 mi. in length under way in 1951. The longest was at Tasan project, including a 4.2-mi. headrace tunnel and a 2.9-mi. discharge section.

Other Countries.—In Algeria a 6-mi. hydroelectric tunnel to serve an underground power plant on the Oued river neared completion. The Hex river tunnel (railroad) work in the Union of South Africa was suspended. (R. H. Ds.)

Turbojets and Turboprops: *see* AVIATION, CIVIL; JET PROPULSION.

Turkey. A republic in the southeastern Balkans and Asia Minor, Turkey is bounded west by the Aegean sea, northwest by Greece and Bulgaria, north by the Black sea, northeast by the U.S.S.R., east by Iran and south by Iraq, Syria and the Mediterranean. Area: 296,185 sq.mi. (including 9,256 sq.mi. in Europe). Pop.: (1945 census) 18,790,174; (1950 census) 20,934,670. According to the 1945 census, European Turkey had 1,496,612 inhabitants (165 per square mile) and Anatolia 17,293,563 (59 per square mile). Foreign-born Turkish citizens (1935 census): 962,159, including 367,801 in Greece, 227,464 in Bulgaria, 158,145 in Yugoslavia, 69,798 in the U.S.S.R. and 61,649 in Rumania. Language (1935 census): Turkish 86.8%, Kurdish 9.3%, Arabic 0.9%, Greek 0.7%, Circassian 0.6%, Armenian 0.4%, Georgian 0.5%, other 8%. Religion: Moslem 97.7%. Other religions (1935 census): Christian 226,167 (Greek Orthodox 125,046, Gregorian Armenian 44,526, Roman Catholic 32,155, Catholic Armenian 11,229, Protestant 8,486, other Christian 4,725); Jewish 78,730. Chief towns (1950 census): Ankara (cap., 286,781); Istanbul (1,018,468); Izmir (362,340); Adana (117,799); Bursa (100,007); Eskişehir (88,459). President of the republic, 1951: Celâl Bayar; prime minister, Adnan Menderes.

History.—The year saw the consolidation of the Democratic regime in Turkey, confidence in the government being clearly expressed in 17 by-elections held in September, in which the Democratic candidates were returned with large majorities. There were some changes in the cabinet, but no modification of policy. On March 29 a vote of confidence in the government was passed by 244 votes against 61.

Attempts to start a Communist movement were revealed. Nazim Hikmet, known as a left-wing poet and released from prison under the previous year's amnesty, fled to Moscow, whence he was sent to preach Stalinism among the Turks in Bulgaria. A considerable number of arrests were made.

The program of legislation in 1951 included a bill giving the right to strike, subject to clear safeguards. Another provided for the introduction of holidays with pay. It was estimated that this would cost the government £T1,676,000 a year and quasi-government interests £T20,000,000.

Foreign Relations.—The logical outcome of Turkey's adherence to the ideals of the western democracies was its invitation, at the Ottawa Session of the NATO council (Sept. 15–20), to join the North Atlantic Treaty organization. It led to a note of protest from Moscow (Nov. 3) which was accepted philosophically by the Turks who, in their reply ten days later stressed the purely defensive aims of the treaty, pointing out how it contrasted favourably with the military preparations of the Soviet Union which were themselves the cause of the North Atlantic treaty. On Oct. 12–15 Gen. Omar N. Bradley, chairman of the U.S. joint chiefs of staff, Field Marshal Sir William Slim, chief of the British imperial general staff, and Gen. Charles-François Lechères, chief of the French general staff, met in Ankara to discuss matters with the Turkish military authorities.

In opening the national assembly on Nov. 1 President Bayar stated that the Turkish government had decided to take common measures with the other powers concerned to organize the defense of the middle east. It was a logical sequence that Turkey was invited to send observers to the NATO council in Rome at the close of November.

With other Moslem countries Turkey remained on excellent terms in 1951. With Pakistan a pact of friendship was concluded. With Iraq and Iran relations were friendly, and with Afghanistan bonds were strengthened by the visit to Turkey of Shah Mahmud Khan, prime minister of that country. With Bulgaria, however, relations were strained. On Nov. 8 the frontier was closed when it was discovered that 126 of the immigrants being admitted into Turkey were bearers of forged visas.

(MA. B.)

Education.—Schools (1949–50): primary 17,029, teachers 34,036, pupils 1,625,499; secondary 383, teachers 4,063, pupils 69,226; lycées 88, teachers 1,837, pupils 21,945; farming and handicraft 21, teachers 667, pupils 12,439; professional 289, teachers 4,102, pupils 44,223; institutions of higher education 34 (including the universities of Istanbul and Ankara which had 874 teachers and 20,182 students in 1948–49), teaching staff 1,567, students 26,625. Illiteracy (1945): male 49.2%; female 77.5%.

Finance and Banking.—Budget: (1950 actual) revenue £T1,313,300,000, expenditure £T1,487,200,000; (1951 est.) revenue £T1,345,000,000, expenditure £T1,579,700,000. Currency circulation (Sept. 1951) £T1,158,000,000. Bank deposits (Dec. 1950) £T1,122,000,000. Gold and foreign exchange (Sept. 1951) U.S. $190,000,000. Monetary unit: Turkish pound or lira with an exchange rate of £T7.84 to the pound sterling and £T2.80 to the U.S. dollar.

Foreign Trade.—(1950): Imports £T800,400,000; exports £T738,000,000. Main sources of imports (1950): U.S. 24.5%; Germany 17.6%; U.K. 10.5%; France 5.0%. Main destinations of exports: Germany 21.2%; U.S. 16.9%; U.K. 14.0%; Italy 5.5%. Main imports: machines 23.1%; iron and steel 12.2%; petroleum products 7.3%; cereals and vegetables 7.2%. Main exports: cotton 26.5%; tobacco 23.2%; raisins 8.2%; hazelnuts, shelled 6.9%.

Transport and Communications.—Roads (1949): 13,530 mi., including 7,900 mi. all-weather roads. Licensed motor vehicles (Dec. 1950): cars 10,071; commercial 16,386. Railways (1949): 4,882 mi.; passenger-miles (1950) 1,350,000,000; freight net ton-miles (1950) 1,573,000,000; freight carried (1950) 7,332,000 metric tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 217; total tonnage 387,830. Air transport (Turkish state airways, 1947): flights 6,712; miles flown 1,188,109; passengers flown 78,844. Telephones (1949): subscribers 52,423. Radio receiving sets (1949): 250,000.

Agriculture.—Main crops (metric tons, 1950): wheat 3,872,000; barley 2,047,000; oats 316,000; maize 628,000; rye 443,000; potatoes 605,000; sugar, raw value 140,000; tobacco 85,000; cotton, ginned 146,000; grapes (1949) 1,681,000; olives (1949) 239,000; olive oil 45,000; linseed 28,000; cottonseed 192,000; sunflower seed 90,000; sesame seed 29,900; soya beans 2,000; dry beans 87,000; hemp fibre 7,700; oranges and tangerines 51,000. Wine production (1949): 170,000 hl. Livestock: cattle and buffaloes (Dec. 1950) 11,134,000; sheep (Dec. 1950) 22,128,000; horses (Dec. 1950) 1,140,000; camels (Dec. 1949) 105,000; mules (Dec. 1949) 103,000; asses (Dec. 1948) 1,711,000; goats (Dec. 1949) 17,323,000; turkeys (Dec. 1948) 1,145,000; chickens (Dec. 1950) 20,114,000. Wool, greasy basis, (1951) 34,000 metric tons. Meat (1949): total 80,000 metric tons, of which beef and veal 34,000.

Industry.—Fuel and power (1950): coal 4,356,000 metric tons; lignite 1,204,000 metric tons; crude oil 17,000 metric tons; electricity 790,000,000 kw.hr. Raw materials (metric tons, 1950): iron ore, metal content 221,000; pig iron 110,000; steel ingots and castings 91,200; copper smelter 11,800; chrome 400,000; manganese ore 23,200; antimony ore, metal content 454,000; salt (1948) 263,000; sulphur (1949) 3,100; boracite (1949) 7,100. Lumber, sawn wood, (1949 est.): softwood 308,000 cu.m., hardwood 154,000 cu.m. Manufactured goods (metric tons, 1950): cement 396,000; cotton yarn 30,200; wool yarn 7,440; paper and cardboard (1949) 19,200.

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Turkeys: *see* LIVESTOCK.

TVA: *see* TENNESSEE VALLEY AUTHORITY.

Twentieth Century Fund: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Uganda: *see* BRITISH EAST AFRICA.

Ulcer: *see* Stomach and Intestines, Diseases of.

Unemployment: *see* Census Data, U.S.; Employment.

Unemployment Insurance: *see* Social Security.

U.N.E.S.C.O. (United Nations Educational, Scientific and Cultural Organization): *see* Education; United Nations.

Union of American Republics: *see* Organization of American States.

Union of South Africa: *see* South Africa, The Union of.

Union of Soviet Socialist Republics.

The federation of soviet socialist republics is a Eurasian state covering parts of eastern Europe and northern and central Asia. Area: (before Sept. 17, 1939) 8,173,557 sq.mi.; (after Sept. 2, 1945) 8,598,678 sq.mi., including 1,969,110 sq.mi. (23%) in Europe. Pop.: (1939 census) 170,467,186; (1940 est.) 192,357,000; (1950 est.) 201,300,000, including about 138,000,000 (68.6%) in Europe. The U.S.S.R. occupies 14.8% of the world's total land area and is the world's largest state; with a population representing 8.3% of the world total it is, after China and India, the third most populated country. (*See* Table I.)

In 1939 the union consisted of 11 republics of which the Russian Soviet Federated Socialist republic was by far the largest, occupying 78% of the whole territory. The Ukrainian Soviet Socialist republic, second largest, covered only 2.1% of the total area. The U.S.S.R. is inhabited by more than 110 nationalities speaking different languages. In 1939 Russians constituted 58.2% of the population, Ukrainians 16.5%, Byelorussians 3.1%, Poles 0.5%, Bulgars 0.07% and Czechoslovaks 0.02%. None of the other nationalities, all non-Slavonic and most of them non-European, reached 3% of the total. The most important were the Turkish-speaking Uzbeks 2.85%, Tatars 2.5%, Kazakhs 1.82%, Azerbaijanis 1.34%, Turkmens 0.45% and Kighiz 0.45%; there were also Jews 1.78%, Georgians 1.32% and Armenians 1.27%.

Chief towns (pop., 1939 census): Moscow (cap., 4,137,016; 1950 est., 7,000,000); Leningrad (3,191,304); Kiev (846,293); Kharkov (833,432); Baku (809,347); Gorki (644,116); Odessa (604,223); Tashkent (585,005); Tiflis (519,175); Rostov-on-Don (510,253); Dnepropetrovsk (500,662). Eight towns had a population of more than 300,000, 20 had more than 200,000 and 43 had more than 100,000.

Chairman of the presidium of the supreme soviet of the U.S.S.R., Nikolai Mikhailovich Shvernik; chairman of the council of ministers, Joseph Vissarionovich Stalin (*q.v.*).

History.—In Europe, unremitting pressure was continued in 1951 to achieve German unity under a people's democracy; in the middle east support was given to nationalisms as the most expedient short-term policy; in the far east a new program for the national liberation of Japan under the aegis of its Communist party was made public. As well as inspiring a general international unrest, the soviet leaders gave encouragement to vicarious local aggressions in Korea, Indochina and Malaya.

A message from Pres. Harry S. Truman to N. M. Shvernik, chairman of the presidium of the supreme soviet, on July 6, transmitted a U.S. congressional resolution expressing regrets at the "artificial barriers" that separated the U.S. and soviet peoples and assuring the latter that the U.S. people had no desire for war against the Soviet Union. In his letter of reply to President Truman on Aug. 6, Shvernik sought to distinguish between the U.S. people, about whom the Kremlin had no

Table I.—*Union of Soviet Socialist Republics*

Republic	Capital	Area (sq. mi.)	Population (1940 est.)
Russian S.F.S.R.	Moscow	6,533,584	108,800,000*
Ukraine	Kiiv (Kiev)	222,625	40,525,000†
Byelorussia	Minsk	80,154	9,000,000
Uzbekistan	Tashkent	157,336	6,282,400
Kazakstan	Alma-Ata	1,063,242	6,146,000
Georgia	Tbilisi (Tiflis)	29,421	3,542,300
Azerbaijan	Baku	33,089	3,209,700
Lithuania	Vilnius (Wilno)	25,174	3,000,000‡
Moldavia	Chisinau (Kishynev)	13,050	2,700,000§
Latvia	Riga	24,903	1,950,000
Kirghizia	Frunze	76,023	1,459,300
Tadzhikistan	Stalinabad (Dyushambe)	55,058	1,485,100
Armenia	Erivan	11,506	1,281,600
Turkmenistan	Ashkhabad	187,181	1,252,000
Estonia	Tallinn (Reval)	17,413‖	1,117,300
Karelo-Finnish S.S.R.	Petrozavodsk	68,919	606,300§
		8,598,678	192,357,000

*According to the 1939 census the population of the Russian S.F.S.R. was 109,278,614. Its reduction was explained by the fact that the Karelian A.S.S.R. (469,145 inhabitants in 1939) formed with the areas ceded by Finland in 1940 a Karelo-Finnish S.S.R.

†Excluding the population of Subcarpathian Ruthenia (725,000), which was incorporated into the Ukrainian S.S.R. in 1945.

‡Excluding the population of the Klaipeda (Memel) territory which was incorporated with the Lithuanian S.S.R. in 1945.

§1941 official soviet estimate.

‖Official Estonian sources before 1940 gave the area of Estonia as 18,358 sq. mi.

Source: Areas and populations are taken from the *Bolshaya Sovietskaya Entsiklopedia: Soyuz Sovietskikh Sotsialisticheskikh Respublik* (Moscow, 1948). While all the areas are postwar, that is, including territorial aggrandizements in the west and east, population figures are in general those of the 1939 census, except for republics which were either increased by the 1939-45 annexations or formed after 1940. The order, as in the original, is according to the number of population.

MAP PURPORTING to show the location of soviet forced labour camps which was handed to Andrei Gromyko by Representative O. K. Armstrong of Missouri during a session of the Japanese peace treaty conference in San Francisco, Calif., Sept. 6, 1951. Gromyko discarded the map without examining it

"KIBITZER'S DELIGHT," a 1951 cartoon by Fischetti of NEA Service, Inc.

grounds for doubting that they did not want war, and certain forces who strove to unleash a new world war. He forwarded a long resolution of the presidium of the supreme soviet in which the responsibility for "artificial barriers" was laid at the door of the U.S. government. As a positive contribution to improvement of international relations, he proposed a peace pact between the United States, the U.S.S.R., Great Britain, France and Communist China, the limitation of armaments and the outlawing of atomic weapons.

On a complaint by Herbert Morrison, British foreign secretary, that declarations of British government spokesmen were not properly reported in the soviet press, *Pravda* offered to publish a statement by Morrison, and on Aug. 1 gave space both to an article signed by the British foreign secretary and a reply. Whereas Morrison expressed his sincere wish for co-operation between Great Britain and the U.S.S.R. in advancing peace and progress in the world, *Pravda* concluded that the soviet peoples were right in regarding present-day Anglo-American politicians as instigators of a new world war. Such a conclusion was consistent with the exchange of notes which took place between the British and soviet governments early in the year. On Jan. 20 the soviet government had accused Great Britain of having violated its obligations under the Anglo-Soviet treaty of May 26, 1942. On Feb. 17 the British government refuted this accusation.

Similar notes addressed by the soviet government to France on Jan. 20 and Sept. 11 accused the French government of fostering the restoration of a regular German army for purposes of aggression and undermining the basis and significance of the Franco-Soviet treaty of Dec. 10, 1944. France replied on Sept. 26 refuting soviet accusations and reaffirming "its determination to oppose any utilization of Germany as a base for aggression."

Table II.—*The All-Union Communist Party and the Government of the U.S.S.R.*

Members of the Key Bodies of the Central Committee*

Secretariat	Orgburo	Politburo	The Council of Ministers*
Secretary General	*Chairman*	*Chairman*	*Chairman*
J. V. Stalin (1922)	J. V. Stalin (1922)	J. V. Stalin (1917)	J. V. Stalin (1941)
Secretaries	*Members*	*Members*	*Deputy Chairmen*
G. M. Malenkov (1939)	G. M. Malenkov (1939)	G. M. Malenkov (1946)	G. M. Malenkov (1946)
	N. A. Bulganin (1948)	N. A. Bulganin (1949)	N. A. Bulganin (1938)
M. A. Suslov† (1948)	M. A. Suslov (1948)	V. M. Molotov (1925)	V. M. Molotov‡ (1941)
P. K. Ponomarenko (1949)	P. K. Ponomarenko (1949)	L. P. Beria (1946)	L. P. Beria (1946)
M. F. Shkiryatov (1949)	M. F. Shkiryatov (1949)	K. E. Voroshilov (1925)	K. E. Voroshilov (1946)
	V. V. Kuznetsov§ (1948)	A. I. Mikoyan (1935)	A. I. Mikoyan (1940)
	N. A. Mikhailov‖ (1939)	L. M. Kaganovich (1934)	L. M. Kaganovich (1940)
	V. M. Andrianov (1948)	A. A. Andreyev¶ (1932)	A. A. Andreyev (1946)
	N. N. Shatalin (1948)	A. N. Kosygin (1946)	A. N. Kosygin (1946)
N. S. Khrushchev (1949)		N. S. Khrushchev (1939)	M. Z. Saburov (1947)
		N. M. Shvernik (1947)	A. D. Krutikov (1949)
			V. A. Malyshev (1949)
			I. F. Tevosian (1949)
			M. G. Pervukhin (1950)

*Years of appointment in parentheses.

†Also chairman of the Agitprop (Board for Propaganda and Agitation) and director of the foreign secretariat providing a link with foreign Communist parties and supervising the activities of the Cominform.

‡Molotov was chairman of the Council of People's Commissars from 1930 to 1941.

§Also chairman of the V.Ts.S.P.S. (Vsesoyuzny Tsentralny Soviet Professionalnykh Soyuzov or All-Union Central Council of Trade Unions).

‖Also secretary general of the V.L.K.S.M. (Vsesoyuzny Leninsky Kommunistichesky Soyuz Molodezhi or All-Union Lenin League of Communist Youth).

¶Also chairman of the Party Control commission, with Shkiryatov as deputy chairman.

The Politburo-controlled World Peace council continued the propaganda activity initiated at the beginning of 1949. The council, reassembled in Berlin in Feb. 1951, appealed for a five-power pact and warned that refusal to join would be considered proof of aggressive intentions. By this means the Communist organizers sought to condemn in advance all who opposed Moscow's policies. According to *Izvestia,* the number of signatures to the Berlin appeal amounted by Nov. 15 to 562,083,383, including 117,669,320 signatures from the U.S.S.R. and from China 344,053,057.

In November A. Y. Vishinsky again submitted the peace proposals, at the U.N. general assembly in Paris. Western statesmen replied in effect that the creation of an undemocratic directorate of great powers made sense only as an attempt to by-pass the United Nations; the reduction of armaments alone was not enough to achieve real peace and no reduction was possible without revealing the existing levels of the armed forces of all major powers; to outlaw atomic weapons alone would be illusory, and, finally, that an effective system of international control was needed.

The Party and the Government.—During 1951 congresses were held by the Communist parties of the soviet republics of Armenia, Azerbaijan, Estonia, Kazakstan and Moldavia. As party congresses had already taken place in 10 other republics during 1949 and 1950, it was to be assumed that the preparatory work for the long-overdue 19th congress of the All-Union Communist party (of the Bolsheviks), required by statute to meet triennially, which it had not done since 1939, was nearing its end. No congress would be held in the Russian S.F.S.R. for there were no purely Russian central party organs.

Access to party membership having been somewhat eased during World War II, the All-Union Communist party had increased its following from 3,400,000 in 1940 to more than 6,300,000 in 1947. Since many who joined out of expedience were evidently not trusted, a general purge of party membership was started throughout the Soviet Union in 1948 and by 1951 had been almost completed. Although the combined party membership of the 15 republics outside of the Russian S.F.S.R. was no more than one-fifth of the total, compared with almost one-half of their combined population, the purge was particularly severe in those republics, where "nationalist deviation" was repeatedly rife.

Between congresses the central committee directs the party through three key bodies, the secretariat, the organizing bureau (Orgburo) and the political bureau (Politburo). By 1951 at least 24 out of 71 full members and 68 deputy members of the central committee elected by the 18th congress were dead and 34 had disappeared; study of the soviet press disclosed that 16 new members of the central committee had been co-opted since 1945. (*See* Table II.)

Of the deputy premiers, each responsible for a ministry or a group of ministries, nine were members of the Politburo. V. M. Molotov was undoubtedly the superior of A. Y. Vishinsky; N. A. Bulganin was in control of the war, navy and armaments ministries as well as of a special office of satellite armies. Chief of the ministries of internal affairs, state security and state control was L. P. Beria. Although G. M. Malenkov had no ministerial responsibility, he was the only man other than Stalin who was simultaneously deputy premier and a member of the three key party bodies. A. A. Andreyev continued to look after agriculture. A. I. Mikoyan controlled foreign trade and was believed to have charge of the Council for Mutual Economic Aid. Marshal Klementy Voroshilov succeeded Andrei A. Zhdanov as chief of cultural activities and the supervision of various technical ministries was divided among the remaining deputy premiers.

The Federal Republics.—During the year the citizens of the Soviet Union were called to the polls on Feb. 18 and 25, when elections took place of deputies to the supreme soviets of the 16 federal republics, and on Dec. 16 and 23, when members of republican, provincial and district tribunals were elected. At the so-called republican legislative elections the Russian S.F.S.R. elected 763 deputies (1 per 150,000 inhabitants), while in other republics the number of deputies varied from 120 (Karelo-Finnish S.S.R., 1 deputy per 5,000) to 412 (Uzbekistan, 1 deputy per 15,000). The members of the Politburo of the All-Union Communist party were, as usual, elected to the supreme soviet of every federal republic. About 60% of the deputies were high party functionaries, members of the respective central committees, or provincial, district and town party committee secretaries, together with the ministers of internal affairs and state security and their provincial representatives. During April the supreme soviets met in the respective capitals to elect their presidia, form the republican councils of ministers and adopt the budgets.

Moscow continued distrustful of native leaders in the federal republics and the key positions of ministers of internal affairs and state security remained everywhere in Russian hands. The secretariats of the national Communist parties were also under Russian control, although for propaganda purposes a man with a native name was often advertised as first secretary.

The Economic Position.—Selected for the first time to present the traditional annual report to the soviet people, at the 34th anniversary celebrations of the Communist revolution on Nov. 6, L. P. Beria stated that the output of both heavy and light industry had increased substantially. Production of coal and lignite had risen by about 24,000,000 metric tons, of crude oil by 4,500,000 tons, of electric power by 13,000,000,000 kw.hr., of pig iron by 2,700,000 tons and of crude steel by about 4,000,000 tons. Beria affirmed that the national economic plan for 1951 would be fulfilled and overfulfilled. Industrial output expressed in comparable prices, whatever that meant, would be 15% higher than in 1950 and double that of 1940. As some industrial production figures were published for 1950, it was possible to estimate approximate totals for 1951 (*see* below). Coal production, which in 1940 was 0.8 tons per head, rose to 1.4 tons. Steel output rose between 1940 and 1951 from 91 kg. to 158 kg.

While recording that further progress had been achieved in agriculture, Beria omitted to disclose the extent of the 1951 grain harvest, merely stating that the average annual grain crop for several years past had exceeded 114,600,000 tons. Since actual production in 1950 was published as 124,700,000 tons, or 2,300,000 tons less than the target fixed in the postwar five-year plan, these results were plainly unsatisfactory, and the deficit in grain production was the more serious in the light of Beria's revelations concerning vital statistics. Between 1940 and 1951 the death rate had been halved and infant mortality had been reduced even more, while for several years the annual population increase exceeded 3,000,000. According to these figures the population by the end of 1951 would be about 15,000,000 to 18,000,000 more than in 1940, but grain production was 5,000,000 tons less than in 1940 (*see* below).

In Beria's statement there was no reference to livestock progress in 1951, which was the last year of a special three-year plan for the development of animal husbandry, but from a report published by the Central Statistical administration on Jan. 27 it was known that by the end of 1950 the Soviet Union had fewer cattle than had pre-revolutionary Russia, and fewer pigs, sheep and horses than in 1938 in a smaller territory (*see* below).

On housing Beria stated that during 1951 about 27,000,000 sq.m. of floor living space were to be made available in towns and industrial settlements. Since, according to Bulganin, in the years 1946–50 more than 90,000,000 sq.m. of floor living space had been built or rebuilt in the towns, the total available was 117,000,000 sq.m. The housing situation thus remained grave, for to restore prewar conditions in the war-damaged areas alone it was necessary, according to N. A. Voznessensky, to build more than 60,000,000 sq.m. of housing floor space.

Transport apparently was the Achilles heel of the economic system. During 1951 rail goods traffic, said Beria, had increased by 11% which was almost equal to the annual total of goods carried by the railways of Great Britain and France combined. As the French and British railways in 1950 transported 75,100,000,000 ton-km., the percentage revealed by Beria would suggest that the total goods traffic on soviet railways approached 758,000,000,000 ton-km., but in the United States, whose area was about one-third of that of the Soviet Union, railway goods traffic amounted in 1950 to 859,224,000,000 ton-km.

There seemed small probability in 1951 of any early publication of a new five-year plan. As far back as Jan. 9, 1948, the presidium of the supreme soviet had decided to replace the State Planning commission, which had ministry status, by three committees attached to the council of ministers, namely, the State Planning committee, the Committee for Material and Technical Supplies and the Committee for Introducing Advanced Technology, the last of which was discontinued in March 1951. (*See* also ATOMIC ENERGY; COMMUNISM; RUSSIAN LITERATURE.)

Education.—Schools (1951): primary, secondary and lower technical 220,000, pupils 37,000,000, teachers 1,600,000; universities 31 and institutions of higher education 849, students 840,000 and 407,000 taking correspondence courses. In the Russian S.F.S.R. there were 119,000 primary and secondary schools with a total enrolment of 18,000,000 pupils and a teaching staff of 760,000.

Agriculture.—Main crops (million metric tons):

	1913	1938	1940	1950 Plan	1950 Actual	1951 Est.
Grain	80.1	90.0	119.0	127.0	124.7	114.6
Sugar beets	10.9	16.7	21.8	26.0	24.3	?
Potatoes	23.3	65.6	84.2	115.3	?	?
Cotton	0.7	2.7	2.7	3.1	3.8	?

Livestock (million head, including those on collective farms, state farms and privately owned):

	1913	1938	1940	1950 Plan	1950 Actual
Cattle	60.6	63.2	71.0	65.3	57.2
Pigs	20.9	30.6	36.1	31.2	24.1
Sheep and goats	121.2	102.5	108.5	121.5	99.0
Horses	35.8	17.5	20.6	15.5	13.7

Industry.—Heavy industry production (million metric tons, electricity in 000,000,000 kw.hr.):

	1913	1940	1945	1950 Plan	1950 Actual	1951 Est.
Coal and lignite	29.1	166.0	150.0	250.0	264.0	288.0
Crude petroleum	9.2	31.0	19.5	35.4	37.6	42.1
Electric power	1.9	48.2	45.0	82.0	86.7	104.0
Pig iron	4.2	14.9	8.8	19.5	19.2	21.9
Crude steel	4.2	18.3	12.4	25.4	27.6	31.6

Foreign Trade.—Statistical data of the foreign trade of the Soviet Union are not published. Some idea of soviet foreign trade in post-World War II years may be obtained from the statistical data of the 12 western European countries (Austria, Belgium-Luxembourg, Denmark, France, western Germany, Italy, Norway, the Netherlands, Sweden, Switzerland, Turkey and the United Kingdom; million U.S. $ at current prices, f.o.b.):

	1938	1948	1949	1950	1951 (est.)
Imports from the U.S.S.R..	265	223	120	138	224
Same, to the U.K. alone	119	105	47	86	129
Exports to the U.S.S.R..	174	113	140	110	87
Same, from the U.K. alone	55	21	32	32	13

Soviet-U.S. trade (at current prices, 1950): U.S. imports from the U.S.S.R. $40,000,000, exports to the U.S.S.R. $1,000,000.

Transport and Communications.—Railways (1950 est.): 112,530 km.; the railways accounted for 83% of all goods traffic and 90% of all passenger traffic. Shipping (1950): 437 ships totalling 1,824,000 deadweight tons.

Finance.—Budget (000,000,000 roubles):

	1928	1938	1940	1949	1950	1951
Revenue	8.8	127.5	180.2	436.9	422.1	458.7
Expenditure	8.7	124.0	174.4	412.3	412.7	451.5

The external value of the rouble, high and fictitious: U.S. $1 = 4 roubles.

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Unitarian Church.

The biennial general conference of the American Unitarian association was held in Montreal, Can., in Oct. 1951. The theme, "The Disciplines of Freedom," was introduced by the key speakers: E. C. Lindeman, of the New York School of Social Work; Hans Simons, president of the New School for Social Research; Rev. Henry H. Cheetham of London; and Georges Marchal of Paris, Fr. The conference was organized into groups and the new techniques of group dynamics enabled the 400 delegates to participate in the development of thought concerning the theme. The report of the Joint Commission on Federal Union with the Universalists was adopted and instructions were given to proceed with the development of plans. The conference nominated for the next moderator of the denomination Dexter Perkins, head of the history department of the University of Rochester, N.Y., and chairman of the Harvard Foundation for Advanced Study and Research.

During the year 3,884 new Unitarians joined the church, and 6 new churches and 18 new fellowships (memberships of less than 50) were added. Unitarian organizations were started in states where there had been none, such as Alabama and Mississippi. The Unitarian Service committee sent medical missions to Israel, Iran and Japan; a dental mission and institutes on public health planning and education and child care to Germany; and an engineering education mission to Japan. For three weeks in July the American Unitarian association was host to the Executive committee of the International Association for Liberal Christianity and Religious Freedom.

During the year, 17 new church schools, 26 new high school groups and 9 new college age groups were organized. The Women's alliance, which added 58 new groups, concentrated its social work on the problems of migrant workers and the implementing of the findings of the White House Conference on Youth. (*See* also CHURCH MEMBERSHIP.) (J. H. L.)

United Church of Canada.

The United Church of Canada, which in 1925 united the Presbyterian Church in Canada, the Methodist Church (Canada) and the Congregational Churches in Canada, reported for 1950 a membership of 821,199 with 1,965,300 persons under pastoral oversight, a Sunday school enrolment of 537,387 and 6,368 preaching places. The church owned property worth $143,911,196. The missionary and maintenance givings of the church in 1950 totalled $3,009,979, an advance over the previous year of $303,865.

Among the important events in the life of the United Church during 1951 were special campaigns of personal, congregational and mass evangelism, which resulted in 31,265 conversions; a high-level increase of candidates for the ministry; the sending of $45,000 for relief of churches in Europe and Asia; the resumption of negotiations on reunion with representatives of the Church of England in Canada; the raising of the minimum salary scale for married ministers to $2,600, with provision for travel grants and free use of furnished parsonage.

During 1951 the moderator, the Rt. Rev. C. M. Nicholson, visited the Canadian armed forces in Korea and some of the church's missionaries in Japan. (G. A. SI.)

United Kingdom: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

United Nations.

Tension between the western powers and those states within the soviet orbit continued during 1951 to impair the effectiveness of the U.N. as a global organization dedicated to the maintenance of international peace and security and to the solution of economic and social problems by methods of international co-operation. Nevertheless, the U.N. was successful in denying the fruits of aggression in Korea, in strengthening collective security and in further developing and applying a program of technical aid to underdeveloped countries. The year 1951 saw further demonstration of the usefulness of the U.N. as an instrumentality of international co-operation even in a divided world.

Membership and Representation.—There was no change in the membership of the U.N. during 1951. The following states were members: Afghanistan, Argentina, Australia, Belgium, Bolivia, Brazil, Burma, the Byelorussian Soviet Socialist Republic, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, the Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, Iceland, India, Indonesia, Iran, Iraq, Israel, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, the Republic of the Philippines, Poland, Saudi Arabia, Sweden, Syria, Thailand, Turkey, the Ukrainian Soviet Socialist Republic, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom, the United States of America, Uruguay, Venezuela, Yemen and Yugoslavia.

The question of the admission of new members continued to be a subject of discussion. The designation of Italy as administering authority for Somaliland raised the question of Italian membership in the U.N. On Dec. 7, the general assembly passed a resolution expressing the opinion that Italy should be a member of the Trusteeship council in order to be in the position to carry out its responsibilities under the trusteeship system and to that end recommending that the Security council act favourably on the Italian application for membership in the U.N. However, the soviet veto prevented the council from doing this. The soviet position continued to be that it would not support the application of states favoured by the western powers so long as they opposed applications supported by the Soviet

Union. The Japanese peace treaty, signed at San Francisco, Calif., on Sept. 8, envisaged the admission of Japan to the U.N., but this appeared a distant eventuality so long as the great power deadlock continued.

The question of representation of the republic of China in the organs of the U.N. continued to be a controversial issue during 1951. At the end of the fifth session of the general assembly on Nov. 5, the soviet delegation made an unsuccessful attempt to get a resolution adopted placing the question on the agenda of the sixth session. When the sixth session convened, this effort was repeated. The general assembly not only rejected the soviet proposal but also recommended that for the duration of the Paris session, the general assembly refuse further to consider the question. Obviously, the majority of members were influenced by the U.S. argument that the Central People's government should not be permitted to shoot its way into the U.N.

Organization and Meetings.—The fifth session of the general assembly continued until Nov. 5, 1951. It was the longest session in the history of the U.N. The length of the session resulted from the fact that it was considered desirable to have the First committee (political and security) continuously in session to deal with any new developments in the Korean situation and the general assembly itself to take action on any recommendations that the First committee might make. The First committee consequently assumed in practice one of the functions which the Interim committee, initially established in 1947, had been expected to perform.

The sixth session of the general assembly convened at the Palais de Chaillot in Paris, Fr., on Nov. 6. Luis Padilla Nervo of Mexico was elected president.

Following the customary opening general debate, the assembly adopted an agenda of 68 items on Nov. 13, and allocated them to the main committees for consideration. Among the more important substantive items included on the agenda were the following: the Korean question; the regulation of armaments; the report of the Collective Measures committee; Libya; Palestine; the treatment of people of Indian origin in the Union of South Africa; appointment of a commission to explore the possibilities of holding elections in eastern and western Germany; the draft International Covenant on Human Rights; the refugee problem in its various aspects; technical assistance and economic development; problems of nonself-governing territories and trusteeship; co-ordination of specialized agencies; and the 1952 budget. Inasmuch as the assembly convened so late in the year, it was anticipated that the sixth session would not conclude its main work until Feb. 1952.

The Security council during 1951 still suffered from the loss of prestige and effectiveness resulting from the continuing deadlock among its permanent members. In particular, it ceased to be the organ dealing with the complaint of aggression against the Republic of Korea, the issue having been removed from its agenda on Jan. 31 before the adoption of the general assembly resolution of Feb. 1. The membership of the council during the year included the five permanent members—China (represented by the nationalist government), France, the U.S.S.R., the U.S. and the United Kingdom—and by six nonpermanent members—Brazil, Ecuador, India, the Netherlands, Turkey and Yugoslavia. During its sixth session, the general assembly elected Chile, Pakistan and Greece to replace Ecuador, India and Yugoslavia for two-year terms ending Dec. 31, 1953. The election of Greece was preceded by a long and bitter debate and 18 inconclusive ballots in the general assembly. Many delegations felt that the U.S. sponsorship of Greece violated a gentleman's agreement dating from early 1946, according to which the eastern European countries were to have the right in effect to select one nonpermanent member of the council. Byelorussia was the candidate of this group of states and in the early voting had an advantage over Greece, supported by the U.S. On the 19th ballot, however, as the result of numerous delegation shifts, Greece received 39 votes as against 16 for Byelorussia, with 5 abstentions, and was declared elected.

U.N. TRUSTEESHIP COUNCIL members reviewing a petition in the Cameroons in 1951, as part of a regular program of supervising the progress of U.N. trust territories toward self-government or independence

The Economic and Social council held two sessions in 1951. The 12th session was held in Santiago, Chile, from Feb. 20 to March 21, 1951, while the 13th session met at Geneva, Switz., from July 30 to Sept. 21. Hernan Santa Cruz served as president of the council during both sessions. During 1951, the council's membership was as follows: with terms ending Dec. 31, 1951—Belgium, Chile, China, France, India and Peru; with terms ending Dec. 31, 1952—Canada, Czechoslovakia, Mexico, Iran, Pakistan and the U.S.; and with terms ending Dec. 31, 1953—the Philippines, Poland, Sweden, the U.S.S.R., the United Kingdom and Uruguay. During its sixth session, the general assembly elected the following to membership on the council for three-year terms ending Dec. 31, 1954—Argentina, Belgium, China, Cuba, Egypt and France.

At its 13th session in Geneva, the Economic and Social council gave special consideration to questions of organization and functioning in the light of six years of experience. The council decided to hold two sessions annually, the second to be opened before the annual session of the general assembly and to be resumed toward the end of the session or soon thereafter. It also decided to plan its basic program of work and calendar of conferences for each year in advance. It made some important changes in its subsidiary organization. It decided to continue its regional commissions indefinitely. One functional commission—economic employment and development—and a number of subcommissions it voted to discontinue. The following functional commissions it decided to retain, in most cases with less frequent meetings: human rights, narcotic drugs, statistical, fiscal, transport and communications, social, population, and status of women.

The Trusteeship council held two sessions during the year.

The eighth session met at Lake Success, N.Y., from Jan. 30 to March 16, 1951, and the ninth session met at Flushing Meadow, N.Y., from June 5 to July 30. Max Henriquez Urena of the Dominican Republic served as president during the eighth session while Sir Alan Burns of the United Kingdom occupied the president's chair during the summer session. The membership of the council was as follows: members administering trust territories—Australia, Belgium, France, New Zealand, the United Kingdom and the U.S.; members by virtue of their permanent seats on the Security council—China and the U.S.S.R.; and members elected by the general assembly—Argentina, the Dominican Republic, Iraq and Thailand.

The terms of five members of the International Court of Justice expired on Feb. 5, 1952, and one vacancy in the court was caused by the death of Judge José Philadelpho de Barros e Azevedo (Brazil) whose term of office normally would have expired in Feb. 1955. To fill the vacancy, the general assembly and the Security council, voting concurrently, elected Levi Fernandes Carneiro (Brazil). For terms of nine years beginning Feb. 5, 1952, the assembly and the council elected Sergei A. Golunsky (U.S.S.R.), Green H. Hackworth (U.S.), Helge Klaestad (Norway), Sir Benegal N. Rau (India) and E. C. Armand Ugon (Uruguay). During 1951, the court was asked by the United Kingdom to give a judgment in its dispute with Iran over oil rights. (*See* INTERNATIONAL LAW; IRAN.)

Administration and Finance.—During 1951 the internal organization of the secretariat did not undergo any radical change. On Sept. 24, Sec.-Gen. Trygve Lie announced the appointment of Guillaume Georges-Picot (France) as assistant secretary-general in charge of the department of social affairs, to succeed Henri Laugier, the appointment to take effect Oct. 22. On Aug. 25 and 30 the administrative tribunal announced decisions on appeals by staff members against termination of employment by the secretary-general. These decisions were significant in that they laid down the principle that the secretary-general's power, even with respect to staff members under temporary contracts, was subject to certain limitations in the interest of due process, including the right of appeal.

The transfer of the secretariat from Lake Success to the permanent headquarters in New York city was completed early in 1951. On March 28, a special postal agreement between the U.N. and the U.S. providing for the operation of a U.N. post office was signed; the first U.N. stamps were issued on Oct. 24. The U.N. field service, established in July 1950, developed to a force of 125 men representing 26 countries. Members of the field service served during 1951 in India, Pakistan, Korea, Israel, Lebanon, Eritrea, Libya, the former Italian Somaliland, the Balkans, Afghanistan and Japan, as well as at the U.N. Headquarters and in Geneva.

The secretary-general's budget estimates for 1952 called for total expenditures of $46,568,300, compared with total appropriations of $47,798,600, approved by the general assembly for 1951. The U.N. Advisory Committee on Administrative and Budgetary Questions proposed a reduction of $2,035,400 in the secretary-general's budget estimates, bringing them down to $44,532,900. The general assembly's Administrative and Budgetary committee recommended a budget of $48,096,780, which was approved by the general assembly on Dec. 21. The increase over both the secretary-general estimates and the recommendations of the advisory committee represented increased appropriations for investigations and commissions and the tentative provision of a cost-of-living increase for the U.N. staff.

The Committee on Contributions recommended to the general assembly changes in the assessments rates of 33 countries. It recommended an increase in the contribution of the Soviet Union from 6.98% to 9.85% and slight increases in the rates of other eastern European countries. It proposed the lowering of the U.S. contribution to 36.90%, a reduction of 2.02%. The recommendations of the committee were adopted by the general assembly after approval by its Administrative and Budgetary committee.

Political Problems.—Although the Korean question continued to dominate the political scene, the U.N. dealt with a number of other important questions during 1951, including Palestine, Kashmir, the Iranian oil dispute, the unification of eastern and western Germany, and disarmament.

Korea.—The Korean question remained the focal point of attention in U.N. action during 1951. On Dec. 14, 1950, the general assembly had appointed a cease-fire committee to explore the basis of a cease-fire in Korea. After several unsuccessful efforts, the committee reported on Jan. 3, 1951, that it had thus far failed in its mission. On Jan. 11, the committee submitted a set of basic principles to guide the U.N. in its further attempts to achieve some agreement with the Chinese Communist government, and these were adopted by the Political and Security committee of the general assembly on Jan. 13. These principles envisaged an immediate cease-fire, consideration of further steps for the restoration of peace, the withdrawal by stages of all non-Korean armed forces, the creation of appropriate interim arrangements for the administration of Korea and the establishment by the assembly of a body consisting of the People's Republic of China, the United Kingdom, the U.S.S.R. and the U.S. to achieve a settlement of far eastern problems. These principles were conveyed to Communist China, which rejected them, repeating its demands that political negotiations must precede a cease-fire and should be based on an agreement to withdraw all foreign forces from Korea. Furthermore, it repeated its demands that the People's Central government replace the nationalist government as the representative of China in the U.N., and it insisted that the negotiations cover the removal of the U.S. 7th fleet from the waters surrounding Formosa and other far eastern problems.

While some delegations thought this reply from Communist China offered the basis for further negotiation, other representatives, led by the U.S., insisted that the Peking government left no alternative to the U.N. other than labeling them as aggressors in Korea and applying sanctions. The U.S. delegation introduced a resolution to this effect which with minor modifications the general assembly approved on Feb. 1 by a vote of 44 to 7 with 9 abstentions, after its First committee had rejected a resolution, submitted by the Asian-Arab states, calling for a conference to seek further elucidation of the position of the Peking government.

The Feb. 1 resolution found that the People's Republic was guilty of aggression, called upon it to cease hostilities, affirmed the determination of the U.N. to continue military operations to restrain this aggression, called on all U.N. members to continue to assist U.N. action in Korea, set up an Additional Measures committee (membership of which was to include the members of the Collective Measures committee) to study ways and means of meeting the Chinese Communist aggression through the application of sanctions and proposed that the president of the assembly establish a Good Offices committee to continue the search for a peaceful solution of the Korean problem. This committee was further to explore the possibilities of peaceful settlement before the Additional Measures committee made any report.

The Good Offices committee was established, but met with no success, it being apparent that the Communists were committed to seeking a decisive military result. In May the Additional Measures committee reported that many U.N. members had already imposed embargoes on war material to Communist China, and it recommended that all other members do likewise. The general assembly on May 18 adopted these recommendations, called on each state to report to the Additional Measures committee on the measures it was taking to implement this resolution and requested that the committee continue to study ways of strengthening the measures being taken. Fifty-one members and 13 nonmembers replied to an inquiry from the committee as to measures taken. The overwhelming majority indicated their compliance or that the recommendations did not apply to them.

During the early months of 1951 the military situation in Korea substantially altered. By the end of February the U.N. forces had regained the offensive; they recaptured Seoul in March and in April crossed the 38th parallel in force. Communist offensives in late April were checked and proved very costly. It had become apparent, especially with the removal of Gen. Douglas MacArthur as U.N. commander on April 11, that the objectives of U.N. military operations were to drive the Communists back to the 38th parallel, to establish a strong military line and to make the Communists pay heavily for their aggression. Reflecting an apparent awareness of their inability to achieve a decisive result, reports in early June suggested that the Communists were prepared to consider a cease-fire. On June 23, the soviet delegate to the U.N., Jacob Malik, speaking on a U.N. radio program, stated that his government considered the time appropriate for initiating cease-fire talks. The U.N. commander, Gen. Matthew B. Ridgway, was instructed by the 16 members having troops in Korea to sound out the Communists on the possibility of cease-fire negotiations. In a broadcast to the commander-in-chief of the Communist forces in Korea on June 30, General Ridgway proposed that cease-fire negotiations be undertaken. The Communist authorities accepted the proposal. The negotiations got under way on July 10 at Kaesong, the delay being caused by a disagreement on the meeting place.

By the end of 1951, some progress had been made, but the negotiating teams still remained far apart on important issues. (For an account of the progress of the war and of the peace negotiations during 1951, *see* KOREAN WAR.) On Nov. 27, a cease-fire line was conditionally agreed upon, and a 30-day deadline was fixed for concluding an armistice. At the year's end, the negotiations were continuing, as was the lull on the battlefield, with a short extension of the Nov. 27 cease-fire agreement in effect.

Meanwhile, in Paris the general assembly awaited the outcome of the Korean talks before taking up the Korean question in committee. The assembly received the annual report of the U.N. Commission for the Unification and Rehabilitation of Korea, which was established by the assembly's fifth session in Oct. 1950. The commission's report asserted that the political objective of the U.N. must remain the establishment of a unified, independent and democratic Korea. (*See* also CHINA; KOREA.)

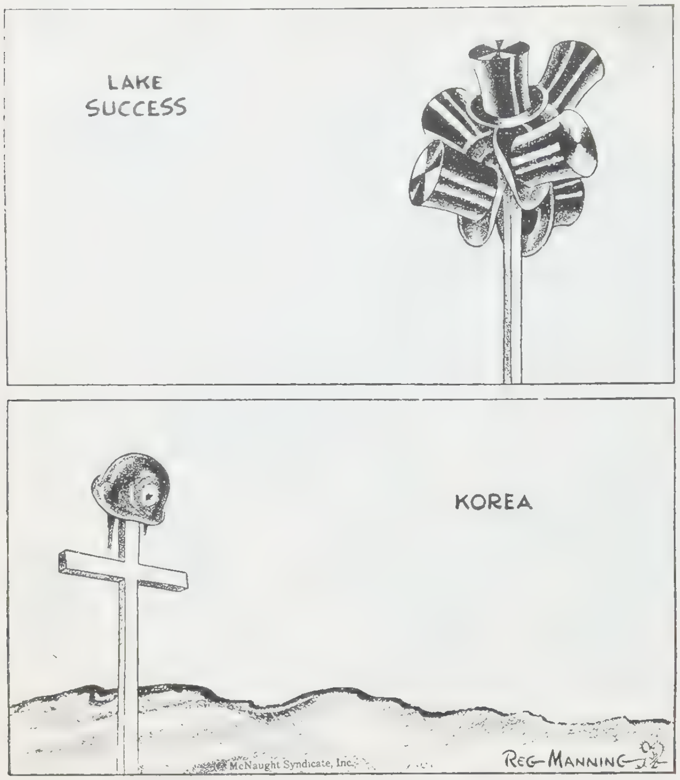
Palestine.—Although armistice agreements had been in force between Israel and the Arab states with the exception of Iraq since 1949, the Palestine situation remained unresolved. On two occasions during 1951 continuing tension gave rise to disputes requiring the intervention of the Security council. The U.N. Conciliation Commission for Palestine made no progress in its effort to find a permanent solution of the Palestine problem.

The first dispute involving Israel and Syria resulted from operations undertaken by the government of Israel to drain the Hula marshes and to straighten and deepen parts of the Jordan river included in the demilitarized zone. The Syrian government claimed that these operations, involving some displacement of Arab inhabitants, were in violation of the armistice agreement. The Israeli government complained that Syria had illegally resorted to the use of armed force. The complaints were brought before the Mixed Armistice commission and the Security council in April. The commission was instrumental in getting agreement on a cease-fire for May 4 which was not effective, however, in bringing fighting to an end. The council adopted two resolutions, May 8 and 18 respectively, calling for a cease-fire, respect for the terms of the armistice agreement and acceptance of the authority of the Mixed Armistice commission to settle disputes regarding the application of the agreement. The terms of the council's resolutions were accepted by the parties.

COMMITTEE MEMBERS of the International Labour organization joining Indians in a dance at the school of Warista in Bolivia. The I.L.O. committee was meeting there to confer on helping indigenous labour

The second dispute concerned Egypt's practice of imposing restrictions on ships going to Israel through the Suez Canal. Egypt claimed that it had the right to stop neutral shipping since it was technically at war with Israel, despite the fact that an armistice agreement had been signed between the two states. After a series of meetings in July and August, the Security council on Sept. 1, by a vote of 8 to 0 with 3 abstentions, adopted a resolution, introduced by France, the United Kingdom and the U.S., asserting that under international law Egypt's claim was not valid and calling upon Egypt immediately to terminate the restrictions. The Egyptian representative stated that his government reserved its rights.

The U.N. Conciliation Commission for Palestine continued its efforts to bring Israel and the Arab states—Egypt, Jordan, Lebanon, and Syria—into a peaceful agreement. Among the outstanding issues that remained unsettled were the refusal of Israel to repatriate more than a fraction of the many Arabs who were forced to vacate their homes in Palestine during the hostilities or to give them compensation, the status of Jerusalem and control over the Jordan river which caused trouble in the spring of 1951. The commission attempted, in a series of meetings held in Paris beginning Sept. 13, to bring Israel and the Arab states together on a series of proposals which the commission submitted. These efforts were thwarted, however, by the refusal of the Arab representative to meet with Israeli representatives and by irreconcilable differences between the Israeli and Arab positions. The Arab states refused to negotiate unless Israel promised to accept all of the Arab refugees, and the Israeli delegation likewise remained adamant in its position of



"HATS," the 1951 Pulitzer prize cartoon, drawn by Reg Manning of the McNaught Syndicate, Inc.

not being able to accept more than a few Arabs. On Nov. 21, the commission announced that it was terminating its conference. The situation remained deadlocked, and the general assembly had taken no further action at the end of the year. (*See* also EGYPT; ISRAEL; SYRIA.)

Kashmir.—For progress during 1951 toward a final solution of the Kashmir problem, *see* the articles INDIA; KASHMIR; PAKISTAN.

Anglo-Iranian Oil Question.—Following the nationalization of Anglo-Iranian Oil company properties by the Iranian government in April and early May, the United Kingdom instituted proceedings before the International Court of Justice on May 26 requesting a judgment in the case on its merits. On June 22, the United Kingdom asked the court to order provisional measures to preserve existing rights. The Iranian government denied the court's jurisdiction. On July 5, the court indicated certain provisional measures to be observed by both parties pending further consideration of the case. In view of Iran's disregard of the court's orders, the government of the United Kingdom brought the question before the Security council which decided on Oct. 1 to take up the complaint. Consideration of the complaint was postponed until Oct. 15 to permit Prime Minister Mohammed Mossadegh of Iran to arrive to state his government's position. In the interval British technicians were forced to leave Iran. The Iranian government contended that the matter was wholly within its domestic jurisdiction. After six meetings devoted to the discussion of the question, the Security council adjourned debate until the court had ruled on its own competence in the matter. (*See* also IRAN.)

Unification of Germany.—Early in the sixth session of the general assembly, the United Kingdom. France and the U.S. introduced a resolution in the Ad Hoc Political committee calling for the establishment of a commission to explore the possibility of holding elections in eastern and western Germany with a view to eventual unification. The Soviet Union objected, not only to the proposal, but also to summoning representatives from eastern and western Germany to Paris for testimony. Representatives from both German governments, however, presented their views, the Bonn group advocating the establishment of such a commission and the East German Democratic Republic arguing that this constituted unwarranted intervention in Germany's internal affairs. The general assembly adopted a resolution on Dec. 20, by a vote of 45 to 6 with 8 abstentions, calling for the establishment of such a body, and naming Brazil, Iceland, the Netherlands, Pakistan and Poland to be members of the commission. Poland stated that it would not serve on the commission, and eastern Germany announced that it would not permit the commission to investigate conditions there.

Regulation of Armaments.—Once again in the sixth session of the general assembly, this subject was in the forefront of attention. In its fifth session, the general assembly had decided on a new approach to the whole matter, by appointing a committee to study and report on the establishment of a new consolidated disarmament commission. Two days after the sixth session of the general assembly began, Secretary of State Dean Acheson (U.S.) invited a new approach to the question by submitting a proposal sponsored by the U.S., the United Kingdom and France. This proposal called for the disclosure and verification of existing armaments, the reduction of armaments by successive stages, agreement on criteria determining the size of armed forces, the acceptance of the U.N. plan for the control of atomic energy as a basis for further discussions and the concurrent consideration of political questions. The U.S.S.R. delegation rejected the three-power proposal and called for a world conference by June 1952 for the reduction of armaments and the prohibition of atomic bombs, with no apparent provision for effective inspection or control. Both of these proposals were embodied in draft resolutions submitted to the First committee. The committee established a subcommittee consisting of representatives of the United Kingdom, France, the U.S. and the U.S.S.R., together with the assembly president, Luis Padilla Nervo, to formulate proposals which would meet with general approval. The subcommittee on Dec. 10 reported agreement on the establishment of a new 12-member U.N. disarmament commission but complete disagreement on other elements of an acceptable disarmament plan. On Dec. 19, the First committee approved the three-power draft substantially as introduced. On Jan. 11, 1952, by a vote of 42 to 5 with 7 abstentions, the general assembly adopted the resolution.

The resolution called for the establishment of a disarmament commission (to replace the existing Atomic Energy and Conventional Armaments commissions) which was to be composed of the 11 members of the Security council, plus Canada. The new commission was directed to prepare proposals for regulation, limitation and balanced reduction of all armed forces and armaments, the elimination of major weapons of mass destruction and effective international control of atomic energy. Although the soviet bloc voted against the resolution, the U.S.S.R. announced that it would serve on the new commission.

The Balkans.—After four years of surveillance of Balkan affairs, the U.N. Special Committee on the Balkans was terminated by a general assembly vote of 48 to 5 on Dec. 7. It was replaced by a Balkan subcommission of the Peace Observation commission, established under the Uniting for Peace resolution of Nov. 3, 1950.

Economic and Social Co-operation.—In the field of economic and social well-being, U.N. operations during 1951 stressed technical assistance, human rights and aid to refugees and stateless persons.

Technical and Economic Assistance.—The U.N. program for technical assistance to underdeveloped states made considerable headway in 1951. The Technical Assistance administration was established as a branch of the U.N. secretariat. Some 252 agreements were signed with 45 governments providing for 741 experts and 551 fellowships to assist the underprivileged nations in their efforts to raise their standards of living and improve their basic industries and agriculture. Technical assistance programs approved varied from very short-range projects to broad changes in the basic economic foundation of the underdeveloped country. Of special significance was the agreement concluded with Bolivia by which Bolivia undertook to accept U.N. advisers in various departments of administration, their activities subject to co-ordination and supervision by a U.N. representative. The question of the continuation of the expanded technical assistance program was considered by the general assembly in its sixth session. Funds for the first year and a half had been raised on the basis of pledges made by governments participating in the Technical Assistance conference of 1950. Roughly $20,000,000 was initially pledged. The Second committee (economic) of the general assembly on Dec. 6, 1951, adopted recommendations to continue this method of financing the program for the future.

With respect to economic assistance to underdeveloped states, the Economic and Social council, as well as several of its commissions, undertook studies which recommended methods to facilitate the flow of capital to these countries. It was recognized that unless capital was channeled toward these countries and unless their financial structure achieved some element of stability, the over-all assistance program could not succeed. At the 13th session of the Economic and Social council, it was suggested that an international fund be established to supply grants and low-interest loans to underdeveloped countries, but the capital-exporting countries led by the U.S. insisted that these countries must first attempt to undertake basic economic and social reforms before substantial capital was directed to them. The council, in its recommendations to the general assembly, asserted that both capital-exporting and capital-importing countries should take concrete steps to facilitate the flow of money into the needy countries. In line with earlier discussions as well as the council's recommendations, the Second committee of the general assembly on Dec. 13 voted 28 to 20 with 9 abstentions to establish an international fund for economic development which would provide grants and loans. In the face of strong U.S. opposition, the proposal was approved by the general assembly, by a vote of 30 to 16 with 11 abstentions. The council on Jan. 12, 1952, was directed to prepare a program for the consideration of the assembly at its next session.

Human Rights.—By the end of 1951, very little progress could be reported in the attempted formulation of an International Covenant of Human Rights. The Human Rights commission's spring session in Geneva prepared a draft of economic, social and cultural rights to be included in the covenant though many states insisted that the covenant should contain only political rights. The Economic and Social council decided to request the sixth session of the general assembly to review the entire human rights program. The fifth session of the general assembly had established a 15-nation committee to construct a new draft of the Convention on Freedom of Information, first prepared in 1948. The committee early in 1951 prepared a new draft; the Economic and Social council, however, decided against convening a special conference to consider the draft prepared by the committee. Instead, it recommended that the assembly take no further action on the proposed convention for the present.

The question of the treatment by the Union of South Africa of nationals of Indian origin became more acute in 1951. The general assembly in its fifth session had recommended further negotiations between India and the South African government; however, in the middle of these negotiations, in Feb. 1951, the South African government enacted further legislation designed to segregate the South African Indians, and the Indian government withdrew from the talks. Furthermore, in March, the South African government reiterated its previous assertion that this matter was one within the domestic jurisdiction of their government and that it could not accept the assembly's resolution calling for further conferences. India placed this matter before the sixth session of the assembly.

The general assembly was asked to consider another difficult question when the Arab states requested it to consider their complaint that French actions in Morocco violated the U.N. charter and the Universal Declaration on Human Rights. Although the assembly by a close vote of 28 to 23 with 7 abstentions on Dec. 13 decided not to place the matter on its agenda, the debate concerning the issue was marked with unusual bitterness.

Refugees and Migration.—During 1951 the International Refugee organization (I.R.O.) was engaged in closing out its operations. Jan. 31, 1952, was the date set for the final termination of its activities. On Feb. 1, the Provisional Intergovernmental Committee for the Movement of Migrants from Europe was scheduled to take over a segment of the organization's responsibility. It was not anticipated, however, that the committee and the U.N. High Commission for Refugees—G. J. Van Heuven Goedhart took office Jan. 1, 1951—working together and with the full co-operation of governments would be able to do adequately what the I.R.O. had been able to achieve. As a further approach to the problem, a convention relating to the status of refugees was drafted in July which was designed to guarantee basic rights to refugees. It called on governments to facilitate the efforts of refugees either to repatriate themselves to their native lands or to settle in new areas.

The U.N. Korean Reconstruction agency, although better off financially, was confined to quite limited activity because of the protracted Korean conflict. The agency's director, J. Donald Kingsley, former director of the I.L.O., made some progress on long-range planning for Korean relief, and prepared to undertake extensive relief measures for Korean refugees once the military and political situation in Korea permitted such action.

Specialized Agencies.—An important part of the work during 1951 in the area of international economic and social cooperation was performed by the specialized agencies, international organizations set up on the basis of their own constitutions for specialized purposes and brought into relation with the U.N. by agreements concluded by the appropriate organs of the U.N. and the particular specialized organizations in question. During 1951 the following specialized agencies were in actual operation:

International Labour Organization (I.L.O.).—Headquarters in Geneva, Switz.; David A. Morse, director-general; 65 members. *See* separate article.

Food and Agriculture Organization (F.A.O.).—Headquarters in Rome, It.; Norris E. Dodd, director-general; 70 members. *See* AGRICULTURE. Notices of withdrawal were given by Hungary (effective Jan. 25, 1952) and China (effective July 20, 1952).

International Monetary Fund.—Headquarters in Washington, D.C.; Camille Gutt, managing director; 50 members. *See* separate article.

International Bank for Reconstruction and Development.—Headquarters in Washington, D.C.; Eugene R. Black, president; 50 members. *See* separate article.

International Civil Aviation Organization (I.C.A.O.).—Headquarters in Montreal, Que.; Edward Warner, president of the council; 57 members.

International Refugee Organization (I.R.O.).—Headquarters in Geneva, Switz.; J. Donald Kingsley, director-general; 18 members. Operations terminated Jan. 31, 1952. *See* REFUGEES.

United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.).—Headquarters in Paris, Fr.; Jaime Torres Bodet. director-general; 64 members.

World Health Organization (W.H.O.).—Headquarters in Geneva, Switz.; Brock Chisholm, director-general; 68 members plus one associate member (Southern Rhodesia).

International Telecommunications Union (I.T.U.).—Headquarters in Geneva, Switz.; Leon Mulatier, secretary-general; 85 members (including colonial areas).

Universal Postal Union (U.P.U.).—Headquarters in Berne, Switz.; Fritz Hess, director of the international bureau; 89 members (including colonial areas.)

World Meteorological Organization (W.M.O.).—Headquarters in Geneva (formerly Lausanne), Switz.; G. Swoboda, chief of the secretariat; 74 members.

The constitutions of two additional specialized agencies had been drafted and signed by the end of 1951 but had not entered into force by receiving the necessary ratifications. The convention establishing the Inter-Governmental Maritime Consultative organization (I.M.C.O.) had been ratified by eight states. Ratification by 21 states, including the principal maritime powers, was required. The constitution of the International Trade organization (I.T.O.) had not been ratified by any signatory. The Interim committee (52 members) continued to function.

Aid to Nonself-Governing Peoples.—The work of the U.N. in this expanding field of the organization's activities may be described under three main categories: (1) action taken under chapter xi of the charter to improve conditions in nonself-governing territories; (2) action taken in connection with the administration of the trusteeship system; and (3) action taken under other provisions of the charter or in the discharge of responsibilities conferred by separate international agreements.

The Special Committee on Information Transmitted under Article 73 (e) of the Charter, created by the general assembly to consider and report on information submitted to the secretary-general, placed particular emphasis during the year on economic development, raising nutritional levels and land reform. The committee also undertook a study of methods to improve its machinery, especially the standard form which guides the administering countries in preparing their reports. Much discussion centred around the possibility of requesting that political information be supplied to the U.N. by the administering authorities (the charter requires only that technical information be submitted) and also the possibility of bringing some nongovernmental organizations into the framework of assistance to the dependent territories. In regard to technical assistance to these territories, a notable achievement in 1951 was the signing of a basic agreement between the United Kingdom and the Technical Assistance board providing for U.N. technical assistance to the dependent territories under British administration. W. J. A. Kernkamp of the Netherlands was elected chairman of the special committee for 1951, and the main session of the committee was held in Geneva from Oct. 2 to Oct. 19.

The Trusteeship council, in its two sessions in 1951, considered reports from the administering authorities of Tanganyika, Western Samoa, Ruanda-Urundi, the Cameroons (English and French), Togoland (English and French), New Guinea, Nauru, Trust Territory of the Pacific Islands and Somaliland. It received petitions from the people in the trust territories and set up an Ad Hoc Committee on Petitions at its ninth session. The council recommended to administering authorities that they take steps to improve facilities for higher education in trust territories and that they make use of the expanded program for technical assistance of the U.N.

The council paid special attention to the structure, duration and effectiveness of its visiting missions. A visiting mission was sent to East Africa in Aug. 1951.

The council, in both of its 1951 sessions, continued to study and make recommendations on the Ewe question. The Ewe people, more than 800,000 in number, are West Africans and have common language, traditions and customs, but are divided into three administrative areas, the two trust territories of British Togoland and French Togoland, and the Gold Coast, a self-governing British dependency. A consultative commission was established in 1950 in an attempt to seek some agreement between the administering authorities and the Ewe peoples in regard to the Ewe demand for unification. Because of a dispute concerning the election of Ewe representatives from French Togoland, the Ewes refused further to participate in the commission. Therefore, in 1951 a joint council consisting of representatives from both Togolands was set up by the administering authorities, replacing the consultative commission. It was designed to establish closer relations between the two trust territories and to coordinate views on the eventual unification of the Ewe peoples. The Trusteeship council in its ninth session approved of the establishment of the joint council but suggested that it be broadened in scope to permit wider participation by the Ewe people.

On Dec. 24, 1951, the former Italian colony of Libya became the first dependent area to enter the ranks of statehood under the full auspices of the U.N., thus marking a successful attempt by the U.N. to facilitate independence among dependent territories. The U.N. recognized that Libya would continue to need technical and economic assistance, which Great Britain and France, the former administering authorities, had supplied in the past. The Economic and Social council considered this problem during its 13th session and passed a resolution to the effect that Libya should continue to receive aid under the U.N. Technical Assistance program after it became a state and before it achieved membership in the U.N. (*See* LIBYA.)

The two other former Italian colonies, Eritrea and Somaliland, remained under U.N. tutelage. A U.N. commissioner, Eduardo Anze Matienzo of Bolivia, assisted the United Kingdom as the administering authority in preparing Eritrea to become an autonomous unit federated with Ethiopia under the sovereignty of the Ethiopian king. Somaliland, designated to become an independent country in 1960, was under trusteeship with Italy as the administering authority and a U.N. advisory council assisting in guiding the territory toward independence. (*See* also EDUCATION; INTERNATIONAL LAW; PHILATELY; PRISONERS OF WAR; TRUST TERRITORIES.) (L. M. GH.)

United States.

Final figures of the 1950 census showed the population of the U.S. to be 150,697,361; it was estimated at 154,353,000 on July 1, 1951 (for full details *see* CENSUS DATA, U.S.).

The year 1951 opened in unusual uncertainty because of the tensions created by the international situation. On Dec. 16, 1950, Pres. Harry S. Truman had declared a national emergency and outlined the plans for placing the United States on a war footing. In Asia and in Europe the United States seemed at a point of vital decision in foreign policy.

Throughout 1951 events outside the United States, actions of foreign powers and the debates and decisions of the United Nations determined in large measure the actions, policies and declarations of the representatives of the United States. The foreign policies of the administration were revealed not only in declarations of the president but by actions of the military officers of the United States, by attitudes and interpretations of the state department, and by the debates and actions of the senate and house of representatives. In the public debates in press, on the platform and even the radio, outstanding public figures not in national office—in particular Herbert Hoover, Harold Stassen, Thomas E. Dewey and Gen. Douglas MacArthur—had a part in the development of public opinion on foreign affairs.

Debate on Foreign Policy.—Prior to the recall of General MacArthur, much of the debate in the United States had centred around aid to Europe. In his inaugural address as governor of New York, Dewey on Jan. 1 called for a ring of bases around the world. By mid-January the basic issues in the debate were clearly seen in the discussion in the senate on the question of sending additional U.S. troops to Europe. The solutions proposed were varied and conflicting. Much time was spent in discussing the constitutional power of the president (in use of troops) and the extent to which congress had been consulted on policies of the United Nations in Korea. On Feb. 9 Herbert Hoover re-entered the debate he had initiated in 1950, and in a radio broadcast outlined a ten-point program, including full recognition of Japan and Germany and an increase in air and naval power. Later in the month, in testifying before a congressional committee, he advocated a limitation upon sending of U.S. troops to Europe. The debate widened; Dewey asked that Greece and Turkey be included in the North Atlantic pact, and Representative Joseph W. Martin of Massachusetts, minority leader in the house, asked that forces of Chiang Kai-shek be permitted to open a second front against the Communists in China.

GEN. DOUGLAS MacARTHUR addressing a joint congressional session in Washington, D.C., April 19, 1951, after his return from Japan. Behind him are Vice-President Alben Barkley (left) and Speaker of the House Sam Rayburn

War in Korea.—Primary in the public interest was the state of the war in Korea. On the first of the year, the Communist forces launched a long-anticipated drive and with heavy casualties made such progress that the United Nations forces abandoned Seoul on Jan. 4. By Jan. 7 the enemy was 45 mi. S. of the 38th parallel. The drive continued with diminished force, and by Jan. 25 the United Nations forces had regained the initiative. The fighting with gains and losses for both sides continued for several weeks. On Feb. 13, after a visit to the front, General MacArthur stated that any talk of recrossing the 38th parallel was "purely academic." Three days later President Truman stated that General MacArthur had full discretion in crossing the 38th parallel "if military considerations dictate," but that he (the president) would discuss political questions with the United Nations.

Throughout the balance of February, the Communist forces were in retreat, and it was stated that their losses were "the bloodiest of modern times." By the end of the first week in March, General MacArthur stated that the battle lines "will soon reach a point of theoretical military stalemate" and that the United Nations could not win so long as the Chinese Communists could base their forces in Manchuria. The United Nations forces continued to advance, and Gen. Matthew B. Ridgway stated that should the war end with the United Nations at the 38th parallel "it would be a tremendous victory." On March 14 the United Nations forces entered Seoul, the enemy retreating without a fight. On March 24 General MacArthur issued a statement in Tokyo offering to confer in the field with leaders of the enemy on an armistice. On April 11 he was relieved of his command, and General Ridgway was named his successor. The advance of the United Nations forces continued. Although on May 16 the Communists launched a new offensive, it was quickly stopped, and the United Nations forces continued to advance in North Korea. From April 11 to June 25, the attention of the nation was fixed on the MacArthur hearings (*see* MACARTHUR INVESTIGATION), during which the outlook of the Korean conflict was not unfavourable to the United Nations forces. At this time the Korean war entered a new phase. From June 23 until the end of the year, the war in Korea was accompanied week by week by active discussions of termination of the strife. These discussions between representatives of the opposing forces began with a proposal by Jacob Malik, soviet spokesman in the United Nations, that both parties withdraw from the 38th parallel. On June 30 General Ridgway, on instruction of President Truman and upon recommendation of the national security council, broadcasted to "commander in chief of Communist forces" a proposal for a meeting to discuss an armistice. Negotiations began on July 10 at Kaesong, a town under Communist control. Two days later the talks were halted until the Communists might agree to neutralize Kaesong and admit United Nations correspondents to the town. By July 25 the agenda for discussion were completed, but on Aug. 5 the United Nations representatives broke off the talks for five days when Communist troops marched through Kaesong. On Aug. 23 the Communists broke off talks, charging that a United Nations plane had bombed their conference headquarters at Kaesong. On Oct. 25 after two months, the talks were resumed at Panmunjom, a village between the lines. By Nov. 27 a cease-fire line was settled and a 30-day deadline set for concluding an armistice. At this time a lull began on the battlefield. On Dec. 11 subcommittee talks on prisoners began, and a week later the Communists agreed to exchange prisoner lists. The deadline of the armistice, Dec. 27, yielded no progress in the armistice talks, the Communists indicating at this time that they might not supply some prisoner data that had been promised. (*See* also KOREAN WAR.)

America and War.—Naturally war as an instrument of national policy was the constant concern of the American people. Their eyes were fixed on Korea. By year's end U.S. casualties had exceeded 100,000. The steady flow of news as to the prospect of war in Europe gave much attention to the shipping of

"THE GREAT DEBATE," a cartoon by Pratt of the *Sacramento Bee* (Calif.), published in 1951

men and supplies to support the European allies. On June 19 President Truman signed a bill extending Selective Service to July 1, 1955, lowering the draft age to 18½ years, and lengthening service to two years. This was accepted as universal military service preliminary to the planned universal military training program. (*See* also SELECTIVE SERVICE, U.S.) A steady stream of rumors of soviet production of atom weapons increased public apprehension. Civil defense measures increased in importance and were pushed, particularly in some of the larger cities of the eastern United States. The constant possibility of the outbreak of war in the middle east, especially in Egypt and Iran, gave added weight to arguments for national protection.

Truman's Leadership.—The extent to which all domestic problems were embedded in the problems of international relations was evident in the utterances and actions of President Truman in the first six weeks of 1951. In the "state of the union" address on Jan. 8 he pointed out that the only realistic road to peace was to face the Soviet Union with force; the defense of Europe was the U.S. defense; and the Russians were fighting (in Korea) a civil war by proxy. Congress was to be asked for huge increases in taxes, the greatest portion of which was for military preparation (estimated at 69%). Universal military training was to be pushed. Four days later the president reported that cost of mobilization would probably be $140,000,000,000 by June 30, 1952. He later reiterated the need for an increased protection of civil rights of minorities.

It was apparent that the president would not have a party majority in support of his program. Although some emergency power had been granted him, the new congress (82nd) had, in the senate, elected Ernest W. McFarland (Dem., Ariz.) as leader, and in the house the southern Democrats, in coalition with Republicans, controlled the rules committee. But, as in the previous year, the president maintained his hold upon the party machinery in the house with a somewhat limited control in the senate. The final ratification of the 22nd amendment to the constitution in late February emphasized the possibility that President Truman would be a candidate for re-election, because he was definitely excluded from the operation of that two-term restriction.* He refused, however, to commit himself definitely. The lack of at least one powerful Democratic candidate, other than the president, was a striking feature of the Truman administration on the eve of the election year of 1952. The extent of southern revolt and the continuance of a southern protest vote were uncertain.

MacArthur's Leadership.—The U.S. public that had generally approved of Gen. Douglas MacArthur's regime in Japan from 1945 to 1950 became increasingly aware of his point of view on the far east as he continued to serve in 1951 as general in command of United Nations forces in Korea. Early in 1951 the utterances of General MacArthur were attracting unusual attention. In speaking of the formulation of a positive foreign policy, it was evident that he was speaking from the experience gained in five years as supreme commander in Japan. As the Korean war entered a new phase, his position not only on Korea but on Formosa became the subject of a violent attack. Recalled by President Truman on April 11, he appeared before congress and presented a program that had much to do with what had happened in the far east but was seen at once to be a program for the United States and Europe as well as Asia, and particularly for the United Nations. The wide acclaim with which he was received was an indication of the hold that he had upon the imagination of the people. His first speeches at receptions in various parts of the country were simply gracious thanks to his hosts, but beginning with his trip to Texas, followed by his appearance in Boston, Mass., in Cleveland, O., in Seattle, Wash., and before the American Legion at Miami, Fla., it was obvious that not only had General MacArthur a program in foreign affairs, but positive and definite views as to domestic problems involving the protection of free enterprise, limitations upon taxation, supremacy of the civil over the military. Nor did he overlook the increasing importance of the issue of corruption and graft in local, state and national government. His calls to the United States to resume its former place in the world and to give rebirth to the fundamental principles of the American heritage brought wide approval.

Treaty with Japan.—In Jan. 1951 John Foster Dulles was laying the groundwork for a treaty of peace with Japan. This preparation continued despite charges in the United Nations and elsewhere that it could not be carried to successful conclusion without the support of the U.S.S.R., which was not forthcoming, and without the inclusion of Communist China. After more than a year of negotiation among the powers other than Communist China, and the U.S.S.R. and its satellites, the United States took the lead in concluding a peace treaty with Japan, which was signed in San Francisco, Calif., on Sept. 8 by 49 nations, including Japan. (For text, *see* JAPANESE PEACE CONFERENCE.) A week before, the United States had signed defense pacts with Australia and New Zealand. On Sept. 8 also Japan and the United States agreed upon a bilateral security treaty which provided that U.S. troops could be stationed in Japan for an indefinite period.

Eisenhower's Leadership.—U.S. interest in Europe was symbolized by the leadership of Gen. Dwight D. Eisenhower. As supreme commander for the North Atlantic treaty nations he toured Europe early in the year and reported to the president and defense chiefs. In speaking to congress, he urged setting no limits on troops. Addressing the nation, he urged a wall of security against "Communist imperialism." Nevertheless, there was widespread disapproval of unlimited commitment of military aid to Europe. The concentration of national attention on the far east from April to August seemed to lessen the tensions prevalent in relations with Europe. These tensions were renewed in the autumn, partly as a result of the attempt by the Soviet Union to affect adversely the conclusion of the treaty of peace with Japan. The North Atlantic treaty nations met in Ottawa, Ont., in September and reiterated previous policies. General Eisenhower again visited the United States and reported to the president on his mission in Europe. Sharp national attention was given, late in the year, to the detainment of four United States fliers by the government of Hungary and the ransom demanded and paid. It was reported from London, late in December, that Great Britain would be associated with the proposed European army more closely than had been expected. Headquarters in the campaign to nominate General Eisenhower for president was opened in Washington, D.C., at this time, and speculation centred on the effect of developments in Europe upon the general's consent to become a candidate. (*See* also EUROPEAN RECOVERY PROGRAM; NORTH ATLANTIC TREATY ORGANIZATION.)

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*The text of the 22nd amendment is as follows:

"No person shall be elected to the office of the President more than twice, and no person who has held the office of President, or acted as President, for more than two years of a term to which some other person was elected President, shall be elected to the office of President more than once. But this Article shall not apply to any person holding the office of President when this Article was proposed by the Congress, and shall not prevent any person who may be holding the office of President, or acting as President, during the term within which this Article becomes operative, from holding the office of President or acting as President during the remainder of such term."

First Session of the 82nd Congress.—Congress met for ten months with both senate and house of representatives under nominal Democratic party control. Actual power rested quite often, however, in the hands of an informal coalition of Republicans and southern Democrats. In more normal times this control might have led to a spirit of economy in governmental expenditures. With an undeclared war being waged in Korea and the threat of a global conflict hanging over it, however, congress allotted vast sums to satisfy the special needs of critical times. National defense appropriations totalled $56,940,000,000, "mutual security" gained $7,329,000,000 and $4,146,000,000 went to military construction. Despite these enormous sums, congress allocated $1,715,000,000 to the Federal Security agency, $6,163,000,000 in an Independent Offices act and $2,341,000,000 to the postal service. Multimillion-dollar appropriations went to other branches of the government. When flood disaster hit the lower Missouri valley, congress promptly allotted a total of $78,000,000 for the relief and rehabilitation of those affected.

Congress was in no mood to debate older domestic issues at length in 1951. Little civil rights legislation emerged from committees, and such long-range planning bills as those for the St. Lawrence waterway and a Missouri valley authority remained buried. Sharp tax increases were voted on both individual and corporation incomes, and the series E bond program was continued. Numerous bills provided for the real—and sometimes exaggerated—needs of veterans, and three were passed over presidential vetoes. Statehood for Hawaii and Alaska failed to come to a vote in the senate. "Socialized" medicine made little real headway, and bills calling for medical scholarships, aid to state and local governments to develop public health units, assistance to rural libraries and unemployment insurance for federal employees were not acted upon.

Despite the headlines given the Kefauver committee's hearings on organized crime, and even the wide publicity given the MacArthur hearings, the vital work of the 82nd congress in 1951 in the long view was its attention to the obligations of the United States in the world. The war with Germany was officially terminated, the provisions of the Displaced Persons act were extended to Dec. 31 and 24 destroyer escorts were transferred to six different countries. The president's power to negotiate reciprocal trade agreements was extended. Fourteen congressmen were authorized to participate in "public discussion of common problems" with representatives of the Consultative assembly of Europe.

Internal Security.—Late in January President Truman named a national committee to deal with the increasingly important subject of internal security. This was the Commission on Internal Security and Individual Rights, composed of outstanding citizens and headed by Adm. Chester Nimitz. It was hoped that by this means there would be erected an effective correction to movements and committees (some of extralegal character) that were proposing to deal with problems of loyalty. The hopes were short-lived, and late in the fall the commission disbanded. One of the government committees that continued the activities was the subcommittee of the senate judiciary committee, headed by Sen. Patrick McCarran (Dem., Nev.). This committee was particularly concerned with Communist infiltration of the press, educational institutions and labour unions. It held hearings throughout the year and was actively engaged at the year's end.

The state department in mid-January was planning a "reinvigorated offensive" against international communism by calling a conference of leaders of American thought. Apparently this was dropped. The "Voice of America" was under constant attack in the course of the year. As in the previous year, Secretary of State Dean Acheson and several of his subordinates in the state department were the object of violent attack. The loyalty review board headed by Hiram Bingham received from the president a new interpretation of its function and was active in review cases previously cleared. One of these, the case of John S. Service, came to public attention in the closing weeks of the year, and review led to his dismissal from the state department.

On June 4 the supreme court had affirmed the conviction of

SPECTATORS watching the Nevada state senate voting to ratify the 22nd amendment, bringing the number of ratifying states to the three-quarters necessary to add an amendment to the U.S. constitution. U.S. presidents were thereby limited to two elected terms, except the incumbent Pres. Harry S. Truman

11 Communists, and upheld the constitutionality of the Smith act. Later in the month, 21 Communist leaders in New York city were indicted. (*See* also Communism.)

Labour.—February was a month of acrimonious controversy. Although there was no declaration of strike on the part of railway unions, there was a widespread epidemic of "sickness" among union men that affected 17 eastern railways, hit traffic hard in 20 eastern cities and led to the charge that such "unofficial" action by the workers was directly interfering with national security. Mails were tied up and the National Mediation board seemed unable to deal with the situation. As the epidemic spread, both A.F. of L. and C.I.O. officials shifted the discussions to the charge that labour had been ignored in planning defense programs. Negotiations continued, and there was general denunciation of the "strikes." President Truman finally directed that the army be used to restore normal train service. The "strike" was broken when it became clear that those who did not return to work would face dismissal. As an aftermath, the Brotherhood of Railroad Trainmen was adjudged in contempt of court and later in the month, having pleaded guilty, was fined $75,000.

The A.F. of L. and C.I.O. were no nearer organic union at the end of the year than at its beginning, especially since few important changes in leadership took place at the top. At a time of national defense conversion with its accompanying rising prices, union leaders insisted that their voices were not being heeded by those guiding the nation's economy. To ensure greater future influence in Washington, union leaders placed major emphasis on preparations to ensure the election of additional political friends in 1952. In December there was a threat of a strike among steelworkers. (*See* also Labour Unions; Railroads; Strikes.)

Elections and Politics.—The westward shift of population reported in the census returns of 1950 meant that the far west would gain eight votes in the electoral college. This new distribution would be apparent in the assignment of delegates in national conventions of 1952. President Truman in a special message to congress on Jan. 9 listed seven states that would

Table I.—*Major Legislation Passed by U.S. Congress in 1951*

Act	House Vote	Senate Vote	Date of Enactment
Servicemen's Indemnity Act of 1951 (Authorized payment of free indemnity of $10,000 to survivors of members of armed forces who died on and after June 27, 1950)	Passed by voice vote (April 13)	Passed by voice vote (April 13)	Signed April 25
Extension of veterans' benefits (Extended World War II veterans' medical, hospital, burial and survivors' pension benefits to those serving in armed forces on and after June 27, 1950)	Passed by voice vote (May 10)	Passed by voice vote (May 10)	Signed May 11
India Emergency Food Aid Act of 1951 (Authorized loan of $190,000,000 to India for purchase of food grains or equivalent in the U.S.)	256–82 Yeas: D. 145, R. 110, Ind. 1 Nays: D. 31, R. 51 (June 6)	Passed by voice vote (June 11)	Signed June 15
Trade Agreements Extension Act of 1951 (Extended authority of president to enter into new foreign trade agreements until June 12, 1953)	Passed by voice vote (June 5)	Passed by voice vote (May 29)	Signed June 16
Universal Military Training and Service Act of 1951 (Extended Selective Service to July 1, 1955, requiring registration of all males at age 18, lowering induction age from 19 to 18½ and extending service from 21 to 24 months; provided for National Security Training commission to prepare and submit universal military training program to congress)	339–41 Yeas: D. 191, R. 147, Ind. 1 Nays: D. 9, R. 32 (June 7)	Passed by voice vote (June 1)	Signed June 19
Defense Production Act Amendments of 1951 (Extended Defense Production Act of 1950 to June 30, 1952, continuation of price and credit controls being authorized in somewhat weakened form; extended federal rent control to June 30, 1952).	294–80 Yeas: D. 180, R. 113, Ind. 1 Nays: D. 18, R. 62 (July 30)	Passed by voice vote (July 27)	Signed July 31
Defense Housing and Community Facilities Services Act of 1951 (Provided funds to make more housing and other facilities available in critical defense areas; authorized more liberal terms for financing low-cost housing)	Passed by voice vote (Aug. 21)	Passed by voice vote (Aug. 20)	Signed Sept. 1
Mutual Security Act of 1951 (Authorized omnibus appropriation of $7,483,400,000 in U.S. economic, military and technical aid to foreign nations in period July 1, 1951–June 30, 1952; created Mutual Security agency to supervise economic aid)	235 98 Yeas: D. 158, R. 76, Ind. 1 Nays: D. 20, R. 78 (Oct. 5)	Passed by voice vote (Oct. 8)	Signed Oct. 10
Department of defense appropriation act, 1952 (Appropriated $56,937,808,030 for U.S. armed services in period July 1, 1951–June 30, 1952)	Passed by voice vote (Oct. 5)	Passed by voice vote (Oct. 12)	Signed Oct. 18
Revenue Act of 1951 (Provided for an additional $5,691,000,000 in revenue by raising corporate and personal income tax rates and some excise tax rates)	185–160 Yeas: D. 147, R. 37, Ind. 1 Nays: D. 34, R. 126 (Oct. 19)	Passed by voice vote (Oct. 18)	Signed Oct. 20
Federal employees' salary increase (Provided for salary increases for most federal employees other than postal workers)	317–26 Yeas: D. 173, R. 143, Ind. 1 Nays: D. 6, R. 20 (Oct. 19)	Passed by voice vote (Oct. 19)	Signed Oct. 24
Postal workers' salary increase (Provided for salary increases for postal workers).	339 7 Yeas: D. 179, R. 160 Nays: D. 4, R. 3 (Oct. 19)	Passed by voice vote (Oct. 19)	Signed Oct. 24
Termination of state of war with Germany (Terminated state of war with Germany)	378 0 Yeas: D. 209, R. 169 Present: R. 1 (July 27)	Passed by voice vote (Oct. 18)	Signed Oct. 19
Mutual Defense Assistance Control Act of 1951 (Provided for control of U.S. aid to nations shipping strategic materials to Communist countries)	Passed by voice vote (Oct. 11)	55–16 Yeas: D. 37, R. 18 Nays: D. 0, R. 16 (Aug. 28)	Signed Oct. 26
Readjustment of postal rates (Increased postal cards to 2 cents, second-class rates 10% annually for 3 years; increased rates for special services and some third-class rates)	Passed by voice vote (Oct. 19)	Passed by voice vote (Oct. 19)	Signed Oct. 30
Atomic Energy Act of 1946 amendment (Authorized Atomic Energy commission to exchange nonweapon atomic energy information with friendly foreign nations, upon approval by national security council and the president)	Passed by voice vote (Oct. 16)	Passed by voice vote (Oct. 11)	Signed Oct. 30
Railroad Retirement Act amendments of 1951 (Provided for 15% increase in retirement benefits and 33% increase in survivors benefits; added benefit for spouses of retired workers)	339 0 Yeas: D. 178, R. 160, Ind. 1 (Oct. 19)	Passed by voice vote (Oct. 19)	Signed Oct. 30

“A REALLY ‘GREAT DEBATE,’ ” cartoon by Loring published in the *Providence Evening Bulletin* (R.I.) in 1951

gain congressmen (California seven, Florida two, Maryland one, Michigan one, Texas one, Virginia one and Washington one) and nine states that would lose (Pennsylvania three, Missouri two, New York two, Oklahoma two, Arkansas one, Illinois one, Kentucky one, Mississippi one and Tennessee one). Action in redistricting had by year's end been taken by California, Maryland, Michigan, New York, Illinois and others.

There were slight Republican gains in the by-elections of 1951. As the year ended, 18 states were controlled by the Republican party, and an equal number by the Democratic party. The 12 states of divided party control were Minnesota, Washington, Connecticut, Nevada, Utah, Massachusetts, Delaware, Colorado, New York, Wyoming, Montana and Maryland.

Sen. Robert A. Taft of Ohio was the first to enter the presidential race as a 1952 Republican presidential candidate, followed by Gov. Earl Warren of California and Harold Stassen, formerly governor of Minnesota and currently president of the University of Pennsylvania.

Three lines of attack upon the administration of President Truman developed during 1951. In the field of domestic politics it was opposition to the tax program; in foreign affairs it was opposition to policies in Europe and in Asia. Overshadowing these as the year ended was widespread condemnation of corruption in government. For the time being, division of opinion on labour relations, on loyalty checks and upon military expenditures did not follow party lines. Senator Taft took the leadership in condemning administration foreign policies, as he had earlier—and still did—administration domestic policies. His denunciation of the president was continuous and increased after he formally entered his candidacy for the presidency.

General MacArthur, still maintaining that he was not a candidate for office, continued to speak in condemnation of the administration. He gave verbal support to the candidacy of Taft in an address in Cleveland, O., in September.

The position of President Truman, particularly when attacked for protection of suspected Communists or for harbouring in government men accused of graft and corruption, was to denounce those Republicans who, he said, sought to destroy the trust and confidence of the people in their government by spreading fear and slander and lies. The president lost to Sen. Paul Douglas of Illinois on the appointment of judges in that state without the senator's approval, and the attempted appointment of Gen. Mark W. Clark as ambassador to the Vatican at the end of the first session of the 82nd congress aroused widespread protest from Protestant groups.

Throughout the year, Secretary Acheson bore the brunt of particular attack upon the Truman administration. Sen. Owen Brewster of Maine on June 5 accused Acheson of barefaced distortion of facts. At no time did the president desert him; indeed, he repeatedly defended Acheson by upholding his opinions and choice of subordinates, including the interim appointment of Philip Jessup as a member of the United States delegation to the United Nations after the senate subcommittee had failed to recommend him. (*See* also Democratic Party; Elections, U.S.; Republican Party.)

Social and Economic Trends.—Employment of women reached the highest point in history, passing early in 1951 the peak of World War II years. On the whole, wages increased and employment continued at high levels, but the rise of the cost of living more than kept up and there were dislocations of employment, not only because of war production changes but also because of falling production of less essential items.

A program of production, price and wage controls was attempted by the administration in late Jan. 1951. An attempt was made to freeze prices and wages, but failed almost at once because of modification and readjustment. Price ceilings were placed on 200,000 consumer items. By mid-June President Truman was impelled to say that controls would be necessary for a period of years to prevent inflation, and he urged also a strong anti-inflation bill; but congress refused to act.

In agriculture, the problem of surplus had disappeared because of demands in both domestic and foreign markets. Despite restrictions and costs, the building of homes reached an all-time high; yet federal housing projects were considerably fewer than in 1950. The military training program added more than 1,000,000 men in 1951, bringing the total number under arms to about 3,500,000.

A nation-wide survey at the end of 1951 revealed that 12,000,000 persons, or one-thirteenth of the nation, were receiving monthly income payments through governmental sources other than salaries as federal employees. Four per cent of the population, or 5,500,000, were needy persons getting public assistance. Yet the government was helping fewer needy persons than ten years before, and was spending less money for each needy person, even in view of the decreased purchasing power of the dollar. For, although those receiving benefits under the federal old-age and survivors insurance program had increased by 1,000,000, the transfer of thousands of needy persons from public assistance supported by general revenue to the social insurances meant that each person thus assisted had contributed toward his benefits. (*See* Birth Statistics; Census Data, U.S.; Death Statistics; Immigration and Emigration; also articles on the various states.) (E. E. R.)

Foreign Credits of the U.S. Government.—The indebtedness of foreign countries to the U.S. government increased by $152,000,000 in the 12 months ended Sept. 30, 1951. This raised the amount outstanding as a result of U.S. government lending programs since the creation of the Export-Import Bank of Washington (in 1934) to $10,126,000,000. Disbursements on loans and utilizations of other credits aggregated $432,000.000 in the 12-month period, while repayments of principal were $280,000,000. The net credit utilization was more than in the preceding 12 months since gross utilizations were slightly higher and repayments less than in the year ended Sept. 30, 1950. Foreign-credit utilizations over these two years had diminished considerably from the rates existing from V-J day through the first year of the European Recovery program, when the greater part of the indebtedness accumulated.

In proportion to gross foreign aid (grants and credits combined), credit aid declined to one-twelfth of the gross aid of $5,117,000,000 in the 12-month period. The transition from economic aid to military aid abroad, stimulated by the events

Table II.—*Foreign Credits of the U.S. Government—by Agency and by Country, Sept. 30, 1951*

	Total	Outstanding	Unutilized commitments
Total	*$11,124,975,818	$10,126,342,463	*$998,633,355
By agency:			
Commerce department: maritime administration (merchant ships)	160,587,489	160,587,489	
Defense department: army department (surplus property)	20,000,000	20,000,000	
Economic Cooperation administration:			
Through Export-Import bank	1,368,073,011	1,169,811,139	198,261,872
European recovery	1,132,241,000	1,112,931,496	19,309,504
Indian loan	190,000,000	42,258,090	147,741,910
Spanish loan	45,832,011	14,621,553	31,210,458
Deficiency-material projects (European recovery)	99,462,243	31,396,639	68,065,604
Dollar funds	19,462,820	12,955,527	6,507,293
Counterpart funds	79,999,423	18,441,112	61,558,311
Export-Import bank (including agent bank loans)	3,038,933,893	2,318,895,559	720,038,334
General Services administration (surplus property)	15,522,906	15,522,906	
Reconstruction Finance corporation (loans)	66,247,920	66,247,920	
State department:			
Institute of Inter-American Affairs	8,186	8,186	
United Nations headquarters loan	64,000,000	54,568,825	9,431,175
Treasury department:			
British loan	3,750,000,000	3,750,000,000	
Lend-lease current credits	50,133,325	47,367,647	2,765,678
Lend-lease silver	291,215,173	291,215,173	
Credit-agreement offsets to grants	1,218,954,622	1,218,954,622	
Surplus property	950,337,050	950,266,358	70,692
Philippine funding	31,500,000	31,500,000	
By country:			
American republics	866,639,091	497,691,416	368,947,675
Argentina	130,143,349	90,573,727	39,569,622
Bolivia	35,078,216	28,606,330	6,471,886
Brazil	172,968,293	109,484,953	63,483,340
Chile	101,003,471	85,403,471	15,600,000
Colombia	37,282,932	29,139,523	8,143,409
Costa Rica	6,396,843	6,396,843	
Cuba	12,000,000		12,000,000
Dominican Republic	4,172	4,172	
Ecuador	25,855,081	13,982,179	11,872,902
El Salvador	752,843	752,843	
Haiti	18,125,001	4,125,001	14,000,000
Mexico	231,537,153	69,793,290	161,743,863
Nicaragua	1,322,500	722,500	600,000
Panamá	4,000,000	2,500,000	1,500,000
Paraguay	2,459,905	2,459,905	
Peru	25,160,797	3,710,797	21,450,000
Uruguay	16,715,292	14,161,120	2,554,172
Venezuela	10,574,425	4,891,211	5,683,214
Unclassified	35,258,818	30,983,551	4,275,267
Afghanistan	21,000,000	9,800,000	11,200,000
Austria	19,068,381	19,068,381	
Belgium—Luxembourg and possessions	183,239,500	166,926,018	16,313,482
Belgium	178,539,500	162,580,961	15,958,539
Luxembourg	3,000,000	3,000,000	
Belgian Congo	1,700,000	1,345,057	354,943
Commonwealth of Nations	5,218,526,847	5,005,940,303	212,586,544
United Kingdom	4,752,903,232	4,752,903,232	
Australia	14,306,013	14,306,013	
British East Africa	112,000	98,000	14,000
British Guiana	133,000	67,464	65,536
Canada	10,082,613	7,807,613	2,275,000
India	361,503,467	213,761,557	147,741,910
Jamaica	17,302,864	12,501,166	4,801,698
New Zealand	3,856,929	3,856,929	
Northern Rhodesia	8,400,000		8,400,000
Southern Rhodesia	14,498,400	210,000	14,288,400
Union of South Africa	35,428,329	428,329	35,000,000
Burma	4,168,537	4,168,537	
China—Formosa	160,688,144	160,688,144	
Czechoslovakia	5,109,899	5,109,899	
Denmark	51,896,792	51,896,792	
Egypt	7,250,000	7,250,000	
Ethiopia	5,396,572	5,396,572	
Finland	116,844,530	116,844,530	
France and possessions	2,021,446,626	2,011,178,291	10,268,335
France	2,000,906,625	2,000,906,625	
French Equatorial Africa	9,320,858	2,507,902	6,812,956
French Morocco	9,100,000	7,028,539	2,071,461
New Caledonia	2,119,143	735,225	1,383,918
Germany	122,805,975	68,225,737	54,580,238
Greece	97,611,254	97,099,196	512,058
Hungary	13,961,830	13,961,830	
Iceland	4,388,483	4,388,483	
Iran	48,093,681	23,022,989	25,070,692
Ireland	128,200,000	128,200,000	
Israel	135,000,000	78,532,361	56,467,639
Italy	335,221,254	333,568,622	1,652,632
Japan	11,391,679	11,391,679	
Korea	20,950,020	20,950,020	
Lebanon	560,345	560,345	
Liberia	31,655,592	22,539,914	9,115,678
Netherlands—Indonesia	572,246,077	472,246,077	100,000,000
Netherlands	411,039,822	411,039,822	
Indonesia	161,206,255	61,206,255	100,000,000
Norway	119,892,591	95,627,591	24,265,000
Philippines	96,651,627	96,651,627	
Poland	78,821,171	78,821,171	
Portugal and possessions	30,492,352	27,167,304	3,325,048
Portugal	30,460,847	27,135,799	3,325,048
Angola	31,505	31,505	
Saudi Arabia	41,158,130	26,158,130	15,000,000
Spain	45,832,011	14,621,553	31,210,458
Sweden	21,649,910	21,649,910	
Thailand	5,364,847	4,293,507	1,071,340
Turkey	101,545,507	97,066,560	4,478,947
U.S.S.R.	222,533,528	222,533,528	
Yugoslavia	55,260,635	50,536,621	4,724,014
International organization:			
United Nations	64,000,000	54,568,825	9,431,175
Unclassified areas (Europe—special cotton credits)	38,412,400		38,412,400

*Does not include amounts authorized by legislation but not committed by the agency:

Total	$633,734,000
Army department	150,000,000
Economic Cooperation administration (Spanish loan)	16,668,000
Export-Import bank	467,066,000

Source: Clearing Office for Foreign Transactions, Department of Commerce.

in Korea during this period, was accompanied by a greater emphasis on grant aid rather than on loans and other credits. Furthermore, it was recognized that, in several instances, a virtual limit had been reached as to the amount which could be loaned to foreign countries with a reasonable expectation of repayment. (E. S. K.)

Education.—*See* the articles Education; Universities and Colleges.

Defense.—For information about the armed forces of the United States in 1951, *see* Armies of the World; Aviation, Military; Coast Guard, U.S.; Marine Corps, U.S.; National Guard; Navies of the World; Selective Service, U.S.

Foreign Trade.—*See* the articles Business Review; Export-Import Bank of Washington; International Bank for Reconstruction and Development; International Monetary Fund; International Trade; Tariffs.

Communications.—For statistics, *see* the articles Aviation, Civil; Canals and Inland Waterways; Electric Transportation; Motor Transportation; Post Office; Radio; Railroads; Roads and Highways; Shipbuilding; Shipping, Merchant Marine; Telegraphy; Telephone; Television.

Agriculture.—Statistical material pertaining to this subject may be found under Agriculture; also in separate articles on the principal crops and agricultural products.

Mineral Production.—*See* separate articles on the principal minerals; also Mineral and Metal Production and Prices. (X.)

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United States Government Departments and Bureaus: *see* GOVERNMENT DEPARTMENTS AND BUREAUS, U.S. Also *see* under specific name, *e.g.* COAST GUARD, U.S., etc.

United States Investments Abroad: *see* FOREIGN INVESTMENTS.

United States Junior Chamber of Commerce: *see* SOCIETIES AND ASSOCIATIONS, U.S.

United States Mint: *see* COINAGE.

Universal Military Training: *see* LAW.

Universities and Colleges. The following nine pages carry a selected list of accredited schools of college and junior college grade in the U.S. and Canada, with certain information for the academic year 1951–52.

The symbol * denotes 1950–51 data; † denotes data previous to 1950–51. (*See* also EDUCATION.)

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
A							
Acadia University, Wolfville, N.S., Can.	1838	Watson Kirkconnell	486	508	59	$1,248,644	90,000
Adams State Col., Alamosa, Colo.	1921	N. W. Newsom	375	488	36	—	29,900
Adelphi College, Garden City, N. Y.	1896	Paul D. Eddy	1,804	2,604	127	869,901	58,737
Agnes Scott College, Decatur, Ga.	1889	Wallace M. Alston	449	458	58	2,838,467	61,000
Akron, University of, Akron, Ohio	1870	Norman P. Auburn	1,831	3,673	207	157,353	85,694
Alabama, University of, University, Ala.	1831	John M. Gallalee	6,150	6,250	700	7,000,000	350,000
Alabama A. and M. College, Normal, Ala.	1875	Joseph F. Drake	963	963	67	—	20,650
Alabama College, Montevallo, Ala.	1896	John T. Caldwell	651	660	69	669,605	59,500
Alabama Polytechnic Inst., Auburn, Ala.	1872	Ralph B. Draughon	5,424	5,748	453	872,000	165,000
Alabama State Tch. Col., Florence, Ala.	1873	Ethelbert B. Norton	990	1,047	70	—	44,977
Alabama State Tch. Col., Jacksonville, Ala.	1883	Houston Cole	901	1,190	60	—	35,000
Alabama State Tch. Col., Livingston, Ala.	1835	W. W. Hill	550	868	36	—	30,000
†Alabama State Tch. Col., Montgomery, Ala.	1874	H. Councill Trenholm	—	1,935	78	—	14,472
Alabama State Tch. Col., Troy, Ala.	1887	C. B. Smith	668	918	46	—	34,768
Alaska, University of, College, Alaska	1917	Terris Moore	220	277	54	12,600	29,000
Albany State College, Albany, Ga.	1903	Aaron Brown	528	827	43	—	16,629
Alberta, Univ. of, Edmonton, Alta., Can.	1906	Andrew Stewart	3,215	3,349	395	910,405	136,600
Albertus Magnus Col., New Haven, Conn.	1925	Sister M. Coralita	220	228	30	11,204	28,000
Albion College, Albion, Mich.	1835	W. W. Whitehouse	1,005	1,010	75	4,831,650	75,978
Albright College, Reading, Pa.	1856	Harry V. Masters	546	571	44	713,718	35,000
Alcorn A. and M. College, Alcorn, Miss.	1871	J. R. Otis	556	686	54	209,871	18,821
Alfred University, Alfred, N.Y.	1836	M. Ellis Drake	866	1,051	82	1,114,309	72,375
Allegheny College, Meadville, Pa.	1815	Louis T. Benezet	995	1,024	77	2,440,000	121,000
Allen University, Columbia, S.C	1870	Samuel R. Higgins	593	593	35	—	16,000
Alliance Col., Cambridge Springs, Pa.	1912	Arthur P. Coleman	157	157	20	5,000,000	21,000
Alma College, Alma, Mich.	1886	John Stanley Harker	440	446	32	619,565	55,323
Alverno College, Milwaukee, Wis.	1936	Sister M. Augustine	259	498	45	—	26,618
Amarillo College (Jr.), Amarillo, Tex.	1929	A. M. Meyer	—	945	42	—	14,066
American Int. Col., Springfield, Mass.	1885	Spencer Miller, Jr.	803	1,339	60	200,000	30,000
American University, Washington, D.C.	1893	James J. Robbins	698	4,681	237	911,566	141,677
Amherst College, Amherst, Mass.	1825	Charles W. Cole	1,047	1,063	103	16,716,185	283,460
Anderson College and Theological Seminary, Anderson, Ind.	1917	John A. Morrison	631	736	46	$36,065	22,000
Andrew College (Jr.), Cuthbert, Ga.	1854	Albert W. Ray	53	69	10	192,291	7,566
Antelope Valley Jr. Col., Lancaster, Calif.	1929	Walter Dingus	112	130	18	—	10,000
Antioch College, Yellow Springs, Ohio	1852	Douglas McGregor	1,014	—	78	2,738,000	77,777
Appalachian State Tch. Col., Boone, N.C.	1903	B. B. Dougherty	1,088	1,197	74	—	49,805
Aquinas College, Grand Rapids, Mich	1923	Arthur F. Bukowski	333	451	35	1,415,000	22,000
Arizona, University of, Tucson, Ariz.	1885	Richard A. Harvill	4,800	5,108	350	—	230,000
Arizona State Col., Flagstaff, Ariz.	1899	Lacey A. Eastburn	486	512	46	—	39,410
Arizona State Col., Tempe, Ariz.	1885	Grady Gammage	3,807	4,443	169	—	125,631
Arkansas, University of, Fayetteville, Ark.	1871	Lewis W. Jones	3,756	4,404	400	132,000	304,650
Arkansas A. and M. Col., College Heights, Ark.	1909	Horace E. Thompson	700	1,100	45	—	20,000
Arkansas Agricultural, Mechanical and Normal College, Pine Bluff, Ark.	1873	Lawrence A. Davis	1,008	1,083	75	—	22,048
Arkansas Polytech. Col., Russellville, Ark.	1909	J. W. Hull	681	717	51	—	26,215
Arkansas State College, State College, Ark.	1909	Carl R. Reng	869	1,192	80	—	30,100
Arkansas State Tch. Col., Conway, Ark.	1907	Nolen M. Irby	1,033	1,265	75	—	48,500
Arlington State Col. (Jr.), Arlington, Tex.	1917	E. H. Hereford	1,109	1,318	86	—	29,549
Armstrong College (Jr.), Savannah, Ga.	1935	Foreman M. Hawes	237	653	19	46,050	10,000
Asbury College, Wilmore, Ky.	1890	Z. T. Johnson	836	844	48	1,500,000	44,167
Ashland College, Ashland, Ohio	1878	Glenn L. Clayton	356	464	35	462,909	26,300
Assumption College, Worcester, Mass.	1904	Henry J. Moquin	154	190	20	—	40,000
Atlanta Div., Univ. of Ga., Atlanta, Ga.	1914	George M. Sparks	3,331	4,163	182	—	40,000
Atlanta University, Atlanta, Ga.	1867	Rufus E. Clement	383	383	68	6,631,404	175,000
Atlantic Union College, S. Lancaster, Mass.	1882	Lewis N. Holm	246	335	39	—	31,153
Augusta, Junior College of, Augusta, Ga.	1925	Eric W. Hardy	1,274	1,626	59	—	14,000
Augustana College, Rock Island, Ill.	1860	Conrad Bergendoff	929	1,191	71	1,614,049	80,000
Augustana College, Sioux Falls, S.D.	1860	L. M. Stavig	560	624	44	479,493	32,137
Aurora College, Aurora, Ill.	1893	T. P. Stephens	251	391	33	78,640	37,124
Austin College, Sherman, Tex.	1849	W. B. Guerrant	469	591	40	1,125,000	26,341
Austin Peay State College, Clarksville, Tenn.	1927	Halbert Harvill	470	802	55	—	26,293
Averett College (Jr.), Danville, Va.	1859	Curtis V. Bishop	193	282	25	88,000	8,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
B							
Bakersfield College (Jr.), Bakersfield, Calif.	1913	Ralph Prator	873	1,455	101	—	16,844
Baker University, Baldwin City, Kan.	1858	Nelson P. Horn	480	495	34	$1,475,702	85,375
Baldwin-Wallace College, Berea, Ohio	1845	John L. Knight	1,223	1,555	103	2,508,000	56,000
Ball State Teachers College, Muncie, Ind.	1918	John R. Emens	2,430	2,925	183	—	121,724
Barat College, Lake Forest, Ill.	1863	Margaret Reilly	355	359	36	—	33,181
Barber-Scotia College, Concord, N.C.	1867	L. S. Cozart	173	176	17	850,000	13,504
Bard College, Annandale-on-Hudson, N.Y.	1860	James H. Case, Jr.	260	263	39	140,103	60,000
Barnard College, New York, N.Y.	1889	Millicent C. McIntosh	1,047	1,047	125	7,000,000	72,345
Barry College, Miami, Fla.	1940	Mother Mary Gerald	215	293	23	—	17,615
Bates College, Lewiston, Me.	1864	Charles F. Phillips	834	837	57	2,023,642	90,000
Bay City Junior College, Bay City, Mich.	1922	Eric J. Bradner	322	369	32	—	13,263
Baylor Univ., Waco, Tex.	1845	William R. White	4,026	5,169	203	5,213,080	175,000
Beaver College, Jenkintown, Pa.	1853	Raymon M. Kistler	480	491	64	—	28,000
Belhaven College, Jackson, Miss.	1894	Guy T. Gillespie	160	164	26	677,333	21,167
Belmont Abbey Col. (Jr.), Belmont, N.C.	1878	Vincent G. Taylor	205	373	38	—	50,000
Belmont College (Jr.), Nashville, Tenn.	1865	Warren F. Jones	87	116	20	300,000	18,905
Beloit College, Beloit, Wis.	1846	Carey Croneis	930	935	80	3,007,000	160,000
Bemidji State Tch. Col., Bemidji, Minn.	1913	C. R. Sattgast	462	462	48	—	29,364
Benedict College, Columbia, S.C.	1870	J. A. Bacoats	535	611	35	353,907	21,150
Bennett College, Greensboro, N.C.	1873	David D. Jones	438	439	32	1,050,933	28,624
Bennett Junior College, Millbrook, N.Y.	1891	Courtney Carroll	205	205	40	200,000	14,000
Bennington College, Bennington, Vt.	1932	F. H. Burkhardt	317	323	50	128,000	32,000
Berea College, Berea, Ky.	1855	Francis S. Hutchins	1,082	1,089	91	15,224,300	119,000
Bessie Tift College, Forsyth, Ga.	1849	William F. Gunn	181	217	25	632,820	19,354
Bethany College, Bethany, W.Va.	1840	Wilbur H. Cramblet	479	501	42	3,123,018	51,000
Bethany College, Lindsborg, Kan.	1881	Emory Lindquist	247	292	29	491,180	28,000
Bethel College, North Newton, Kan.	1887	Ed. G. Kaufman	298	320	36	608,130	30,000
Bethel College (Jr.), Hopkinsville, Ky.	1854	W. Edwin Richardson	79	122	15	12,000	8,000
Bethune-Cookman Col., Daytona Beach, Fla.	1872	Richard V. Moore	536	618	50	536,060	20,548
Birmingham-South. Col., Birmingham, Ala.	1856	George R. Stuart	690	697	56	1,200,000	60,000
Bishop College, Marshall, Tex.	1881	Earl L. Harrison	588	886	55	22,464	21,500
Bishop's University, Lennoxville, Que., Can.	1843	A. R. Jewitt	233	235	21	2,000,000	30,000
Blackburn College, Carlinville, Ill.	1837	Robert P. Ludlum	351	355	28	1,855,035	20,000
Black Hills Teachers College, Spearfish, S.D.	1883	Russell E. Jonas	325	425	28	—	28,000
Blinn College (Jr.), Brenham, Tex.	1883	Thomas M. Spencer	317	1,170	39	—	7,010
Bluefield College (Jr.), Bluefield, Va.	1920	Charles L. Harman	186	212	19	118,652	6,618
Bluefield State College, Bluefield, W.Va.	1895	H. L. Dickason	350	350	35	—	18,750
Blue Mountain Col., Blue Mountain, Miss.	1873	Lawrence T. Lowrey	244	252	28	518,000	19,640
Boise Junior College, Boise, Ida.	1932	Eugene B. Chaffee	401	579	45	—	14,000
Boston, Teachers College of the City of, Boston, Mass.	1852	William F. Looney	656	1,204	42	—	31,300
Boston College, Chestnut Hill, Mass.	1863	J. R. N. Maxwell	4,079	5,987	367	1,305,000	237,845
Boston University, Boston, Mass.	1839	Harold C. Case	9,260	25,364	1,106	6,022,264	375,000
Bowdoin College, Brunswick, Me.	1794	Kenneth C. M. Sills	807	810	75	11,623,693	224,000
Bowling Green St. Univ., Bowling Green, O.	1910	Ralph W. McDonald	3,334	3,442	229	—	120,000
Bradford Junior College, Bradford, Mass.	1803	Dorothy M. Bell	299	299	30	500,000	20,110
Bradley University, Peoria, Ill.	1897	David B. Owen	2,589	3,459	249	2,618,773	85,000
Branch Agri. Coll. (Jr.), Cedar City, Utah	1897	Daryl Chase	370	388	44	—	15,000
Brandon College, Brandon, Man., Can.	1899	J. R. C. Evans	179	191	16	1,000,000	6,000
Brenau College, Gainesville, Ga.	1878	Josiah Crudup	209	220	30	631,169	24,000
Brescia College, Owensboro, Ky.	1874	Mother A. Martin	139	286	17	120,000	11,000
Brevard College (Jr.), Brevard, N.C.	1934	George B. Ehlhardt	109	144	21	505,664	13,677
*Briar Cliff College, Sioux City, Ia.	1930	Sister Jean Marie	327	327	40	—	25,000
Briarcliff Junior Col., Briarcliff Manor, N.Y.	1932	Clara Tead	222	222	24	—	12,555
Bridgeport, Univ. of, Bridgeport, Conn.	1927	James H. Halsey	1,326	2,855	173	22,443	42,000
Bridgewater College, Bridgewater, Va.	1880	Warren D. Bowman	373	385	34	497,167	17,052
Brigham Young University, Provo, Utah	1875	Ernest L. Wilkinson	4,984	5,203	250	288,000	170,450
British Columbia, Univ. of, Vancouver, B.C., Can.	1908	N. A. M. MacKenzie	5,555	5,992	400	697,295	275,000
Brooklyn, Polytechnic Inst. of, Brooklyn, N.Y.	1854	H. S. Rogers	1,475	6,171	419	1,524,600	42,000
Brooklyn College, Brooklyn, N.Y.	1930	Harry D. Gideonse	8,364	22,467	981	31,107	208,231
Brown University, Providence, R.I.	1764	Henry M. Wriston	3,133	3,268	446	14,922,816	735,000
Bryn Mawr College, Bryn Mawr, Pa.	1880	Katharine E. McBride	692	734	119	9,054,314	225,000
Bucknell University, Lewisburg, Pa.	1846	Horace A. Hildreth	1,891	1,914	131	2,158,098	122,096
Buffalo, University of, Buffalo, N.Y.	1846	Thomas R. McConnell	4,128	9,700	992	8,566,713	270,214
Butler University, Indianapolis, Ind.	1850	Maurice O. Ross	2,098	3,720	176	5,500,000	154,000
C							
California, University of, Berkeley, Los Angeles, Santa Barbara, San Francisco, Davis, Mount Hamilton, La Jolla and Riverside, Calif.	1868	Robert G. Sproul	34,883	34,883	4,807	57,761,408	2,897,592
California Inst. of Tech., Pasadena, Calif.	1891	Lee A. DuBridge	1,023	1,023	155	23,888,572	82,705
California State Polytechnic College, San Luis Obispo, Calif.	1901	Julian A. McPhee	2,213	2,213	142	—	21,000
Calvin College and Seminary, Grand Rapids, Mich.	1876	William Spoelhof	1,254	1,292	67	$201,937	39,500
Campbell College (Jr.), Buie's Creek, N.C.	1887	Leslie H. Campbell	335	397	29	180,551	10,663
Campbellsville College, (Jr.), Campbellsville, Ky.	1906	John M. Carter	281	321	17	60,000	8,645
Canal Zone Jr. Col., Balboa Heights, C.Z.	1933	Roger C. Hackett	83	313	24	—	13,000
Canisius College, Buffalo, N.Y.	1870	Raymond W. Schouten	1,343	2,503	111	155,634	52,023
Capital University, Columbus, Ohio	1850	Harold L. Yochum	1,080	1,087	78	681,816	68,000
Carbon College (Jr.), Price, Utah	1938	Aaron E. Jones	229	595	44	—	6,000
Carleton College, Northfield, Minn.	1866	Laurence M. Gould	891	892	84	4,564,326	154,229
Carnegie Institute of Tech., Pittsburgh, Pa.	1900	John C. Warner	2,887	4,353	375	29,052,468	104,191
Carroll College, Helena, Mont.	1909	R. V. Kavanagh	294	472	22	650,000	21,000
Carroll College, Waukesha, Wis.	1840	W. E. Kaufmann	416	432	39	1,041,929	44,868
Carson-Newman Col., Jefferson City, Tenn.	1851	Daniel Harley Fite	858	936	44	672,855	34,346
Carthage College, Carthage, Ill.	1870	Morris Wee	434	462	34	766,061	41,816
Cascade College, Portland, Ore.	1918	C. J. Pike	160	209	26	65,000	10,210
Case Institute of Technology, Cleveland, O.	1880	Elmer Hutchisson	1,146	1,890	176	6,406,446	47,300
Catawba College, Salisbury, N.C.	1851	A. R. Keppel	556	591	46	726,133	35,584
Catholic Univ. of America, Wash., D.C.	1887	Patrick J. McCormick	2,598	3,750	439	5,918,944	424,046
Cedar Crest College, Allentown, Pa.	1867	Dale Hendry Moore	354	358	37	196,870	30,000
Centenary College of La., Shreveport, La.	1825	Joe J. Mickle	659	1,498	84	3,065,000	32,748
Centenary Junior Col., Hackettstown, N.J.	1867	Edward W. Seay	423	423	32	28,842	14,000
Central College, Fayette, Mo.	1855	Ralph Lee Woodward	579	596	40	1,101,180	51,270
Central College, Pella, Ia.	1853	G. T. Vander Lugt	328	342	35	640,815	27,050
Centralia Junior College, Centralia, Wash.	1925	Wm. Bloom	165	180	20	—	4,000
Central Junior College, El Centro, Calif.	1922	Guy A. Weakley	117	146	25	—	8,000
Central Michigan College of Education, Mt. Pleasant, Mich.	1892	Charles L. Anspach	1,576	3,172	143	—	81,990
Central Missouri St. Col., Warrensburg, Mo.	1870	G. W. Diemer	1,387	1,776	106	—	81,391
Central State College, Edmond, Okla.	1890	W. Max Chambers	964	1,097	58	—	40,915
Central Wash. Col. of Educ., Ellensburg, Wash.	1891	Robert E. McConnell	955	1,074	85	—	60,000
Centre College, Danville, Ky.	1819	Walter A. Groves	377	335	36	2,543,679	61,316
Chaffey College (Jr.), Ontario, Calif.	1883	Daniel B. Milliken	661	727	54	—	43,000
Chapman College, Los Angeles, Calif.	1861	George N. Reeves	212	238	35	500,000	23,698
Charleston, College of, Charleston, S.C.	1785	George D. Grice	167	185	18	765,000	34,488
Chattanooga, Univ. of, Chattanooga, Tenn.	1886	David A. Lockmiller	815	1,386	86	1,070,526	50,000
Chestnut Hill College, Philadelphia, Pa.	1871	Sister Maria Kostka	417	535	51	103,000	37,400
Chicago, School of the Art Inst. of, Chicago, Ill.	1879	C. Hubert Ropp	940	946	66	312,000	58,000
Chicago, University of, Chicago, Ill.	1890	Lawrence A. Kimpton	9,266	14,176	817	73,502,425	1,862,071
Chicago City Junior College, Chicago, Ill.							
Herzl Branch	1934	James M. McCallister	792	1,147	55	—	15,000
Wilson Branch	1934	O. S. Williams	1,631	2,966	113	—	68,500
Wright Branch	1934	Peter J. Masiko, Jr.	2,350	4,603	140	—	44,886
Chicago Musical College, Chicago, Ill.	1867	Rudolph Ganz	316	688	106	323,000	6,100
Chicago Teachers College, Chicago, Ill.	1869	Raymond M. Cook	1,056	2,089	88	—	50,000
Chico State College, Chico, Calif.	1887	Glenn Kendall	1,163	1,368	85	—	52,250
Christian Brothers College, Memphis, Tenn.	1871	Brother Richard	91	91	27	1,500,000	9,800
Christian College (Jr.), Columbia, Mo.	1851	J. C. Miller	286	286	40	112,000	14,586
Cincinnati, University of, Cincinnati, Ohio	1819	Raymond Walters	5,550	13,783	933	11,484,964	660,140
Citadel, The, Charleston, S.C.	1842	C. P. Summerall	1,463	1,463	108	—	52,445
Citrus Junior College, Azusa, Calif.	1915	Merlin E. Eisenbise	140	155	33	—	15,000
City College, New York, N.Y.	1847	Harry N. Wright	9,304	31,562	1,577	534,632	336,959
Claflin University, Orangeburg, S.C.	1869	J. J. Seabrook	320	323	24	161,872	15,273
Claremont Graduate School, Claremont Calif.	1925	Robert J. Bernard	145	460	131	1,084,500	75,319
Claremont Men's College, Claremont, Calif.	1947	George C. S. Benson	297	300	30	1,050,000	195,000
Clark College, Atlanta, Ga.	1877	James P. Brawley	678	686	47	1,007,093	8,400
Clark College (Jr.), Vancouver, Wash.	1933	P. F. Gaiser	448	861	42	—	7,000
Clarke College, Dubuque, Ia.	1843	Sister Mary Anne Leone	347	433	46	305,625	27,000
Clarkson Col. of Technology, Potsdam, N.Y.	1895	William G. Van Note	1,109	1,116	75	1,573,029	25,500
Clark University, Worcester, Mass.	1887	Howard B. Jefferson	739	826	69	6,277,476	200,000
Clemson Agricultural Col., Clemson, S.C.	1889	Robert F. Poole	2,725	2,788	268	333,208	123,000
Coalinga College (Jr.), Coalinga, Calif.	1932	Donald C. Carr	102	110	9	550	7,000
Coe College, Cedar Rapids, Ia.	1851	Howell H. Brooks	584	645	60	2,198,043	58,174
Coker College, Hartsville, S.C.	1908	Donald C. Agnew	261	280	30	693,000	26,000
Colby College, Waterville, Maine	1813	Julius S. Bixler	1,039	1,050	79	4,500,000	146,000
Colby Junior College, New London, N.H.	1837	H. Leslie Sawyer	432	433	37	515,000	20,000
Colgate University, Hamilton, N.Y.	1819	Everett N. Case	1,293	1,317	98	5,853,447	186,006
Colleges of the Seneca, Geneva, N.Y.	—	Alan W. Brown	865	891	128	755,000	93,400
Hobart College	1822	Alan W. Brown	596	618	64	—	—
William Smith College	1908	Alan W. Brown	269	273	64	—	—
Colorado, University of, Boulder, Colo.	1876	Robert L. Stearns	7,980	10,480	646	944,686	452,000
Colorado A. & M. Col. Fort Collins, Colo.	1870	William E. Morgan	3,289	3,502	228	614,920	145,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Colorado College, Colorado Springs, Colo.	1874	William H. Gill	852	964	60	$3,339,843	150,000
Colorado School of Mines, Golden, Colo.	1874	John W. Vanderwilt	851	851	92	129,216	75,000
Colorado State Col. of Educ., Greeley, Colo.	1890	William R. Ross	1,698	1,756	134	—	131,916
Colorado Woman's College (Jr.), Denver, Colo.	1888	Val H. Wilson	408	408	45	121,138	10,085
Columbia College, Columbia, S.C.	1854	R. Wright Spears	187	324	27	700,000	17,000
Columbia University, New York, N.Y.	1754	Dwight D. Eisenhower	13,849	27,278	2,516	87,186,620	2,009,898
Compton College (Jr.), Compton, Calif.	1927	Stuart F. McComb	1,660	1,970	70	—	25,000
Concord College, Athens, W.Va.	1875	Virgil H. Stewart	631	644	49	—	20,000
Concordia College, Moorhead, Minn.	1891	J. L. Knutson	830	890	63	591,710	38,781
Concordia Collegiate Inst. (Jr.), Bronxville, N.Y.	1881	Albert E. Meyer	109	109	15	—	15,800
Concordia Teachers College, River Forest, Ill.	1864	Arthur W. Klinck	556	557	43	—	33,100
Connecticut, Tch. Col. of, New Britain, Conn.	1849	Herbert D. Welte	1,060	1,602	103	—	40,000
Connecticut, University of, Storrs, Conn.	1881	A. N. Jorgensen	7,357	9,074	742	161,000	146,000
Connecticut College, New London, Conn.	1911	Rosemary Park	842	849	104	2,500,000	137,919
Contra Costa Jr. Col., Martinez, Calif.	1949	Drummond J. McCunn	2,000	2,800	111	—	6,000
Converse College, Spartanburg, S.C.	1889	Edw. M. Gwathmey	296	311	40	670,964	42,000
Cooper Union, New York, N.Y.	1859	Edwin S. Burdell	1,302	1,302	153	9,835,518	110,000
Copiah-Lincoln Jr. Col., Wesson, Miss	1928	J. M. Ewing	289	289	40	—	11,000
Cornell College, Mount Vernon, Iowa	1853	Russell D. Cole	645	654	57	2,942,486	65,000
Cornell University, Ithaca, N.Y.	1865	Deane W. Malott	9,926	9,926	1,364	46,959,690	1,509,728
Cottey College (Jr.), Nevada, Mo.	1884	Blanche Hinman Dow	242	249	20	61,563	10,417
Creighton University, Omaha, Neb.	1878	Carl M. Reinert	2,130	2,401	442	9,897,614	154,395
Culver-Stockton College, Canton, Mo.	1853	Leslie E. Ziegler	303	310	31	452,694	36,793
Cumberland Col. (Jr.), Williamsburg, Ky.	1888	J. M. Boswell	276	288	20	660,800	10,000
D							
Dakota Wesleyan University, Mitchell, S.D.	1885	J. J. Knox	158	217	13	582,676	30,000
Dalhousie Univ., Halifax, N.S., Can.	1818	Alexander E. Kerr	1,399	1,427	229	4,509,998	122,942
Danbury State Tch. Col., Danbury, Conn.	1903	Ruth A. Haas	375	825	65	—	25,000
Dartmouth College, Hanover, N.H.	1770	John Sloan Dickey	2,755	2,798	319	28,568,045	666,443
Davidson College, Davidson, N.C.	1837	John R. Cunningham	828	828	58	6,222,850	50,000
Davis and Elkins Col., Elkins, W. Va.	1904	R. B. Purdum	550	579	40	248,000	28,000
Dayton, University of, Dayton, Ohio	1850	George J. Renneker	1,634	3,538	187	—	53,476
Dearborn Junior College, Dearborn, Mich.	1938	Fred K. Eshleman	426	764	41	—	7,500
Delaware, University of, Newark, Del.	1833	John A. Perkins	1,841	3,771	193	5,957,368	166,000
Delaware State College, Dover, Del.	1891	M. E. Thomasson	115	168	29	—	40,000
Del Mar College (Jr.), Corpus Christi, Tex.	1935	E. L. Harvin	684	2,675	150	—	10,050
Delta State Tch. Col., Cleveland, Miss.	1924	William M. Kethley	389	415	46	—	30,000
Denison University, Granville, Ohio.	1831	A. Blair Knapp	1,125	1 136	89	4,118,966	95,850
Denver, University of, Denver, Colo.	1864	Albert C. Jacobs	4,506	8,335	377	2,575,445	281,655
De Paul University, Chicago, Ill.	1898	Comerford J. O'Malley	3,000	8,000	305	—	100,000
DePauw University, Greencastle, Ind.	1837	Russell J. Humbert	1,702	1,717	127	7,199,036	116,214
Detroit, University of, Detroit, Mich.	1877	Celestin J. Steiner	5,242	8,007	468	1,504,000	160,000
Dickinson College, Carlisle, Pa.	1773	William W. Edel	839	851	69	2,250,000	90,000
Dillard University, New Orleans, La.	1930	Albert W. Dent	—	505	42	3,000,000	25,875
Dixie Junior College, St. George, Utah	1911	Ellvert H. Himes	388	394	27	—	10,400
Doane College, Crete, Neb.	1872	David L. Crawford	275	278	29	1,681,681	37,292
Drake University, Des Moines, Ia.	1881	H. G. Harmon	2,528	4,856	198	1,600,000	132,145
Drew University, Madison, N.J.	1867	Fred G. Holloway	566	624	65	8,870,280	203,159
Drexel Institute of Tech., Philadelphia, Pa.	1891	James Creese	2,410	5,793	216	5,070,891	110,959
Drury College, Springfield, Mo.	1873	J. F. Findlay	594	1,125	75	1,020,784	64,350
Dubuque, University of, Dubuque, Ia.	1852	Rollo La Porte	505	551	45	1,225,000	36,950
Duchesne College, Omaha, Neb.	1881	Mother Mary Downey	233	241	22	—	22,500
Duke University, Durham, N.C.	1838	A. Hollis Edens	4,631	4,631	568	20,000,898	1,038,898
Duluth Branch, University of Minnesota, Duluth, Minn.	1895	John E. King	1,155	1,210	115	—	38,600
Dunbarton College of Holy Cross, Wash., D.C.	1935	Sister Mildred Dolores	170	202	35	—	26,500
Duquesne University, Pittsburgh, Pa.	1881	Vernon F. Gallagher	2,301	4,079	312	3,980,000	61,227
D'Youville College, Buffalo, N.Y.	1908	Sister Margaret of the Sacred Heart	423	456	42	—	30,000
E							
Earlham College, Richmond, Ind.	1847	Thomas E. Jones	605	653	65	1,662,201	75,000
East Carolina Tch. Col., Greenville, N.C.	1907	J. D. Messick	1,740	2,312	105	—	74,714
East Central Junior Col., Decatur, Miss.	1928	L. O. Todd	437	441	38	—	7,335
East Central State College, Ada, Okla.	1909	Chas. F. Spencer	793	991	55	—	35,721
Eastern Illinois State Col., Charleston, Ill.	1895	Robert G. Buzzard	1,103	1,568	140	—	74,000
Eastern Kentucky St. Col., Richmond, Ky.	1906	W. F. O'Donnell	1,193	1,290	88	—	84,948
Eastern Montana College of Education, Billings, Mont.	1927	A. G. Peterson	459	611	30	—	17,000
Eastern Nazarene College, Quincy, Mass.	1918	Edward S. Mann	417	479	30	—	22,000
Eastern New Mexico Univ., Portales, N.M.	1927	Floyd D. Golden	596	795	61	31,135	24,830
Eastern Oregon Col. of Educ., La Grande, Ore.	1929	Rod G. Langston	395	462	35	$ 1,000	24,454
Eastern Washington Col. of Educ., Cheney, Wash.	1890	Otis W. Freeman	963	1,012	91	—	80,000
East Los Angeles Jr. Col., Los Angeles, Calif.	1945	Rosco C. Ingalls	2,209	4,924	119	—	10,250
East Mississippi Jr. Col., Scooba, Miss.	1928	Cruce Stark	353	353	28	—	4,852
East Tennessee St. Col., Johnson City, Tenn.	1911	Burgin Dossett	1,824	2,046	110	—	55,073
East Texas State Tch. Col., Commerce, Tex.	1889	James G. Gee	1,808	2,187	125	—	109,364
Edinburg Regional College, Edinburg, Tex.	1927	R. P. Ward	318	667	38	—	11,200
El Camino College (Jr.), El Camino College, Calif.	1946	Forrest G. Murdock	1,156	4,489	89	—	5,300
Elizabeth City St. Tch. Col., Elizabeth City, N.C.	1891	Sidney D. Williams	477	477	28	—	26,000
Elizabethtown College, Elizabethtown, Pa.	1899	A. C. Baugher	244	361	30	750,000	17,900
Elmhurst College, Elmhurst, Ill.	1871	Henry W. Dinkmeyer	596	645	43	326,113	45,632
Elmira College, Elmira, N.Y.	1855	Lewis Eldred	281	359	54	900,000	60,000
Elon College, Elon College, N.C.	1889	Leon Edgar Smith	584	619	39	458,949	49,000
Emmanuel College, Boston, Mass.	1919	Sr. Margaret Patricia	602	609	80	—	30,000
Emmanuel Miss. Col., Berrien Spgs., Mich.	1874	Percy Christian	642	912	56	—	44,100
Emory and Henry College, Emory, Va.	1838	Foye G. Gibson	535	702	33	727,219	29,406
Emory at Oxford (Jr.), Oxford, Ga.	1836	Virgil Y. C. Eady	165	165	14	—	6,631
Emory at Valdosta (Jr.), Valdosta, Ga.	1928	E. D. Whisonant	92	92	10	200,000	5,081
Emory University, Emory University, Ga.	1836	Goodrich C. White	3,097	—	701	21,360,682	360,000
Emporia, College of, Emporia, Kan.	1882	Paul B. McCleave	212	218	30	223,721	28,600
Erskine College, Due West, S.C.	1839	R. C. Grier	334	340	35	400,000	26,000
Evansville College, Evansville, Ind.	1854	Lincoln B. Hale	884	1,907	167	428,317	31,407
Eveleth Junior College, Eveleth, Minn.	1919	E. T. Carlstedt	65	68	8	—	12,000
Everett Junior College, Everett, Wash.	1941	J. F. Marvin Buechel	480	1,211	38	—	5,650
F							
Fairleigh Dickinson Col. (Jr.), Rutherford, N.J.	1941	Peter Sammartino	1,073	2,583	132	600,000	23,564
Fairmont State College, Fairmont, W.Va.	1867	George H. Hand	640	874	62	—	36,558
Fayetteville State Tch. Col., Fayetteville, N.C.	1877	J. W. Seabrook	602	610	34	—	28,005
Fenn College, Cleveland, Ohio	1881	Paul R. Anders	962	4,462	205	—	30,000
Finch Junior College, New York, N.Y.	1900	Roland R. De Marco	125	125	41	—	9,500
Findlay College, Findlay, Ohio	1882	H. Clifford Fox	238	308	24	475,145	16,000
Fisk University, Nashville, Tenn.	1867	Charles S. Johnson	643	689	73	4,485,000	105,437
Flint Junior College, Flint, Mich.	1923	W. Fred Totten	681	814	37	—	14,000
Flora Macdonald College, Red Springs, N.C.	1896	Marshall S. Woodson	267	275	30	404,752	17,476
Florida, University of, Gainesville, Fla.	1853	J. Hillis Miller	9,003	9,003	697	331,779	445,246
Florida A. and M. Col., Tallahassee, Fla.	1887	George W. Gore, Jr.	1,994	2,073	153	—	28,607
Florida Normal and Industrial College, St. Augustine, Fla.	1892	R. W. Puryear	176	397	14	—	8,000
Florida Southern College, Lakeland, Fla.	1885	Ludd M. Spivey	1,550	2,165	85	1,600,000	40,000
Florida State Univ., Tallahassee, Fla.	1857	Doak S. Campbell	3,922	5,924	442	206,000	231,388
Fontbonne College, Saint Louis, Mo.	1923	Mother Mary M. Casey	410	577	54	—	32,300
Fordham University, New York, N.Y.	1841	Laurence J. McGinley	5,919	8,876	458	1,200,000	268,127
Fort Hays Kansas State Col., Hays, Kan.	1902	M. C. Cunningham	905	985	90	—	69,000
Fort Valley State College, Fort Valley, Ga.	1895	C. V. Troup	626	961	55	—	14,281
Francis T. Nicholls Jr. Col. of L.S.U., Thibodaux, La.	1944	Charles C. Elkins	179	181	24	—	2,813
Franklin and Marshall Col., Lancaster, Pa.	1787	Theodore A. Distler	1,030	1,536	92	1,737,423	120,200
Franklin College of Indiana, Franklin, Ind.	1834	Harold W. Richardson	417	423	37	1,259,737	38,654
Fresno Jr. Col., Fresno, Calif.	1910	Thomas A. Blakely	620	1,209	50	—	4,300
Fresno State College, Fresno, Calif.	1911	Arnold E. Joyal	2,782	3,338	180	—	77,872
Fullerton Junior College, Fullerton, Calif.	1913	H. Lynn Sheller	1,050	1,050	71	—	17,000
Furman University, Greenville, S.C.	1826	John Laney Plyler	1,020	1,071	80	4,215,332	85,000
G							
Gannon College, Erie, Pa.	1944	Joseph J. Wehrle	518	749	57	2,500,000	29,287
Gardner-Webb Col. (Jr.), Boiling Springs, N.C.	1905	Philip Lovin Elliott	315	359	23	258,646	9,344
General Beadle St. Tch. Col., Madison, S.D.	1881	V. A. Lowry	143	143	21	—	25,500
Geneva College, Beaver Falls, Pa.	1848	Charles M. Lee	727	1,363	44	818,518	38,000
George Peabody Col. for Tch., Nashville, Tenn.	1785	Henry H. Hill	1,202	1,718	108	5,576,823	589,765
George Pepperdine Col., Los Angeles, Calif.	1937	Hugh M. Tiner	1,004	1,020	113	1,000,000	40,000
Georgetown College, Georgetown, Ky.	1829	Samuel S. Hill	524	580	42	599,595	21,634
Georgetown University, Washington, D.C.	1789	Hunter Guthrie	1,075	4,830	797	6,000,000	210,268
Georgetown Visitation Jr. College, Washington, D.C.	1919	Sister Margaret Mary Sheerin	129	129	17	—	13,000
George Washington Univ., Washington, D.C.	1821	Cloyd H. Marvin	3,200	10,995	840	3,000,000	240,000
George Williams College, Chicago, Ill.	1890	Harold Coe Coffman	211	255	28	250,000	28,000
Georgia, University of, Athens, Ga.	1785	Omer Clyde Aderhold	4,437	4,737	610	2,343,967	269,029
Georgia Institute of Tech., Atlanta, Ga.	1885	Blake R. Van Leer	3,560	4,117	332	748,908	116,000
Georgia Military Col. (Jr.), Milledgeville, Ga.	1879	Ren A. Thorne	161	164	11	—	5,000
Georgian Court College, Lakewood, N.J.	1908	Sister Marie Anna	217	225	39	—	30,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Georgia Southwestern Col. (Jr.), Americus, Ga.	1926	Lloyd A. Moll	149	154	15	—	11,486
Georgia St. Col. for Wom., Milledgeville, Ga.	1889	Guy H. Wells	551	687	59	—	53,855
Georgia Teachers College, Collegeboro, Ga.	1908	Zach S. Henderson	494	613	54	—	43,423
Gettysburg College, Gettysburg, Pa.	1832	Henry W. A. Hanson	1,157	1,164	95	$ 487,488	67,000
Glendale College (Jr.), Glendale, Calif.	1927	Elmer T. Worthy	882	1,521	72	—	17,000
Glenville State College, Glenville, W.Va.	1872	Harry B. Heflin	340	457	32	—	25,000
Gogebic Junior College, Ironwood, Mich.	1932	R. D. Chadwick	90	128	24	—	10,000
Golden Gate College, San Francisco, Calif.	1901	Nagel T. Miner	305	3,074	160	—	16,000
Gonzaga University, Spokane, Wash.	1887	Francis E. Corkery	1,155	1,241	93	3,500,000	45,316
Good Counsel College, White Plains, N.Y.	1923	Mother M. Dolores	245	250	32	—	18,601
Gordon Military Col. (Jr.), Barnesville, Ga.	1852	W. L. Morgan	475	475	17	—	4,420
Goshen College, Goshen, Ind.	1894	Ernest E. Miller	537	680	50	280,000	39,300
Goucher College, Baltimore, Md.	1885	Otto F. Kraushaar	605	621	74	2,092,421	90,302
Graceland College (Jr.), Lamoni, Ia.	1895	Roy A. Cheville	543	556	31	66,679	21,000
Grambling Col. of Louisiana, Grambling, La.	1902	R. W. E. Jones	1,248	1,255	77	—	11,269
Grand Rapids Jr. Col., Grand Rapids, Mich.	1914	Arthur Andrews	609	672	50	—	18,534
Grant Technical College (Jr.), Del Paso Heights, Calif.	1942	Richard Kiesewetter	200	700	50	—	2,645
Grays Harbor College (Jr.), Aberdeen, Wash.	1930	George L. Hall	240	1,130	20	—	7,250
Great Falls, Col. of, Great Falls, Mont.	1932	J. J. Donovan	389	409	20	—	19,806
Green Mountain Junior Col., Poultney, Vt.	1834	Howard C. Ackley	281	283	26	99,748	14,000
Greensboro College, Greensboro, N.C.	1838	Luther L. Gobbel	321	357	39	651,659	32,320
Greenville College, Greenville, Ill.	1855	H. J. Long	370	463	31	158,193	26,000
Grinnell College, Grinnell, Ia.	1846	Samuel N. Stevens	858	858	70	4,000,000	122,000
Grove City College, Grove City, Pa.	1876	Weir C. Ketler	1,068	1,070	63	910,556	45,580
Guilford College, Guilford College, N.C.	1837	Clyde A. Milner	447	475	32	1,066,663	34,000
Gulf Park College (Jr.), Long Beach, Miss.	1919	Charles P. Hogarth	262	290	27	—	6,993
Gustavus Adolphus Col., St. Peter, Minn.	1862	Edgar M. Carlson	886	899	56	1,307,163	40,537
H							
Hamilton College, Clinton, N.Y.	1793	Robert W. McEwen	559	560	59	5,311,922	223,907
Hamline University, St. Paul, Minn.	1854	Hurst Robins Anderson	1,176	1,200	92	4,392,342	65,000
Hampden-Sydney Col., Hamp.-Sydney, Va.	1776	Edgar G. Gammon	326	326	20	1,288,000	40,000
Hampton Institute, Hampton, Va.	1868	Alonzo G. Moron	1,148	1,206	114	10,000,000	81,148
Hanover College, Hanover, Ind.	1827	Albert G. Parker, Jr.	560	565	41	2,850,000	46,000
Hardin-Simmons University, Abilene, Tex.	1891	Rupert N. Richardson	1,372	1,792	87	1,500,000	50,000
Harris Teachers College, St. Louis, Mo.	1857	Charles A. Naylor, Jr.	686	910	57	—	26,024
Hartnell College (Jr.), Salinas, Calif.	1920	John B. Lemos	520	566	49	—	15,205
Hartwick College, Oneonta, N.Y.	1928	Henry F. Arnold	362	370	32	264,707	20,270
Harvard University, Cambridge, Mass.	1636	James B. Conant	9,916	10,239	2,700	241,185,468	5,500,000
Hastings College, Hastings, Neb.	1882	Wm. M. French	567	583	43	743,550	37,000
Haverford College, Haverford, Pa.	1833	Gilbert F. White	498	498	65	5,612,064	183,000
Hawaii, University of, Honolulu, T.H.	1907	Gregg M. Sinclair	4,238	4,983	299	174,476	221,393
Heidelberg College, Tiffin, Ohio	1850	W. Terry Wickham	630	663	51	1,150,020	45,326
Henderson St. Tch. Col., Arkadelphia, Ark.	1929	D. D. McBrien	706	853	74	—	33,219
Hendrix College, Conway, Ark.	1884	Matt L. Ellis	420	428	37	1,542,135	54,000
Hershey Junior College, Hershey, Pa.	1938	V. H. Fenstermacher	66	90	16	—	17,803
Hibbing Junior College, Hibbing, Minn.	1916	S. A. Patchin	179	189	30	—	7,416
Highland Park Jr. Col., Highland Pk., Mich.	1918	G. O. Withey	927	1,060	46	—	7,000
Hillsdale College, Hillsdale, Mich.	1844	Harvey L. Turner	456	519	32	805,894	32,377
Hillyer College, Hartford, Conn.	1879	Alan S. Wilson	340	2,285	32	—	18,000
Hinds Junior College, Raymond, Miss.	1917	G. M. McLendon	595	595	31	—	6,000
Hiram College, Hiram, Ohio	1850	Paul H. Fall	473	476	41	891,431	65,000
Hofstra College, Hempstead, N.Y.	1935	John C. Adams	1,871	3,948	191	936,325	41,000
Hollins College, Hollins College, Va.	1842	John R. Everett	369	382	47	1,092,868	48,425
Holmes Jr. College, Goodman, Miss.	1925	C. W. Lorance	230	230	24	—	7,000
Holy Cross, Col. of the, Worcester, Mass.	1843	John A. O'Brien	1,841	1,841	121	501,180	149,700
Holy Names, Col. of the, Oakland, Calif.	1868	Sister M. Madeleine Rose	411	411	44	—	31,232
Holy Names College, Spokane, Wash.	1907	Sister M. F. Xavier	194	210	33	—	11,327
Hood College, Frederick, Md.	1893	Andrew Gehr Truxal	459	469	52	895,930	30,510
Hope College, Holland, Mich.	1866	Irwin J. Lubbers	801	889	55	1,044,844	47,000
Houghton College, Houghton, N.Y.	1883	Stephen W. Paine	580	615	43	386,206	30,911
Houston, Univ. of, Houston, Tex.	1934	W. W. Kemmerer	6,281	13,567	628	275,000	88,540
Howard College, Birmingham, Ala.	1842	Harwell G. Davis	893	1,095	72	845,892	54,000
Howard Payne College, Brownwood, Tex.	1889	Thomas H. Taylor	625	685	37	1,633,836	27,676
Howard University, Washington, D.C.	1867	Mordecai W. Johnson	—	3,832	458	1,684,844	279,697
Humboldt State College, Arcata, Calif.	1913	Cornelius H. Siemens	549	599	52	—	30,000
Hunter College of the City of New York, New York, N.Y.	1870	George N. Shuster	6,082	11,272	714	394,326	171,255
Huntingdon College, Montgomery, Ala.	1854	Hubert Searcy	525	574	43	503,016	36,000
Huron College, Huron, S.D.	1883	George F. McDougall	130	164	17	780,228	28,500
I							
Idaho, College of, Caldwell, Ida.	1891	Paul M. Pitman	390	433	41	$ 556,000	25,000
Idaho, University of, Moscow, Ida.	1889	J. E. Buchanan	3,040	3,040	256	5,625,064	134,968
Idaho State College, Pocatello, Ida.	1901	Carl W. McIntosh	1,452	1,488	130	—	32,545
Illinois, University of, Urbana, Ill.	1868	George D. Stoddard	18,036	22,044	3,652	3,178,930	2,476,954
Illinois College, Jacksonville, Ill.	1829	H. Gary Hudson	277	302	29	1,788,609	39,625
Illinois Institute of Technology, Chicago, Ill.	1892	Henry Townley Heald	2,351	7,148	201	2,600,000	123,522
Illinois State Normal Univ., Normal, Ill.	1857	R. W. Fairchild	2,046	2,216	235	—	156,524
Illinois Wesleyan Univ., Bloomington, Ill.	1850	M. J. Holmes	730	774	63	1,457,770	50,000
Immaculata College, Immaculata, Pa.	1920	V. L. Burns	306	306	48	—	29,000
Immaculata Junior Col., Wash., D.C.	1922	Sister Marie Angele	118	119	14	—	12,867
Immaculate Heart Col., Los Angeles, Calif.	1916	Sister M. Regina	498	745	69	—	46,775
Incarnate Word Col., San Antonio, Tex.	1881	Sister M. Columkille	385	612	72	315,732	39,257
Indiana Central College, Indianapolis, Ind.	1902	Lynd Esch	335	361	29	118,054	20,642
Indiana State Tch. Col., Terre Haute, Ind.	1870	Ralph N. Tirey	1,598	2,519	145	—	158,838
Indiana University, Bloomington, Ind.	1820	Herman B Wells	11,752	17,578	1,961	3,719,980	850,000
Iowa, State University of, Iowa City, Ia.	1847	Virgil M. Hancher	7,362	7,362	1,057	1,446,262	745,981
Iowa State College, Ames, Ia.	1858	Charles E. Friley	—	7,506	927	1,385,000	426,694
Iowa State Tch. Col., Cedar Falls, Ia.	1876	J. W. Maucker	2,346	2,346	304	—	153,335
Iowa Wesleyan College, Mount Pleasant, Ia.	1842	Raymond Chadwick	301	398	29	520,659	31,000
J							
Jackson College for Negro Teachers, Jackson, Mississippi	1877	Jacob L. Reddix	747	1,032	51	—	16,500
Jackson Junior College, Jackson, Mich.	1928	G. L. Greenawalt	276	425	33	—	16,274
Jacksonville Junior College, Jacksonville, Fla.	1934	Paul L. Johnson	128	407	17	—	7,782
James Ormond Wilson Tch. Col., Wash., D.C.	1873	Walter E. Hager	435	533	45	—	30,000
Jamestown College, Jamestown, N.D.	1909	Samuel S. George	325	342	28	1,288,458	26,687
Jamestown Community College (Jr.), Jamestown, N.Y.	1934	F. Bolman, Jr.	137	169	16	—	3,304
Jefferson City Jr. College, Jefferson City, Mo.	1926	Joe Nichols, Jr.	449	702	33	—	7,400
Jersey City Jr. Col., Jersey City, N.J.	1946	Frank J. McMackin	200	425	25	—	8,000
John B. Stetson University, DeLand, Fla.	1883	J. Ollie Edmunds	1,071	1,324	96	1,284,247	71,018
John Carroll University, Cleveland, Ohio	1886	Frederick E. Welfle	1,606	2,117	105	4,300,000	50,000
John Muir College(Jr.), Pasadena, Calif.	1946	Archie M. Turrell	1,983	3,904	159	—	16,500
Johns Hopkins University, Baltimore, Md.	1876	Detlev W. Bronk	2,259	6,539	1,271	37,711,628	873,116
Johnson C. Smith University, Charlotte, N.C.	1867	Hardy Liston	619	632	33	2,000,000	21,425
Jones County Junior Col., Ellisville, Miss.	1927	J. B. Young	443	584	45	—	15,000
Joplin Junior College, Joplin, Mo.	1938	Roi S. Wood	239	254	30	—	8,117
Judson College, Marion, Ala.	1838	J. I. Riddle	168	170	25	621,768	20,000
Juniata College, Huntingdon, Pa.	1876	Calvert N. Ellis	541	563	41	912,193	60,000
K							
Kalamazoo College, Kalamazoo, Mich.	1833	John Scott Everton	451	458	48	1,042,976	46,012
Kansas, University of, Lawrence, Kan.	1865	Franklin D. Murphy	6,226	6,512	939	2,500,000	466,747
Kansas City, Jr. College of, Kansas City, Mo.	1915	A. M. Swanson	628	1,498	67	—	32,717
Kansas City, University of, Kansas City, Mo.	1929	Clarence R. Decker	1,339	2,918	100	524,213	165,029
Kansas City Kansas Junior College, Kansas City, Kan.	1923	J. F. Wellemeyer	388	393	20	—	7,500
Kansas State College of Agri. and App. Sci., Manhattan, Kan.	1863	James A. McCain	4,809	4,959	355	557,121	164,990
Kansas State Tch. Col., Emporia, Kan.	1863	D. L. MacFarlane	1,141	1,170	131	250,000	99,000
Kansas State Tch. Col., Pittsburg, Kan.	1903	Rees H. Hughes	1,438	1,713	170	—	78,164
Keene Teachers College, Keene, N.H.	1909	Lloyd P. Young	433	456	55	—	22,260
Kemper Military School (Jr.), Boonville, Mo.	1844	Frederick Marston	120	120	26	300,000	10,000
Kent State University, Kent, Ohio	1910	George A. Bowman	4,350	5,036	274	—	108,000
Kentucky, University of, Lexington, Ky.	1865	H. L. Donovan	5,060	5,729	539	199,928	528,211
Kentucky St. Col., Frankfort, Ky.	1886	R. B. Atwood	484	491	47	—	20,164
Kentucky Wesleyan College, Owensboro, Ky.	1866	Oscar W. Lever	186	263	23	360,490	23,653
Kenyon College, Gambier, Ohio.	1824	Gordon K. Chalmers	481	486	46	2,228,735	125,000
Keuka College, Keuka Park, N.Y.	1892	Katherine G. Blyley	385	386	40	375,000	40,150
Keystone Junior College, La Plume, Pa.	1868	Blake Tewksbury	180	180	28	250,000	13,000
†Kilgore College (Jr.), Kilgore, Tex.	1935	B. E. Masters	—	1,087	54	—	12,614
King College, Bristol, Tenn.	1867	R. T. L. Liston	220	243	17	650,000	14,142
*King's College, Halifax, N.S., Can.	1789	A. Stanley Walker	150	150	14	1,250,000	35,000
Knox College, Galesburg, Ill.	1837	Sharvy G. Umbeck	771	781	61	3,286,178	86,841
Knoxville College, Knoxville, Tenn.	1875	James A. Colston	276	301	23	461,409	12,500
L							
Lafayette College, Easton, Pa.	1826	Ralph C. Hutchison	1,365	1,376	120	5,309,321	134,992
La Grange College, La Grange, Ga.	1831	Waights G. Henry, Jr.	143	157	27	1,200,000	15,804
Lake Erie College, Painesville, Ohio	1856	Paul Weaver	128	137	24	720,503	39,331
Lake Forest College, Lake Forest, Ill.	1857	Ernest A. Johnson	807	1,206	84	1,783,790	65,500
Lamar College (Jr.), Beaumont, Tex.	1923	John E. Gray	1,756	1,246	90	53,000	11,680
Lane College, Jackson, Tenn.	1882	C. A. Kirkendoll	324	476	29	35,350	6,500

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Langston University, Langston, Okla.	1897	G. L. Harrison	572	633	51	—	45,000
La Salle College, Philadelphia, Pa.	1863	Brother G. Paul	2,108	2,404	120	—	30,000
La Salle-Peru-Oglesby Jr. Col., La Salle, Ill.	1924	Francis H. Dolan	176	176	29	—	13,100
Lasell Junior College, Auburndale, Mass.	1851	Raymond C. Wass	518	518	44	$ 65,000	13,500
La Sierra College, Arlington, Calif.	1922	G. T. Anderson	606	750	52	100,000	29,600
Lassen Junior College, Susanville, Calif.	1925	Carl F. Karasek	121	—	12	—	1,500
Laval University, Quebec, Que., Can.	1852	Ferdinand Vandry	6,855	8,955	1,100	5,000,000	374,290
Lawrence College, Appleton, Wis.	1847	Nathan M. Pusey	801	816	78	2,500,000	73,000
Lebanon Valley College, Annville, Pa.	1866	Frederic K. Miller	473	610	47	789,455	49,737
Lee College (Jr.), Baytown, Tex.	1934	George H. Gentry	142	648	39	—	13,200
Lehigh University, Bethlehem, Pa.	1865	Martin D. Whitaker	2,950	3,150	300	9,239,685	310,000
LeMoyne College, Memphis, Tenn.	1870	Hollis F. Price	407	514	26	2,232	18,000
Lenoir Rhyne College, Hickory, N.C.	1891	Voigt R. Cromer	750	777	43	800,000	31,000
Lesley College, Cambridge, Mass.	1909	Trentwell M. White	313	320	22	90,000	25,800
Lewis and Clark College, Portland, Ore.	1867	Morgan S. Odell	1,060	1,127	92	371,974	30,953
Limestone College, Gaffney, S.C.	1845	Robert C. Granberry	206	231	25	821,137	26,460
Lincoln College (Jr.), Lincoln, Ill.	1865	Raymond N. Dooley	76	77	8	341,000	15,000
Lincoln Memorial Univ., Harrogate, Tenn.	1897	Robert L. Kincaid	355	380	29	850,809	34,000
Lincoln University, Jefferson City, Mo.	1866	Sherman D. Scruggs	816	846	82	—	80,000
Lincoln University, Lincoln University, Pa.	1854	Horace M. Bond	324	329	37	1,024,753	52,000
Lindenwood College, St. Charles, Mo.	1827	Franc L. McCluer	304	337	49	2,753,150	33,677
Linfield College, McMinnville, Ore.	1858	Harry L. Dillin	506	518	48	927,363	42,017
Little Rock Junior College, Little Rock, Ark.	1927	Granville D. Davis	457	1,307	45	2,500,000	23,000
Livingstone College, Salisbury, N.C.	1879	William J. Trent	387	387	29	61,000	28,332
Long Beach City Col. (Jr.), Long Beach, Calif.	1927	George E. Dotson	3,736	13,480	295	—	49,490
Long Beach State College, Long Beach, Calif.	1949	P. Victor Peterson	1,037	1,846	100	—	14,169
Longwood College, Farmville, Va.	1884	D. S. Lancaster	593	599	55	—	55,493
Lon Morris Col. (Jr.), Jacksonville, Tex.	1873	C. E. Peeples	228	248	16	135,000	10,094
Loras College, Dubuque, Ia.	1839	Loras T. Lane	752	752	57	2,000,000	110,000
Loretto Heights College, Loretto, Colorado	1918	Sister Frances Marie	457	501	59	—	24,000
Los Angeles City Col. (Jr.), Los Angeles, Calif.	1929	Howard S. McDonald	5,401	13,637	590	—	70,035
Los Angeles Harbor Junior College, Wilmington, Calif.	1949	Raymond J. Casey	770	2,549	80	—	3,841
Los Angeles Trade-Technical Junior College, Los Angeles, Calif.	1949	L. G. Stier	1,867	5,409	213	—	10,000
Los Angeles Valley Jr. Col., Van Nuys, Calif.	1949	Vierling Kersey	921	1,904	75	—	3,123
Louisiana College, Pineville, La.	1906	G. Earl Guinn	610	726	50	1,047,424	25,675
Louisiana Polytechnic Institute, Ruston, La.	1894	R. L. Ropp	1,846	1,888	171	—	45,762
Louisiana State University and A. and M. College, Baton Rouge, La.	1860	Troy H. Middleton	6,608	7,110	855	329,313	532,485
Louisville, University of, Louisville, Ky.	1798	Philip G. Davidson	2,835	5,359	543	2,516,723	177,427
Lowell Textile Institute, Lowell, Mass.	1895	Martin J. Lydon	551	551	72	—	10,000
Lower Columbia Jr. Col., Longview, Wash.	1934	Turfield D. Schindler	253	662	27	—	5,200
Loyola College, Baltimore, Md.	1852	Thomas J. Murray	576	576	37	112,829	45,068
Loyola University, Chicago, Ill.	1870	James T. Hussey	3,383	7,186	339	2,500,000	242,250
Loyola University, New Orleans, La.	1912	Thomas J. Shields	1,302	2,269	183	5,000,000	85,000
Loyola Univ. of Los Angeles, Los Angeles, Calif.	1911	Charles J. Casassa	1,632	1,831	67	2,342,474	71,909
Luther College, Decorah, Ia.	1861	J. W. Ylvisaker	683	698	58	512,575	92,820
Lux College (Jr.), San Francisco, Calif.	1913	Sarah Helen Brown	129	129	23	922,005	3,493
Lycoming College, Williamsport, Pa.	1812	John W. Long	447	591	40	1,000,000	25,000
Lynchburg College, Lynchburg, Va.	1903	Orville W. Wake	471	494	34	383,710	29,000
Lyons Township Junior Col., La Grange, Ill.	1929	George S. Olsen	259	305	31	—	9,000
M							
Macalester College, St. Paul, Minn.	1885	Charles J. Turck	1,435	1,450	143	2,450,000	60,000
McGill University, Montreal, Que., Can.	1821	F. Cyril James	6,096	6,475	946	35,979,782	625,485
McMaster University, Hamilton, Ont., Can.	1887	G. P. Gilmour	980	1,344	85	1,920,000	72,000
MacMurray Col. for Wom., Jacksonville, Ill.	1846	C. P. McClelland	482	503	53	4,120,805	53,435
McMurry College, Abilene, Tex.	1922	Harold Groves Cooke	548	586	35	666,732	23,873
McNeese State College, Lake Charles, La.	1939	Lether E. Frazar	555	891	47	—	10,500
McPherson College, McPherson, Kan.	1887	Desmond W. Bittinger	327	380	29	460,000	16,626
Madison College, Harrisonburg, Va.	1908	G. Tyler Miller	958	1,039	92	—	60,010
Maine, University of, Orono, Me.	1865	Arthur A. Hauck	2,942	3,020	208	1,530,984	241,000
Manchester College, N. Manchester, Ind.	1889	V. F. Schwalm	657	668	44	704,558	40,759
Manhattan College, New York, N.Y.	1849	Brother B. Thomas	2,087	2,790	201	—	98,919
Manhattanville Col. of Sac. Hrt., N.Y., N.Y.	1841	Mother E. M. O'Byrne	389	568	92	400,902	83,000
Manitoba, University of, Winnipeg, Man., Can.	1877	A. H. S. Gillson	4,444	4,603	211	956,314	170,300
Mankato State Teachers College, Mankato, Minn.	1867	C. L. Crawford	1,341	1,760	104	—	37,885
Marietta College, Marietta, Ohio	1835	W. Bay Irvine	647	693	54	1,820,773	134,405
Margaret Morrison Carnegie College, Pittsburgh, Pa.	1905	E. W. Alexander	506	535	49	—	—
Marin, College of (Jr.), Kentfield, Calif.	1926	Ward H. Austin	821	1,013	50	—	16,960
Marion Institute (Jr.), Marion, Ala.	1842	James T. Murfee, II	345	345	29	—	5,000
Marquette University, Milwaukee, Wis.	1857	Edward J. O'Donnell	5,709	7,453	340	4,429,919	181,886

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Marshall College, Huntington, W.Va.	1837	Stewart H. Smith	1,917	2,678	153	—	75,500
Mars Hill College (Jr.), Mars Hill, N.C.	1856	Hoyt Blackwell	681	681	42	$ 170,000	25,000
Mary Allen College, Crockett, Tex.	1944	G. L. Prince	325	—	25	—	2,800
Mary Baldwin College, Staunton, Va.	1842	Frank Bell Lewis	245	248	30	535,000	40,000
Marygrove College, Detroit, Mich.	1846	Sister M. Honora	722	722	86	—	60,246
Mary Hardin-Baylor College, Belton, Tex.	1845	Gordon G. Singleton	251	339	36	1,450,000	32,110
Maryknoll Teachers College, Maryknoll, N.Y.	1934	Mother Mary Joseph	137	141	24	—	18,726
Maryland, University of, College Park, Md	1807	H. C. Byrd	8,923	13,045	1,382	3,199,282	239,211
Maryland State Tch. Col., Bowie, Md.	1867	William E. Henry	250	250	18	—	22,738
Maryland State Tch. Col., Frostburg, Md.	1899	Lillian C. Compton	383	405	32	—	21,565
Maryland State Tch. Col., Salisbury, Md.	1925	J. D. Blackwell	174	213	20	—	23,823
Maryland State Tch. Col., Towson, Md.	1865	Earle T. Hawkins	890	890	55	—	36,766
Marylhurst College, Marylhurst, Ore.	1893	Sister M. Elizabeth Clare	264	371	38	—	25,000
Mary Manse College, Toledo, Ohio	1922	Sister Vincent de Paul Kaley	131	348	44	—	25,160
Marymount College, Salina, Kan.	1922	Mother M. Chrysostom	242	253	34	—	24,600
Marymount College, Tarrytown, N.Y.	1907	M. Thérèse Dalton	497	497	60	1,000,000	35,031
Maryville College, Maryville, Tenn.	1819	Ralph W. Lloyd	689	695	55	2,169,356	55,072
Maryville College, St. Louis, Mo.	1872	Mother Odeide Mouton	264	285	40	—	29,350
Mary Washington College of the University of Virginia, Fredericksburg, Va.	1908	Morgan L. Combs	1,159	1,364	86	63,100	85,500
Marywood College, Scranton, Pa.	1915	Sister M. Eugenia	577	767	64	143,617	40,000
Mason City Junior Col., Mason City, Ia.	1918	C. H. Beem	170	673	30	—	10,000
Mass., Univ. of, Amherst, Mass.	1863	Ralph A. Van Meter	3,542	3,586	289	428,000	175,000
Mass. Institute of Tech., Cambridge, Mass.	1861	James Rhyne Killian, Jr.	—	4,874	813	54,409,586	465,639
Mass. State Tch. Col., Bridgewater, Mass.	1833	John J. Kelly	595	595	43	15,000	25,297
Mass. State Tch. Col., Fitchburg, Mass.	1894	Ellis F. White	481	570	49	—	30,880
Mass. State Tch. Col., Framingham, Mass.	1839	Martin F. O'Connor	527	534	32	—	20,509
Mass. State Tch. Col., N. Adams, Mass.	1894	Grover C. Bowman	149	290	22	—	11,511
Mass. State Tch. Col., Salem, Mass.	1854	Edward A. Sullivan	564	568	40	—	22,827
Mass. State Tch. Col., Worcester, Mass.	1871	Eugene A. Sullivan	415	415	29	—	16,000
Medical Evangelists, College of, Loma Linda and Los Angeles, Calif.	1909	Walter E. Macpherson	586	630	125	—	59,365
Memphis State College, Memphis, Tenn.	1909	J. M. Smith	2,000	2,320	145	—	55,000
Menlo College, Menlo Park, Calif.	1927	William E. Kratt	250	250	25	—	14,000
Mercer University, Macon, Ga.	1833	Spright Dowell	1,045	1,323	69	3,072,604	98,000
Mercy College, Detroit, Mich.	1934	—	361	371	37	—	18,732
Mercyhurst College, Erie, Pa.	1926	Sr. M. de Sales Preston	325	—	35	1,680,000	21,000
Meredith College, Raleigh, N.C.	1891	Carlyle Campbell	541	574	46	603,310	33,573
Meridian Municipal Jr. Col., Meridian, Miss.	1937	H. M. Ivy	1,079	1,216	77	—	12,500
Miami, University of, Coral Gables, Fla.	1925	Bowman F. Ashe	7,755	10,519	498	2,500,000	273,254
Miami University, Oxford, Ohio	1809	Ernest H. Hahne	4,855	5,872	328	—	242,560
Michigan, University of, Ann Arbor, Mich.	1817	Harlan Henthorne Hatcher	17,155	19,850	1,191	19,843,745	1,472,837
Michigan Col. of Min. and Tech., Houghton, Mich.	1885	Grover C. Dillman	1,304	1,334	132	—	60,000
Michigan State College, E. Lansing, Mich.	1855	John A. Hannah	12,219	13,837	1,040	2,248,714	472,221
Michigan St. Normal Col., Ypsilanti, Mich.	1849	Eugene B. Elliott	1,900	2,258	225	70,000	138,250
Middlebury College and the Women's College of Middlebury, Middlebury, Vt.	1800	Samuel S. Stratton	1,213	1,213	75	5,046,426	120,527
Middle Georgia College (Jr.), Cochran, Ga.	1928	Lucien E. Roberts	166	166	17	—	10,500
Middle Tenn. St. Col., Murfreesboro, Tenn.	1909	Q. M. Smith	972	1,261	79	—	38,000
Midland College, Fremont, Neb.	1887	W. P. Hieronymus	351	373	34	211,311	30,000
Midway Junior College, Midway, Ky.	1847	Lewis A. Piper	31	31	9	1,348,759	7,870
Midwestern University, Wichita Falls, Tex.	1922	James B. Boren	1,021	1,252	95	400,000	25,187
Miles College, Birmingham, Ala.	1907	W. A. Bell	794	841	29	—	14,680
Millikin University, Decatur, Ill.	1901	J. Walter Malone	926	961	80	3,250,000	47,000
Mills College, Oakland, Calif.	1852	Lynn White, Jr.	626	643	63	2,577,596	101,600
Millsaps College, Jackson, Miss.	1891	Marion L. Smith	602	656	41	1,339,925	34,000
Milwaukee-Downer Col., Milwaukee, Wis.	1851	John B. Johnson, Jr.	268	306	44	2,718,339	59,524
Miner Teachers College, Washington, D.C.	1851	Eugene A. Clark	519	519	30	—	45,000
Minnesota, Univ. of, Minneapolis, Minn.	1851	James L. Morrill	18,682	—	1,946	36,750,330	1,600,000
Misericordia, College, Dallas, Pa.	1924	Sister Mary Gonzaga	505	801	55	1,100,000	25,550
Mississippi, University of, University, Miss.	1848	J. D. Williams	2,211	2,253	297	—	186,000
Mississippi College, Clinton, Miss.	1826	D. M. Nelson	828	846	48	1,000,000	42,000
Mississippi Southern Col., Hattiesburg, Miss.	1910	R. C. Cook	1,780	2,220	163	—	47,090
Mississippi State Col., State College, Miss.	1878	Fred T. Mitchell	1,938	2,387	212	248,789	147,986
Mississippi St. Col. for Wom., Columbus, Miss.	1884	B. L. Parkinson	804	822	71	—	84,000
Missouri, University of, Columbia, Mo.	1839	F. A. Middlebush	8,231	8,664	1,073	2,841,680	731,000
Missouri Valley College, Marshall, Mo.	1888	M. Earle Collons	380	460	32	600,000	33,000
Modesto Junior College, Modesto, Calif.	1921	Henry T. Tyler	880	910	70	—	25,000
Moline Community College (Jr.), Moline, Ill.	1946	Gerald W. Smith	51	174	20	—	3,611
Monmouth College, Monmouth, Ill.	1853	James Harper Grier	594	625	57	2,043,484	53,000
Montana School of Mines, Butte, Mont.	1893	J. R. Van Pelt	245	245	30	800,000	22,766
Montana State College, Bozeman, Mont.	1893	P. C. Gaines	1,889	1,951	192	2,081,880	115,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endow- ment	Bound Library Volumes
Montana State University, Missoula, Mont..	1893	Carl McFarland	2,346	2,390	221	$ 899,847	349,362
Monterey Peninsula College (Jr.), Monterey, Calif.	1947	Calvin C. Flint	535	737	27	—	7,000
Montgomery Jr. Col., Bethesda, Md.	1946	Hugh G. Price	271	444	26	—	5,000
Monticello College (Jr.), Godfrey, Ill.	1835	John R. Young	203	203	27	120,000	21,720
Montreal, University of, Montreal, Que., Can.	1876	Olivier Maurault	7,500	13,000	1,800	400,000	125,000
Moorhead State Tch. Col., Moorhead, Minn.	1887	O. W. Snarr	506	550	59	—	32,000
Moravian Col. and Theol. Sem., Bethlehem, Pa.	1807	Raymond S. Haupert	318	319	29	952,000	53,000
Morehead State Col., Morehead, Ky.	1923	Charles R. Spain	566	601	61	—	46,298
Morehouse College, Atlanta, Ga.	1867	Benjamin E. Mays	473	473	44	2,000,000	116,820
Morgan State College, Baltimore, Md.	1867	Martin D. Jenkins	1,559	2,214	102	—	50,000
Morningside College, Sioux City, Ia.	1889	E. A. Roadman	627	644	60	674,633	61,000
Morris Brown College, Atlanta, Ga.	1881	John H. Lewis	587	667	40	475,333	10,089
Morristown Normal and Industrial College (Jr.), Morristown, Tenn..	1881	Miller Williams Boyd	282	282	19	82,928	12,006
Morton Junior College, Cicero, Ill.	1924	Wm. P. MacLean	373	525	57	—	17,000
Mt. Allison Univ., Sackville, N.B., Can.	1840	W. T. R. Flemington	608	914	57	1,400,000	66,000
Mt. Aloysius Junior College, Cresson, Pa.	1939	Sister M. Anne McCue	80	90	18	55,000	8,000
Mt. Angel Seminary, Mt. Angel, Ore..	1889	Damian Jentges	102	102	26	—	41,890
Mt. Holyoke College, S. Hadley, Mass.	1837	Roswell G. Ham	1,221	1,262	133	7,373,000	223,500
Mt. Mary College, Milwaukee, Wis.	1872	Edward A. Fitzpatrick	606	886	95	59,756	41,628
Mt. Mercy College, Pittsburgh, Pa.	1933	Mother M. Francella	259	566	42	—	30,632
Mt. Mercy Jr. College, Cedar Rapids, Ia.	1928	Sister Mary Ildephonse Holland	132	145	18	—	12,638
Mt. St. Agnes Col., Baltimore, Md.	1867	Sister M. Placide	124	156	26	—	23,000
Mt. St. Clare College (Jr.), Clinton, Iowa	1918	Mother M. Regis Cleary	84	120	16	—	11,500
Mt. St. Joseph-on-the-Ohio, Col. of, Mt. St. Joseph, Ohio.	1854	Mother Mary Zoe	411	434	54	895,000	30,000
Mount St. Joseph Teachers Col., Buffalo, N.Y.	1937	Sister M. Hubert	50	392	30	—	28,000
Mt. St. Mary College, Hooksett, N.H.	1934	Sister M. Mauritia	247	247	23	—	16,168
Mt. St. Mary's College, Emmitsburg, Md.	1808	John L. Sheridan	470	470	34	350,000	35,000
Mt. St. Mary's College, Los Angeles, Calif.	1925	Sister Agnes Marie	355	469	54	—	31,000
Mt. St. Scholastica College, Atchison, Kan.	1863	Mother Alfred Schroll	324	360	38	—	31,500
Mt. St. Vincent, College of, New York, N.Y.	1910	Sister Catharine Marie	447	585	54	252,210	24,184
Mount Saint Vincent Col., Halifax, N.S.Can.	1873	Sister Maria Rosaria	198	263	22	—	25,000
Mt. San Antonio College (Jr.), Pomona, Calif.	1946	George H. Bell	848	1,361	77	—	13,716
Mt. Union College, Alliance, Ohio	1846	Charles B. Ketcham	653	826	45	1,400,000	85,000
Muhlenberg College, Allentown, Pa.	1848	—	609	614	42	1,145,078	85,000
Multnomah College (Jr.), Portland, Ore..	1897	Edward L. Clark	419	1,166	107	25,000	9,000
Mundelein College, Chicago, Ill.	1929	Sister Mary John Michael Dee	712	722	66	—	33,700
Murray State College Murray, Ky.	1922	Ralph H. Woods	1,139	1,363	92	—	45,278
Muskegon Community College (Jr.), Muskegon, Mich.	1926	A. G. Umbreit	262	280	21	—	180,000
Muskingum College, New Concord, Ohio	1837	R. N. Montgomery	730	750	65	999,894	36,000
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Napa College (Jr.), Napa, Calif..	1942	H. M. McPherson	775	804	56	—	8,000
National College of Educ., Evanston, Ill.	1886	K. Richard Johnson	319	376	45	140,000	36,401
Nazareth College, Louisville, Ky.	1920	—	353	817	51	15,000	30,500
Nazareth College, Nazareth, Mich.	1897	Sister Mary Kevin	196	261	30	10,000	38,510
Nazareth College, Rochester, N.Y..	1924	Mother M. Helene	452	452	64	—	25,963
Nebraska, University of, Lincoln, Neb.	1869	Reuben G. Gustavson	6,110	6,952	534	1,202,414	500,000
Nebraska State Tch. Col., Chadron, Neb.	1911	Wiley G. Brooks	301	321	51	—	30,387
Nebraska State Tch. Col., Kearney, Neb..	1905	Herbert L. Cushing	565	579	55	—	40,501
Nebraska State Tch. Col., Peru, Neb..	1867	Neal S. Gomon	281	399	47	—	54,000
Nebraska State Tch. Col., Wayne, Neb.	1888	John D. Rice	604	615	56	—	40,638
Nebraska Wesleyan University, Lincoln, Neb.	1887	Carl C. Bracy	617	646	49	987,976	40,398
Nevada, University of, Reno, Nev.	1874	Malcolm A. Love	1,101	1,212	119	1,083,096	93,188
Newark Col. of Engineering, Newark, N.J.	1881	Robert W. Van Houten	1,026	3,208	161	112,821	22,200
Newberry College, Newberry, S.C.	1856	James C. Kinard	360	395	26	325,542	26,540
New Brunswick, University of, Fredericton, N.B., Can.	1785	A. W. Trueman	795	795	76	800,000	60,000
Newcomb College, New Orleans, La.	1886	Anna E. Many	598	604	76	2,350,000	351,000
New Hampshire, University of, Durham, N.H.	1866	Robert F. Chandler, Jr.	3,150	3,150	251	1,472,500	170,333
New Haven State Tch. Col., New Haven, Conn.	1893	Samuel M. Brownell	896	902	74	—	35,183
New Haven YMCA Jr. Col., New Haven, Conn.	1920	Lawrence L. Bethel	28	600	60	140,000	—
New Jersey State Tch. Col., Glassboro, N.J.	1917	Edgar F. Bunce	508	1,020	36	—	35,000
New Jersey State Tch. Col., Jersey City, N.J.	1929	Forrest A. Irwin	466	675	42	—	33,880
New Jersey State Tch. Col., Newark, N.J..	1855	Eugene G. Wilkins	708	1,553	48	—	38,680
New Jersey State Tch. Col., Paterson, N.J.	1855	Clair S. Wightman	510	894	35	—	24,000
New Jersey State Tch. Col., Trenton, N.J.	1855	Roscoe L. West	874	1,028	84	—	67,621
New Jersey State Tch. Col., Upper Montclair, N.J..	1908	E. DeAlton Partridge	1,055	1,602	83	51,200	64,140
New Mexico, University of, Albuquerque, N.M.	1889	Thomas L. Popejoy	2,884	3,799	286	1,300,000	193,949
New Mexico College of Agriculture and Mechanic Arts, State College, N.M..	1888	J. W. Branson	1,170	1,653	140	$ 822,894	73,500
New Mexico Highlands Univ., Las Vegas, N.M.	1893	Edward Eyring	517	689	67	—	40,232
New Mexico Institute of Mining and Technology, Socorro, N.M.	1889	E. J. Workman	142	156	26	—	15,621
New Mexico Military Inst., Roswell, N.M.	1893	E. L. Lusk	597	597	48	—	28,706
New Mexico Western Col., Silver City, N.M..	1893	Haddon W. James	719	822	70	—	30,000
New Rochelle, Col. of, New Rochelle, N.Y.	1904	Mother M. Dorothea Dunkerley	747	747	67	118,000	65,513
New York State Col. for Tch., Albany, N.Y.	1844	Evan R. Collins	1,502	1,576	129	—	48,694
New York State Tch. Col., Brockport, N.Y.	1841	Donald M. Tower	1,002	1,019	92	—	31,215
New York State Tch. Col., Buffalo, N.Y.	1872	Harvey M. Rice	2,033	4,145	151	—	39,736
New York State Tch. Col., Cortland, N.Y.	1869	Donnal V. Smith	1,304	1,304	110	—	40,000
New York State Tch. Col., Fredonia, N.Y.	1867	Leslie R. Gregory	740	891	75	—	23,382
New York State Tch. Col., Geneseo, N.Y.	1867	Herbert G. Espy	638	848	70	—	30,344
New York State Tch. Col., New Paltz, N.Y.	1886	Wm. J. Haggerty	840	846	89	—	23,063
New York State Tch. Col., Oneonta, N.Y.	1889	Royal F. Netzer	708	972	62	—	29,000
New York State Tch. Col., Oswego, N.Y..	1861	Harvey M. Rice	1,157	1,232	100	—	49,329
New York State Tch. Col., Plattsburg, N.Y.	1889	Charles C. Ward	830	984	75	—	27,767
New York State Tch. Col., Potsdam, N.Y..	1866	Frederick W. Crumb	708	713	93	—	28,031
New York University, New York, N.Y.	1831	Henry Townley Heald	16,858	15,186	4,037	18,455,909	927,577
Niagara University, Niagara Univ., N.Y.	1856	Francis L. Meade	1,213	1,398	117	—	65,000
Norfolk Div. of Va. St. Col., Norfolk, Va.	1935	Dr. Brooks	483	893	41	—	8,200
North Carolina, Agri. and Tech. Col. of, Greensboro, N.C..	1891	F. D. Bluford	2,451	2,568	160	—	41,486
North Carolina, Univ. of, Chapel Hill, N.C.	1789	Gordon Gray	5,773	5,841	404	4,119,061	581,682
North Carolina, Woman's College of the University of, Greensboro, N.C.	1891	Edward K. Graham	2,319	2,392	196	155,275	143,173
North Carolina Col. at Durham, Durham, N.C.	1910	A. Elder	—	1,368	110	—	44,650
North Carolina State College of Agri. and Eng., Raleigh, N.C.	1887	J. W. Harrelson	3,374	3,704	531	468,125	115,320
North Central College, Naperville, Ill.	1861	C. Harve Geiger	570	603	43	1,426,626	40,196
North Dakota, Univ. of, Grand Forks, N.D.	1883	John C. West	2,051	2,162	181	—	175,000
North Dakota Agricultural Col., Fargo, N.D.	1889	Fred Samuel Hultz	1,672	1,713	144	1,925,248	97,427
North Dakota State Normal and Industrial College, Ellendale, N.D.	1889	J. C. McMillan	101	312	20	—	22,493
North Dakota State Tch. Col., Dickinson, N.D.	1916	Charles E. Scott	205	205	29	—	21,566
North Dakota State Tch. Col., Mayville, N.D.	1889	C. P. Lura	183	183	26	346,000	21,933
North Dakota State Tch. Col., Minot, N.D.	1913	C. C. Swain	619	651	68	—	40,000
North Dakota St. Tch. Col., Valley City, N.D.	1889	R. L. Lokken	297	322	43	690,000	40,000
Northeastern Oklahoma A. & M. College, (Jr.), Miami, Okla.	1919	Bruce G. Carrer	370	543	40	—	9,000
Northeastern State College, Tahlequah, Okla.	1846	Harrell E. Garrison	879	998	62	—	50,000
Northeastern University, Boston, Mass.	1898	Carl S. Ell	4,310	12,486	496	5,350,385	48,966
Northeast Louisiana State Col., Monroe, La.	1931	Lewis C. Slater	595	697	46	—	12,200
Northeast Missouri St. Tch. Col., Kirksville, Mo.	1867	Walter H. Ryle	1,426	1,426	81	—	110,000
Northern Baptist Theological Seminary, Chicago, Ill.	1913	Charles W. Koller	273	341	22	72,226	45,733
Northern Illinois State Tch. Col., De Kalb, Ill..	1899	Leslie A. Holmes	1,776	2,084	126	—	78,867
Northern Michigan Col. of Educ., Marquette Mich..	1899	H. A. Tape	580	618	67	—	46,345
Northern Montana Col. (Jr.), Havre, Mont.	1929	L. O. Brockmann	250	275	25	—	26,000
Northern Oklahoma Jr. Col., Tonkawa, Okla.	1901	George P. Huckaby	172	220	29	—	10,000
Northern State Tch. Col., Aberdeen, S.D.	1901	Warren Lovinger	550	607	50	10,000	32,000
Northern Wyoming Community College (Jr.), Sheridan, Wyo.	1948	Loyd J. Hultgren	66	72	15	—	2,198
North Georgia Col., Dahlonega, Ga..	1873	Merritt E. Hoag	574	574	36	—	22,501
North Idaho Jr. Col., Coeur d'Alene, Ida.	1939	George O. Kildow	136	241	18	—	12,000
North Park College (Jr.), Chicago, Ill..	1891	Clarence A. Nelson	612	961	57	327,733	22,943
North Texas State Col., Denton, Tex.	1890	W. J. McConnell	3,938	4,299	307	—	218,000
Northwestern State College, Alva, Okla.	1897	Sabin C. Percefull	511	—	43	—	31,876
Northwestern State College of Louisiana, Natchitoches, La.	1884	H. Lee Prather	1,296	1,363	110	—	57,977
Northwestern Univ., Evanston, Ill.	1851	J. Roscoe Miller	8,507	19,472	1,054	70,000,000	1,058,000
Northwest Missouri St. Col., Maryville, Mo.	1905	J. W. Jones	795	795	55	—	43,000
Northwest Nazarene College, Nampa, Ida.	1913	Lewis T. Corlett	477	547	44	—	17,000
Norwich University, Northfield, Vt.	1819	Ernest N. Harmon	630	630	56	1,877,681	55,000
Notre Dame, College of (Jr.), Belmont, Calif.	1915	Sister Helen Madeleine	157	187	25	—	12,000
Notre Dame, University of, Notre Dame, Ind.	1842	John J. Cavanaugh	5,015	5,038	523	7,460,645	294,780
Notre Dame College, South Euclid, Ohio	1923	Mother Mary Anselm	245	245	37	—	26,756
Notre Dame College of Staten Island, Staten Island, N.Y.	1931	Mother Saint Egbert	275	275	25	—	16,000
Notre Dame Jr. Col., St. Louis, Mo.	1925	Sister M. Chrysologa	41	115	9	—	12,447
Notre Dame of Md., Col. of, Baltimore, Md.	1873	Sister Margaret Mary	315	417	51	194,000	35,000
Nova Scotia Agr. Col. (Jr.), Truro, N.S., Can.	1905	Kenneth Cox	65	65	25	—	5,000
Nova Scotia Technical Col., Halifax, N.S., Can.	1907	Alan E. Cameron	249	253	26	—	8,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
O							
Oakwood College, Huntsville, Ala.	1896	F. L. Peterson	175	284	22	—	10,013
Oberlin College, Oberlin, Ohio	1833	William E. Stevenson	1,962	2,051	183	$24,088,000	490,085
Occidental College, Los Angeles, Calif.	1887	Arthur G. Coons	1,205	1,312	120	1,657,068	100,205
Oceanside-Carlsbad College (Jr.), Oceanside, Calif.	1934	Frank M. Chase	174	372	44	—	7,291
Ohio State University, Columbus, Ohio	1870	Howard L. Bevis	16,583	18,618	1,579	3,067,278	891,812
Ohio University, Athens, Ohio	1804	John Calhoun Baker	4,031	4,867	342	124,322	209,674
Ohio Wesleyan University, Delaware, Ohio	1842	Arthur S. Flemming	1,978	2,011	144	5,561,613	192,746
Oklahoma, University of, Norman, Okla.	1892	George Lynn Cross	7,612	7,962	540	6,125,094	337,555
Oklahoma A. and M. College, Stillwater, Okla.	1890	Henry G. Bennett	8,836	11,343	616	5,313,572	275,000
Oklahoma City Univ., Oklahoma City, Okla.	1904	C. Q. Smith	790	2,227	73	958,800	46,446
Oklahoma Col. for Women, Chickasha, Okla.	1908	Dan Procter	506	663	52	—	40,000
Oklahoma Military Acad. (Jr.), Claremore, Okla.	1919	Homer M. Ledbetter	281	281	16	—	8,334
Olympic College (Jr.), Bremerton, Wash.	1946	L. J. Elias	353	1,017	30	—	4,865
Omaha, University of, Omaha, Neb.	1908	Philip Milo Bail	1,368	2,942	116	122,701	91,448
Ontario Agricultural Col., Guelph, Ont., Can.	1874	J. D. MacLachlan	634	2,408	144	—	50,000
Orange Coast Col. (Jr.), Costa Mesa, Calif.	1947	Basil H. Peterson	667	2,250	90	—	8,500
Oregon, Univ. of, Eugene, Ore.	1872	Harry K. Newburn	—	5,363	453	1,700,000	553,582
Oregon College of Educ., Monmouth, Ore.	1856	Roben J. Maaske	465	470	29	—	29,937
Oregon State College, Corvallis, Ore.	1858	A. L. Strand	4,906	5,002	425	352,472	262,000
Ottawa, University of, Ottawa, Ont., Can.	1848	J. C. Laframboise	1,476	3,580	373	125,000	150,000
Ottawa University, Ottawa, Kan.	1865	A. B. Martin	370	379	25	468,245	26,924
Otterbein College, Westerville, Ohio	1847	J. Gordon Howard	623	677	56	1,318,265	45,000
Ottumwa Heights Col. (Jr.), Ottumwa, Ia.	1925	Sister Marie Ancille	106	106	18	—	13,000
Our Lady of the Elms, Col. of, Chicopee, Mass.	1928	C J. Weldon	257	257	25	—	18,989
Our Lady of the Lake Col., San Antonio, Tex.	1896	John L. McMahon	255	435	68	550,042	51,006
Ozarks, College of the, Clarksville, Ark.	1891	H. E. Buchanan	200	215	26	325,000	28,000
P							
Pacific, College of the, Stockton, Calif.	1851	Robert E. Burns	970	1,314	111	1,091,168	54,000
Pacific Lutheran Col., Parkland, Wash.	1894	S. C. Eastvold	686	823	58	66,215	33,534
Pacific Union College, Angwin, Calif.	1882	J. E. Weaver	685	820	64	—	42,286
Pacific University, Forest Grove, Ore.	1849	Walter C. Giersbach	556	688	56	1,010,576	46,813
Packer Collegiate Inst. (Jr.), Brooklyn, N.Y.	1845	Paul D. Shafer	57	57	20	1,470,386	12,782
Paine College, Augusta, Ga.	1883	Edmund C. Peters	333	368	25	34,256	28,452
Palm Beach Jr. Col., W. Palm Beach, Fla.	1933	John I. Leonard	167	170	18	—	8,000
Palomar College, (Jr.), San Marcos, Calif.	1946	Elon Earl Hildreth	209	526	35	—	7,200
Palo Verde Junior College, Blythe, Calif.	1947	David N. Davidson	100	—	19	—	2,000
Paris Junior College, Paris, Tex.	1924	J. R. McLemore	400	450	30	—	7,265
Park College, Parkville, Mo.	1875	J. L. Zwingle	382	391	35	2,000,000	47,875
Parsons College, Fairfield, Ia.	1875	Tom E. Shearer	281	296	27	514,789	24,100
Pasadena City Col. (Jr.), Pasadena, Calif.	1924	William B. Langsdorf	2,628	4,269	233	—	45,000
Pasadena College, Pasadena, Calif.	1901	Westlake T. Purkiser	525	663	38	—	40,000
Peace College (Jr.), Raleigh, N.C.	1857	William C. Pressly	136	206	19	220,000	11,500
Pearl River Junior Col., Poplarville, Miss.	1912	R. D. McLendon	329	345	24	—	6,000
Pennsylvania, Univ. of, Philadelphia, Pa.	1740	Harold E. Stassen	9,130	17,272	2,561	32,500,000	1,237,278
Pennsylvania Col. for Wom., Pittsburgh, Pa.	1869	Paul R. Anderson	482	508	54	2,461,834	41,000
Pennsylvania State Col., State College, Pa.	1855	Milton S. Eisenhower	11,499	12,591	1,284	1,257,170	335,000
Pa. State Tch. Col., Bloomsburg, Pa.	1839	Harvey A. Andruss	773	819	43	—	24,472
Pa. State Tch. Col., California, Pa.	1852	Robert M. Steele	615	712	55	—	26,401
Pa. State Tch. Col., Cheyney, Pa.	1837	J. H. Duckrey	376	377	28	—	25,000
Pa. State Tch. Col., Clarion, Pa.	1866	Paul G. Chandler	558	631	48	—	22,500
Pa. State Tch. Col., E. Stroudsburg, Pa.	1893	Joseph F. Noonan	945	950	50	—	29,850
Pa. State Tch. Col., Edinboro, Pa.	1857	L. H. Van Houten	439	578	40	—	31,000
Pa. State Tch. Col., Indiana, Pa.	1871	Willis E. Pratt	1,537	1,675	110	—	34,366
Pa. State Tch. Col., Kutztown, Pa.	1866	Q. A. W. Rohrbach	817	890	48	—	39,299
Pa. State Tch. Col., Lock Haven, Pa.	1877	Richard T. Parsons	468	472	37	—	33,000
Pa. State Tch. Col., Mansfield, Pa.	1858	James G. Morgan	610	619	70	—	34,000
Pa. State Tch. Col., Millersville, Pa.	1854	D. L. Biemesderfer	693	801	46	—	35,000
Pa. State Tch. Col., Shippensburg, Pa.	1871	Harry L. Kriner	655	667	35	—	32,174
Pa. State Tch. Col., Slippery Rock, Pa.	1889	Dale W. Houk	761	763	62	—	24,000
Pa. State Tch. Col., West Chester, Pa.	1869	Charles S. Swope	1,587	1,640	92	—	50,000
Perkinston Junior College, Perkinston, Miss.	1911	A. L. May	389	406	35	—	7,476
Pfeiffer Junior College, Misenheimer, N.C.	1903	C. M. Waggoner	203	203	17	480,000	5,560
Philander Smith College, Little Rock, Ark.	1868	M. LaFayette Harris	379	570	45	2,000,000	25,162
Phillips University, Enid, Okla.	1906	Eugene S. Briggs	726	1,089	62	974,783	56,333
Phoenix College (Jr.), Phoenix, Ariz.	1920	E. W. Montgomery	985	1,626	61	—	26,300
Pierce Jr. Col., Canoga Park, Calif.	1947	E. B. Angier	420	2,010	77	—	6,000
Pikeville College, (Jr.), Pikeville, Ky.	1889	A. A. Page	225	255	28	323,200	15,000
Pine Manor Junior Col., Wellesley, Mass.	1911	Marie Warren Potter	165	—	32	—	9,000
Pittsburgh, University of, Pittsburgh, Pa.	1787	Rufus H. Fitzgerald	7,995	16,371	1,600	8,621,514	580,000
Placer College (Jr.), Auburn, Calif.	1936	Harold M. Weaver	320	334	36	—	9,500
Plymouth Teachers College, Plymouth, N.H.	1870	Harold E. Hyde	266	274	39	—	16,000
Pomona College, Claremont, Calif.	1887	E. Wilson Lyon	1,025	1,054	92	$5,770,000	123,856
Porterville Col. (Jr.), Porterville, Calif.	1927	B. E. Jamison	167	250	21	—	7,200
Port Huron Junior Col., Port Huron, Mich.	1923	John H. McKenzie	226	283	17	—	7,369
Portland, University of, Portland, Ore.	1901	Robert H. Sweeney	1,213	1,275	107	—	55,623
Potomac State School of West Virginia University (Jr.), Keyser, W.Va.	1902	E. E. Church	310	347	30	—	11,000
Prairie View Agricultural & Mechanical College, Prairie View, Tex.	1876	E. B. Evans	2,428	2,452	134	—	40,057
Pratt Institute, Brooklyn, N.Y.	1887	Charles Pratt	1,511	3,590	294	9,200,000	148,000
Presbyterian College, Clinton, S.C.	1880	Marshall W. Brown	414	414	32	581,690	40,000
Princeton University, Princeton, N.J.	1746	Harold W. Dodds	3,537	3,537	461	51,723,000	1,500,000
Principia College, Elsah, Ill.	1898	Frederic E. Morgan	451	458	39	963,631	44,500
Providence College, Providence, R.I.	1917	Robert J. Slavin	1,436	1,969	110	57,000	30,000
Pueblo Junior College, Pueblo, Col.	1933	Marvin C. Knudson	460	1,464	76	—	8,000
Puerto Rico, Polytech. Inst. of, San German, P.R.	1912	Edward G. Seel	408	426	39	367,100	16,672
Puerto Rico, Univ. of, Río Piedras, P.R.	1903	Jaime Benítez	6,516	10,890	620	2,074,966	186,225
Puget Sound, College of, Tacoma, Wash.	1888	R. Franklin Thompson	1,047	1,336	98	1,563,150	62,793
*Purdue University, West Lafayette, Ind.	1869	Frederick L. Hovde	10,919	11,053	1,502	340,000	286,244
Q							
Queens College, Charlotte, N.C.	1857	Charlton C. Jernigan	285	301	42	611,275	26,582
Queens College, Flushing, N.Y.	1937	John J. Theobald	3,354	5,011	268	11,043	83,410
Queen's University, Kingston, Ontario, Can.	1841	W. A. Mackintosh	2,112	6,027	203	7,452,000	224,159
R							
Radcliffe College, Cambridge, Mass.	1879	Wilbur K. Jordan	1,340	1,340	2,700	8,165,000	104,000
*Radford College, Woman's Division of Virginia Polytechnic Institute, Radford, Va.	1910	David W. Peters	857	881	56	—	33,000
Randolph-Macon College, Ashland, Va.	1830	J. Earl Moreland	356	357	30	1,096,825	44,000
Randolph-Macon Woman's Col., Lynchburg, Va.	1893	Theodore H. Jack	592	592	77	1,354,000	74,000
Redlands, University of, Redlands, Calif.	1907	George H. Armacost	1,018	1,130	85	2,545,602	86,166
Reed College, Portland, Ore.	1904	E. B. MacNaughton	580	620	59	1,617,283	94,800
Reedley College (Jr.), Reedley, Calif.	1926	Leo Wolfson	403	418	40	—	12,000
Regis College, Weston, Mass.	1927	Sister Mary Alice	584	584	70	190,100	38,000
Rensselaer Polytechnic Inst., Troy, N.Y.	1824	Livingston W. Houston	2,725	3,978	367	14,380,398	50,488
Rhode Island, University of, Kingston, R.I.	1892	Carl R. Woodward	1,859	1,987	205	—	111,345
Rhode Island Col. of Educ., Providence, R.I.	1854	Fred J. Donovan	450	1,559	64	—	25,213
Rhode Island School of Design, Providence, R.I.	1877	Max W. Sullivan	626	671	78	—	20,993
Rice Institute, Houston, Tex.	1912	William V. Houston	1,507	1,507	130	30,000,000	200,000
Richmond, University of, Richmond, Va.	1832	George M. Modlin	1,430	2,357	135	3,240,220	125,000
Ricker College, Houlton, Me.	1848	Jasper F. Crouse	138	138	18	—	9,000
Ricks College, Rexburg, Ida.	1888	John L. Clarke	429	451	35	—	15,800
Ripon College, Ripon, Wis.	1850	Clark G. Kuebler	551	554	44	1,062,856	52,261
Riverside College (Jr.), Riverside, Calif.	1916	Orland W. Noble	546	598	40	—	18,617
Rivier College, Nashua, N.H.	1933	M. St. Pascal	136	209	28	—	21,200
Roanoke College, Salem, Va.	1842	H. Sherman Oberly	340	364	25	737,617	30,718
Rochester, University of, Rochester, N.Y.	1850	Cornelis Willem de Kiewiet	3,137	6,084	842	59,616,000	531,119
Rockford College, Rockford, Ill.	1847	Mary Ashby Cheek	218	509	43	1,072,000	40,210
Rockhurst College, Kansas City, Mo.	1910	Maurice E. Van Ackeren	391	956	57	—	24,376
Rocky Mountain College, Billings, Mont.	1883	Herbert W. Hines	143	9	19	500,000	28,150
*Rollins College, Winter Park, Fla.	1885	Paul A. Wagner	630	636	74	1,303,700	80,000
Roosevelt College, Chicago, Ill.	1945	Edward J. Sparling	2,355	4,237	231	—	60,000
Rosary College, River Forest, Ill.	1848	Sister M. Timothea	633	683	78	183,484	65,190
Rosemont College, Rosemont, Pa.	1921	Mother Mary Boniface	334	370	45	—	41,000
Rose Polytechnic Institute, Terre Haute, Ind.	1874	Ford L. Wilkinson, Jr.	287	292	36	2,300,000	24,000
Royal Military College of Canada, Kingston, Ont., Can.	1876	D. R. Agnew	350	350	50	—	29,000
Russell Sage College, Troy, N.Y.	1916	Lewis A. Froman	530	541	60	1,027,128	56,676
Rust College, Holly Springs, Miss.	1866	L. M. McCoy	271	871	32	33,840	17,970
Rutgers University (incl. N.J. College for Women), New Brunswick and Newark, N.J.	1766	Lewis Webster Jones	6,500	21,000	750	6,754,000	616,000
S							
Sacramento Jr. Col., Sacramento, Calif.	1916	J. Paul Mohr	1,924	7,106	86	—	35,000
Sacramento St. Col., Sacramento, Calif.	1947	Guy H. West	916	2,011	100	—	25,000
Sacred Heart, College of the, Santurce, P.R.	1880	Mother Consuelo Herrera	119	120	24	113,300	22,442
St. Ambrose College, Davenport, Ia.	1882	Ambrose J. Burke	708	1,062	59	600,000	35,000
St. Anselm's College, Manchester, N.H.	1889	Bertrand C. Dolan	514	614	43	—	40,000
St. Augustine's College, Raleigh, N.C.	1867	Harold L. Trigg	378	379	32	208,000	19,716
St. Bede Junior College, Peru, Ill.	1891	Lawrence Vohs	58	74	20	—	27,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
St. Benedict, College of, St. Joseph, Minn.	1913	Mother Richarda	218	250	39	—	22,031
St. Benedict's College, Atchison, Kan.	1859	Cuthbert McDonald	428	430	36	$4,200,000	110,000
St. Bernard College (Jr.), St. Bernard, Ala.	1892	Boniface Seng	81	81	16	—	26,956
St. Bonaventure Univ., St. Bonaventure, N.Y.	1859	Juvenal Lalor	1,384	1,552	111	121,600	120,000
St. Catherine, College of, St. Paul, Minn.	1905	Sister Antonine	776	805	87	653,000	64,000
St. Charles College (Jr.), Catonsville, Md.	1831	George A. Gleason	169	169	14	—	40,000
St. Cloud St. Tch. Col., St. Cloud, Minn.	1869	John W. Headley	1,216	1,249	118	—	70,000
St. Dunstan's Col., Charlottetown, P. E. I., Can.	1831	R. V. MacKenzie	317	319	20	—	12,000
St. Edward's Seminary, Kenmore, Wash.	1931	James H. Brennan	128	128	15	—	19,000
St. Elizabeth, Col. of, Convent Station, N.J.	1899	Sister Marie José	542	546	49	—	34,400
St. Francis, College of, Joliet, Ill.	1874	Sister M. Aniceta	263	360	49	16,000	38,000
St. Francis College, Loretto, Pa.	1847	Adrian J. M. Veigle	382	382	29	1,300,000	20,000
St. Francis Xavier Col. for Wom., Chicago, Ill.	1912	Sister Mary Huberta	266	529	44	—	57,600
St. Francis Xavier Univ., Antigonish, N.S., Can.	1853	P. J. Nicholson	786	864	48	600,000	52,000
St. John College of Cleveland, Cleveland, Ohio	1928	Robert B. Navin	386	839	35	—	29,800
St. John's College, Camarillo and Los Angeles, Calif.	1926	F. B. Koeper	102	102	13	—	40,000
St. John's College, Annapolis, Md.	1696	Richard D. Weigle	150	150	17	300,000	45,000
St. John's University, Brooklyn, N.Y.	1870	John A. Flynn	3,335	6,755	293	526,629	100,924
St. John's University, Collegeville, Minn.	1857	Baldwin Dworschak	866	866	70	236,606	85,565
St. Joseph College, W. Hartford, Conn.	1925	Mother M. Ethelreda	366	651	53	—	24,225
St. Joseph College, Emmitsburg, Md.	1809	Francis J. Dodd	197	199	27	—	19,261
St. Joseph Junior Col., St. Joseph, Mo.	1915	Nelle Blum	290	298	22	—	9,000
St. Joseph's College, Collegeville, Ind.	1889	Raphael H. Gross	527	650	49	177,870	51,443
St. Joseph's College, Philadelphia, Pa.	1851	Edward G. Jacklin	1,011	1,747	69	—	28,644
St. Joseph's Col. for Women, Brooklyn, N.Y.	1916	William T. Dillon	330	330	47	47,800	34,458
St. Joseph's University, St. Joseph, N.B., Can.	1864	Clement Cormier	482	482	55	—	20,000
St. Lawrence University, Canton, N.Y.	1856	Eugene G. Bewkes	1,416	1,627	93	2,000,000	98,000
St. Louis University, St. Louis, Mo.	1818	Paul C. Reinert	5,879	8,521	1,266	4,685,168	459,526
St. Martin's College, Olympia, Wash.	1895	Raphael Heider	192	197	35	—	25,000
St. Mary College, Xavier, Kan.	1860	Arthur M. Murphy	244	372	40	—	43,000
St. Mary of the Springs, Col. of, Columbus, Ohio	1868	Sister M. Angelita	181	191	41	—	30,000
St. Mary-of-the-Wasatch, Col. of, Salt Lake City, Utah	1926	Sister Maria Consolata	85	154	21	—	13,112
St. Mary-of-the-Woods Col., St. Mary-of-the-Woods, Ind.	1840	Mother Marie Helene	328	328	51	493,252	82,286
St. Mary's Col., Notre Dame, Ind.	1844	Sister M. Madeleva	521	693	66	210,000	43,792
St. Mary's Col., St. Mary's College, Calif.	1863	Brother W. Thomas	436	436	32	165,021	35,680
St. Mary's College, Winona, Minn.	1912	Brother J. Ambrose	542	542	41	—	30,000
St. Mary's Dominican Col., New Orleans, La.	1920	Sister Mary Louise	149	197	24	175,000	14,000
St. Mary's Junior College, O'Fallon, Mo.	1929	Mother M. Borgia	34	36	7	—	13,950
St. Mary's School and Jr. Col., Raleigh, N.C.	1842	Richard G. Stone	276	294	28	209,764	12,000
St. Mary's Seminary, Baltimore, Md.	1791	Lloyd P. McDonald	629	—	39	—	101,000
St. Mary's University, San Antonio, Tex.	1852	Louis J. Blume	902	1,287	93	300,000	53,000
St. Michael's College, Winooski Park, Vt.	1904	Daniel P. Lyons	767	767	45	80,000	35,000
St. Norbert College, West De Pere, Wis.	1898	A. M. Killeen	550	673	58	—	30,000
St. Olaf College, Northfield, Minn.	1874	Clemens M. Granskou	1,435	1,445	92	1,102,393	95,000
St. Patrick's Seminary, Menlo Park, Calif.	1898	Thomas C. Mulligan	213	213	18	—	40,000
St. Paul Seminary, St. Paul, Minn.	1895	R. G. Bandas	360	360	15	—	42,000
St. Petersburg Jr. Col., St. Petersburg, Fla.	1927	M. M. Bennett	375	447	26	—	12,183
St. Peter's College, Jersey City, N.J.	1872	James J. Shanahan	1,446	1,575	98	—	30,000
St. Rose, College of, Albany, N.Y.	1920	Sister Rose of Lima	433	720	72	136,139	25,000
St. Scholastica, College of, Duluth, Minn.	1912	Mother M. Athanasius	380	380	44	—	31,700
St. Teresa, Col. of, Kansas City, Mo.	1867	Mother Mary Berenice O'Neill	146	304	63	—	24,000
St. Teresa, College of, Winona, Minn.	1910	Sr. M. Rachael Dady	552	604	59	500,000	40,000
St. Thomas, College of, St. Paul, Minn.	1885	Vincent J. Flynn	1,439	1,469	102	335,809	48,624
St. Vincent College, Latrobe, Pa.	1846	Denis Strittmatter	710	710	53	2,000,000	65,000
Salem College, Winston-Salem, N.C.	1772	Dale H. Gramley	258	281	33	943,890	38,538
Sam Houston State Tch. Col., Huntsville, Tex.	1879	Harmon Lowman	1,631	1,639	112	—	71,009
Samuel Huston College, Austin, Tex.	1876	Robert F. Harrington	843	998	35	7,484	14,976
San Angelo College (Jr.), San Angelo, Tex.	1928	Bryan Wildenthal	410	616	40	—	15,000
San Benito County Jr. Col., Hollister, Calif.	1919	Aarian S. Cakebread	44	44	35	—	1,250
San Bernardino Valley College, (Jr.), San Bernardino, Calif.	1926	John L. Lounsbury	1,100	1,124	67	—	29,079
San Diego Junior College, San Diego, Calif.	1914	John Aseltine	656	1,627	171	—	12,000
San Diego State College, San Diego, Calif.	1897	Walter R. Hepner	3,600	4,500	212	—	137,500
San Francisco, City College of (Jr.), San Francisco, Calif.	1935	Louis G. Conlan	3,358	5,049	239	—	40,000
San Francisco, Univ. of, San Fran., Calif.	1855	William J. Dunne	1,432	2,826	139	—	80,000
San Francisco Col. for Wom., San Francisco, Calif.	1921	Mother Leonor Mejia	415	457	50	—	100,000
San Francisco State Col., San Francisco, Calif.	1899	J. Paul Leonard	3,969	5,560	287	—	80,553
San Jose St. Col. and San Jose Jr. Col., San Jose, Calif.	1857	T. W. MacQuarrie	6,718	7,363	342	—	130,000
San Luis Obispo Junior College, San Luis Obispo, Calif.	1936	Lawrence Griffin	160	200	12	—	5,890
San Mateo Junior Col., San Mateo, Calif.	1922	Charles S. Morris	1,023	1,285	77	—	18,000
San Rafael, Dominican Col. of, San Rafael, Calif.	1915	Sister Mary Patrick	279	286	46	—	36,828
Santa Ana College, (Jr.), Santa Ana, Calif.	1915	Daniel C. McNaughton	493	559	39	—	18,322
Santa Barbara Jr. Col., Santa Barbara, Calif.	1946	W. J. Kircher	148	677	35	—	325
Santa Clara, Univ. of, Santa Clara, Calif.	1851	Herman J. Hauck	1,084	1,271	91	$1,950,000	67,500
Santa Maria Jr. Col., Santa Maria, Calif.	1920	Harry Edward Tyler	132	798	28	—	6,500
Santa Monica City Col. (Jr.), Santa Monica, Calif.	1929	Elmer C. Sandmeyer	—	1,275	59	—	12,000
Santa Rosa Junior Col., Santa Rosa, Calif.	1918	Floyd P. Bailey	824	1,202	60	—	15,300
Sarah Lawrence College, Bronxville, N.Y.	1926	Harold Taylor	361	362	68	295,422	56,000
Saskatchewan, Univ. of, Saskatoon, Sask., Can.	1907	W. P. Thompson	2,170	3,718	200	290,838	116,000
Savannah State College, Savannah, Ga.	1890	W. K. Payne	682	900	71	—	17,000
Scarritt College, Nashville, Tenn.	1892	Hugh C. Stuntz	139	188	17	625,513	8,000
Schreiner Institute (Jr.), Kerrville, Tex.	1923	Andrew Edington	230	245	25	250,000	11,250
Scranton, University of, Scranton, Pa.	1888	J. Eugene Gallery	867	2,247	111	2,500,000	32,683
Scripps College, Claremont, Calif.	1926	Frederick Hard	222	222	31	1,647,468	38,571
Seattle Pacific College, Seattle, Wash.	1891	C. Hoyt Watson	658	703	50	264,000	28,500
Seattle University, Seattle, Wash.	1892	Albert A. Lemieux	1,918	2,447	125	—	39,950
Sequoias, College of the (Jr.), Visalia, Calif.	1925	Ivan C. Crookshanks	572	674	49	—	10,000
*Seton Hall University, South Orange, N.J.	1856	John L. McNulty	5,681	7,681	300	—	100,000
Seton Hill College, Greensburg, Pa.	1883	William Granger Ryan	388	557	61	—	34,100
Shasta College (Jr.), Redding, Calif.	1950	G. A. Collyer	340	616	26	—	2,500
Shaw University, Raleigh, N.C.	1865	W. R. Strassner	537	549	47	385,000	17,000
Shenandoah College (Jr.), Dayton, Va.	1875	L. P. Hill	108	116	15	57,000	5,000
Shepherd College, Shepherdstown, W.Va.	1872	Oliver S. Ikenberry	380	590	31	—	22,000
Shimer College, Mt. Carroll, Ill.	1853	A. J. Brumbaugh	117	—	21	199,463	13,435
Shorter College, Rome, Ga.	1873	Charles W. Burts	172	258	27	580,100	27,550
Siena College, Loudonville, N.Y.	1937	Mark Kennedy	975	1,736	101	—	34,986
Siena Heights College, Adrian, Mich.	1919	Mother Mary Gerald	301	408	33	—	30,058
Simmons College, Boston, Mass.	1899	Bancroft Beatley	1,317	1,417	190	3,747,129	85,841
Simpson College, Indianola, Ia.	1860	Edwin E. Voigt	430	440	37	1,555,000	38,845
Sir George Williams Col., Montreal, Que., Can.	1873	Kenneth E. Norris	651	3,141	196	—	23,284
Skagit Valley Jr. Col., Mount Vernon, Wash.	1926	LeRoy V. Good	66	176	10	—	4,411
Skidmore College, Saratoga Springs, N.Y.	1911	Henry T. Moore	939	939	99	1,116,015	67,417
Smith College, Northampton, Mass.	1871	Benjamin F. Wright	2,207	2,290	230	10,367,736	374,640
Snead Junior College, Boaz, Ala.	1935	Festus M. Cook	383	383	20	210,000	3,872
Snow College (Jr.), Ephraim, Utah	1888	James A. Nuttall	228	231	22	—	12,500
South, University of the, Sewanee, Tenn.	1858	Edward McCrady	512	512	49	3,176,353	68,500
South Carolina, Univ. of, Columbia, S.C.	1801	Norman M. Smith	2,845	3,418	228	—	250,000
South Carolina State Agri. and Mech. Col., Orangeburg, S.C.	1896	Benner C. Turner	1,202	1,775	141	—	47,243
South Dakota, Univ. of, Vermillion, S.D.	1882	I. D. Weeks	1,300	1,350	135	—	135,000
South Dakota School of Mines and Technology, Rapid City, S.D.	1885	Warren E. Wilson	445	495	54	100,000	21,000
South Dakota State College of Agri. and Mech. Arts, Brookings, S.D.	1883	Harold M. Crothers	1,479	1,491	254	832,303	95,000
Southeastern La. Col., Hammond, La.	1925	Gladney J. Tinsley	865	914	96	—	41,950
Southeastern State College, Durant, Okla.	1909	T. T. Montgomery	870	1,060	68	—	41,389
Southeast Missouri St. Col., Cape Girardeau, Mo.	1873	W. W. Parker	1,026	1,026	78	—	90,000
Southern Calif., Univ. of, Los Angeles, Calif.	1879	Fred D. Fagg, Jr.	9,096	19,143	1,029	2,277,753	600,000
Southern Christian Inst. (Jr.), Edwards, Miss.	1875	John Long	177	177	17	—	6,223
Southern Illinois University, Carbondale, Ill.	1869	Delyte W. Morris	2,329	4,663	265	—	130,000
Southern Methodist Univ., University Park, Tex.	1911	Umphrey Lee	4,532	4,832	328	7,292,000	304,895
Southern Missionary Col., Collegedale, Tenn.	1893	Kenneth A. Wright	487	527	45	—	17,759
Southern Oregon Col. of Educ., Ashland, Ore.	1926	Elmo N. Stevenson	600	625	45	—	20,000
Southern State College, Magnolia, Ark.	1909	Dolph Camp	664	721	50	—	19,500
Southern St. Tch. Col., Springfield, S.D.	1881	J. Howard Kramer	142	595	23	13,846	15,013
Southern University and Agri. and Mech. College, Scotlandville, La.	1880	Felton G. Clark	2,214	2,799	128	—	45,000
South Georgia College (Jr.), Douglas, Ga.	1906	William S. Smith	250	250	17	—	9,370
Southwestern at Memphis, Memphis, Tenn.	1848	Peyton N. Rhodes	440	474	69	2,638,151	69,000
Southwestern College, Winfield, Kan.	1885	Alvin W. Murray	335	366	41	606,000	28,500
Southwestern Louisiana Inst., Lafayette, La.	1898	Joel L. Fletcher	2,235	2,386	194	—	95,000
Southwestern State Col., Weatherford, Okla.	1901	R. H. Burton	669	832	57	—	38,374
Southwestern University, Georgetown, Tex.	1840	William C. Finch	403	414	41	1,296,976	54,000
Southwest Missouri St. Col., Springfield, Mo.	1906	Roy Ellis	1,637	1,682	100	—	70,000
Southwest Texas St. Tch. Col., San Marcos, Tex.	1899	John G. Flowers	1,472	1,805	73	—	73,932
Spelman College, Atlanta, Ga.	1881	Florence M. Read	373	373	40	3,327,563	105,052
Springfield College, Springfield, Mass.	1885	Paul M. Limbert	1,117	1,514	77	1,100,000	40,483
Springfield Junior Col., Springfield, Ill.	1929	Mother M. Carmelita Mosley	194	370	23	—	12,747

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Spring Hill College, Spring Hill, Ala.	1830	Wm. Patrick Donnelly	643	830	48	$ 506,930	63,626
Stanford University, Stanford, Calif.	1885	J. E. Wallace Sterling	6,767	7,583	850	39,661,473	1,750,000
Stephen F. Austin State Col., Nacogdoches, Tex.	1917	Paul L. Boynton	1,176	1,351	76	—	38,494
Stephens College (Jr.), Columbia, Mo.	1833	Homer P. Rainey	1,828	1,831	185	250,000	50,000
Stevens Institute of Tech., Hoboken, N.J.	1870	Jess Harrison Davis	783	1,816	118	3,000,000	36,500
Stillman College, Tuscaloosa, Ala.	1876	Samuel B. Hay	282	285	22	125,000	10,500
Stockton College (Jr.), Stockton, Calif.	1935	Leon P. Minear	2,841	2,949	194	—	8,500
Stout Institute, Menomonie, Wis.	1903	Verne C. Fryklund	706	705	61	31,000	35,682
Stowe Teachers Col., St. Louis, Mo.	1890	Ruth M. Harris	408	408	38	—	19,000
Sue Bennett College (Jr.), London, Ky.	1896	Oscie Sanders	115	117	14	—	11,627
Sullins College (Jr.), Bristol, Va.	1870	W. E. Martin	315	350	34	500,000	15,000
Sul Ross State Col., Alpine, Tex.	1920	R. M. Hawkins	576	664	50	—	30,000
Sunflower Junior College, Moorhead, Miss.	1911	W. B. Horton	235	235	25	—	6,500
Susquehanna University, Selinsgrove, Pa.	1858	G. Morris Smith	429	444	38	513,649	27,500
Swarthmore College, Swarthmore, Pa.	1864	John W. Nason	466	879	117	9,670,058	160,415
Sweet Briar College, Sweet Briar, Va.	1901	Anne G. Pannell	448	448	57	995,827	76,227
Swift Memorial Jr. Col., Rogersville, Tenn.	1883	R. E. Lee	115	115	11	—	3,109
Syracuse University, Syracuse, N.Y.	1870	William P. Tolley	8,990	14,459	1,216	10,029,680	364,912
T							
Taft Junior College, Taft, Calif.	1922	Eugene M. Johnston	180	194	40	—	10,000
Talladega College, Talladega, Ala.	1867	A. D. Beittel	296	296	31	1,188,733	47,389
Tarkio College, Tarkio, Mo.	1883	Clyde H. Canfield	181	190	26	719,132	20,800
Tarleton State Col. (Jr.), Stephenville, Tex.	1899	E. J. Howell	733	733	53	—	35,000
Taylor University, Upland, Ind.	1846	Evan Bergwall	433	456	33	135,170	26,000
Temple University, Philadelphia, Pa.	1884	Robert L. Johnson	7,733	16,105	752	1,681,808	322,633
Tennessee, University of, Knoxville, Tenn.	1794	Cloide E. Brehm	7,439	12,449	1,355	723,856	279,078
Tennessee, Univ. of, Martin Branch, Martin, Tenn.	1927	Paul Meek	415	416	34	—	20,000
Tennessee A. and I. St. Col., Nashville, Tenn.	1909	W. S. Davis	1,983	2,060	172	—	36,062
Tennessee Polytechnic Inst., Cookeville, Tenn.	1915	Everett Derryberry	1,894	2,355	121	—	45,000
Tennessee Wesleyan Col. (Jr.), Athens, Tenn.	1866	LeRoy A. Martin	220	223	22	218,050	18,000
Texarkana College (Jr.), Texarkana, Tex.	1927	H. W. Stilwell	160	485	21	—	7,000
Texas, A. and M. Col. of, College Station, Tex.	1876	Marion Thomas Harrington	6,290	6,583	525	483,657	156,000
Texas, University of, Austin, Tex.	1881	T. S. Painter	—	12,753	748	132,099,940	934,290
Texas Christian University, Fort Worth, Tex.	1873	M. E. Sadler	4,229	6,091	214	6,000,000	160,000
Texas College, Tyler, Tex.	1894	D. R. Glass	843	843	42	—	17,085
Texas Col. of Arts and Ind., Kingsville, Tex.	1925	Ernest H. Poteet	1,450	2,705	106	—	54,403
Texas Lutheran College, Seguin, Tex.	1891	William F. Kraushaar	322	328	28	44,000	25,000
Texas Southern University, Houston, Tex.	1947	R. O'Hara Lanier	2,055	2,543	145	—	44,790
Texas Southmost Col. (Jr.), Brownsville, Tex.	1926	John F. Barron	725	1,148	26	—	8,200
Texas State Col. for Wom., Denton, Tex.	1901	John A. Guinn	2,006	2,156	180	—	116,137
Texas Technological Col., Lubbock, Tex.	1923	D. M. Wiggins	4,329	4,906	300	—	82,766
Texas Wesleyan College, Ft. Worth, Tex.	1891	Law Sone	—	930	52	1,100,915	27,905
Texas Western College of the University of Texas, El Paso, Tex.	1913	Wilson Homer Elkins	1,423	2,295	117	—	50,000
Thiel College, Greenville, Pa.	1866	Edwin Hodge, Jr.	425	447	37	237,943	30,000
Thornton Junior College, Harvey, Ill.	1927	James L. Beck	310	310	23	—	9,800
Tillotson College, Austin, Tex.	1877	William H. Jones	501	509	31	1,681,500	23,000
Toledo, University of, Toledo, Ohio	1872	Asa S. Knowles	2,470	4,537	212	84,540	157,363
Toronto, University of, Toronto, Ont., Can.	1827	Sidney E. Smith	10,271	11,286	1,500	—	500,000
Tougaloo College, Tougaloo, Miss.	1869	Harold C. Warren	290	293	21	48,521	18,648
Transylvania College, Lexington, Ky.	1780	Frank Anthony Rose	247	265	30	733,057	44,774
Trinity College, Hartford, Conn.	1823	Arthur Howard Hughes	928	1,145	75	4,822,018	213,500
Trinity College, Washington, D.C.	1897	Sr. Catherine Dorothea	496	500	61	367,225	56,409
Trinity University, San Antonio, Tex.	1869	Marion B. Thomas	828	1,192	156	829,482	46,090
Tufts College (incl. Jackson College), Medford, Mass.	1852	Leonard Carmichael	3,279	3,388	925	10,543 482	250,000
Tulane Univ. of Louisiana, New Orleans, La.	1834	Rufus C. Harris	3,964	5,745	1 015	13,217,278	351,235
Tulsa, University of, Tulsa, Okla.	1894	C. I. Pontius	2,047	2,355	145	2,000,000	45,000
Tusculum College, Greeneville, Tenn.	1794	Raymond C. Rankin	176	178	20	825,552	26,000
Tuskegee Institute, Tuskegee Institute, Ala.	1881	Frederick D. Patterson	1,864	1,927	220	7,888,357	98,000
Tyler Junior College, Tyler, Tex.	1926	H. E. Jenkins	933	1,543	85	—	9,000
U							
Union College, Barbourville, Ky.	1879	Conway Boatman	356	457	26	612,387	22,123
Union College, Lincoln, Neb.	1891	Harvey C. Hartman	569	732	45	—	48 000
Union College, Schenectady, N.Y.	1795	Carter Davidson	995	1,475	115	6,500,000	140,000
Union University, Jackson, Tenn.	1834	Warren F. Jones	416	523	33	455,863	25,721
U.S. Coast Guard Acad., New London, Conn.	1876	A. G. Hall	562	562	55	—	35 750
U.S. Merchant Marine Academy, Kings Point, N.Y.	1938	Gordon McLintock	920	920	81	—	34,000
U.S. Military Academy, West Point, N.Y.	1802	Frederick A. Irving	2,448	2,448	312	—	139,495
U.S. Naval Academy, Annapolis, Md.	1845	Harry W. Hill	3,761	3,761	510	—	126,000
Upper Iowa University, Fayette, Ia.	1857	Vivian T. Smith	223	248	18	$ 500,000	25,000
Upsala College, East Orange, N.J.	1893	Evald B. Lawson	1,234	1,582	90	250,000	36,000
Ursinus College, Collegeville, Pa.	1869	Norman E. McClure	688	693	57	1,104,851	42,000
Ursuline College, Louisville, Ky.	1938	Mother M. Columba	144	271	27	—	21 203
Ursuline Col. for Women, Cleveland, Ohio	1871	Mother M. Celestine	198	—	34	—	23,000
Utah, University of, Salt Lake City, Utah	1850	A. Ray Olpin	5,650	7,114	491	411,576	256,117
Utah State Agricultural Col., Logan, Utah	1888	Louis L. Madsen	2,990	3,164	298	—	152,514
V							
Valdosta State College, Valdosta, Ga.	1906	J. Ralph Thaxton	364	411	29	—	27,816
Vallejo College (Jr.), Vallejo, Calif.	1945	Harry D. Wiser	1,253	1,253	75	—	8,529
Valparaiso University, Valparaiso, Ind.	1859	O. P. Kretzmann	1,645	1,657	130	436,905	81,500
Vanderbilt University, Nashville, Tenn.	1872	Harvie Branscomb	2,861	2,886	549	31,562,072	589,765
Vanport Extension Center (Jr.), Portland, Ore.	1946	Stephen E. Epler	1,024	1,024	36	—	9,997
Vassar College, Poughkeepsie, N.Y.	1861	Sarah G. Blanding	1,424	1,424	175	15,200,000	279,306
Ventura Junior College, Ventura, Calif.	1929	D. R. Henry	1,225	1,251	74	—	19,000
Vermont, University of, and State Agricultural Col., Burlington, Vt.	1791	William S. Carlson	2,810	3,023	318	4,285,321	200,000
Vermont Junior College, Montpelier, Vt.	1834	Ralph Edward Noble	172	189	17	135,000	8,000
Villa Maria College, Erie, Pa.	1925	Sr. M. Doloretta	165	255	39	1,879,911	18,000
Villanova College, Villanova, Pa.	1842	F. X. N. McGuire	2,035	4,660	213	4,330,387	88,984
Virginia, University of, Charlottesville, Va.	1819	Colgate W. Darden, Jr.	3,401	3,544	651	15,000,000	630,633
Virginia Intermont College (Jr.), Bristol, Va.	1884	Rabun L. Brantley	320	360	35	550,000	14,000
Virginia Junior College, Virginia, Minn.	1921	Floyd B. Moe	156	623	24	—	21,000
Virginia Military Institute, Lexington, Va.	1839	R. J. Marshall	962	962	89	889,874	89,805
Virginia Polytechnic Inst., Blacksburg, Va.	1872	Walter S. Newman	3,063	3,090	374	344,312	143,495
Virginia State College, Petersburg, Virginia	1882	Robert Prentiss Daniel	1,706	1,990	176	173,000	58,916
Virginia Union University, Richmond, Va.	1865	John M. Ellison	711	805	46	1,015,363	30,000
Voorhees School and Junior College, Denmark, S.C.	1897	Cecil D. Halliburton	109	109	18	50,000	4,430
W							
Wabash College, Crawfordsville, Ind.	1832	Frank H. Sparks	506	507	54	3,659,600	104,000
Wagner College, Staten Island, N.Y.	1883	Walter C. Langsam	806	1,368	97	436,000	41,207
Wake Forest College, Wake Forest, N.C.	1833	Harold W. Tribble	1,703	—	165	4,436,735	113,418
Waldorf College (Jr.), Forest City, Ia.	1903	Sidney A. Rand	241	268	22	65,000	8,000
Walla Walla Col., College Place, Wash.	1892	G. W. Bowers	922	1,059	55	—	37,345
Wartburg College, Waverly, Ia.	1852	C. H. Becker	585	594	42	140,050	30,000
Washburn Municipal Univ., Topeka, Kan.	1865	Bryan S. Stoffer	1,193	1,551	115	1,454,723	71,090
Washington, State Col. of, Pullman, Wash.	1890	Dr. William A. Pearl	4,853	4,853	412	16,087,946	600,000
Washington, University of, Seattle, Wash.	1861	Raymond B. Allen	12,437	13,297	1,237	42,500,000	747,669
Washington and Jefferson Col., Wash., Pa.	1787	Boyd C. Patterson	526	533	46	1,688,317	80,000
Washington and Lee Univ., Lexington, Va.	1749	Francis P. Gaines	1,043	1,044	84	5,566,259	167,000
Washington College, Chestertown, Md.	1782	D. Z. Gibson	332	335	26	99,753	39,000
Washington Missionary Col., Takoma Pk., Washington, D.C.	1904	W. H. Shephard	435	586	45	—	38,895
Washington University, St. Louis, Mo.	1853	Arthur H. Compton	4,572	11,330	1,561	33,017,558	662,000
Waynesburg College, Waynesburg, Pa.	1849	Paul R. Stewart	542	595	35	414,558	35,000
Wayne University, Detroit, Mich.	1868	David D. Henry	7,227	17,384	785	15,100	410,000
Weatherford Col. (Jr.), Weatherford, Tex.	1868	Vernon D. Parrott	110	157	10	171,000	5,000
Webb Institute of Naval Architecture, Glen Cove, L.I., N.Y.	1889	F. E. Haeberle	69	69	8	3,000,000	8,000
Weber College (Jr.), Ogden, Utah.	1889	H. A. Dixon	906	2,665	160	—	23,000
Webster College, Webster Groves, Mo.	1915	Sister Mariella Collins	310	504	54	—	27,800
Wellesley College, Wellesley, Mass.	1870	Margaret Clapp	—	1,739	184	18,128,071	277,816
Wells College, Aurora, N.Y.	1868	Louis Jefferson Long	305	305	41	2,346,502	109,000
Wenatchee Jr. Col., Wenatchee, Wash.	1939	Mrs. E. W. Van Tassell	202	311	22	—	4,100
Wentworth Mil. Acad. (Jr.), Lexington, Mo.	1880	J. M. Sellers	405	405	35	—	8,800
Wesleyan College, Macon, Ga.	1836	Silas Johnson	441	473	68	1,568,042	39,803
Wesleyan University, Middletown, Conn.	1831	Victor L. Butterfield	780	820	92	10,019,417	370,270
Wesley Junior College, Dover, Del.	1873	J. Paul Slaybaugh	91	117	15	120,000	5,000
Westbrook Junior College, Portland, Me.	1831	Milton D. Proctor	265	267	27	73,466	9,000
Western Carolina Tch. Col., Cullowhee, N.C.	1889	Paul A. Reid	511	566	37	—	30,000
Western College, Oxford, Ohio	1853	Edmund Harris Kase, Jr.	245	245	44	979,126	48,487
Western Illinois State Col., Macomb, Ill.	1899	Frank A. Beu	1,261	1,918	114	—	71,282
Western Kentucky State Col., Bowling Green, Ky.	1906	Paul L. Garrett	1,435	1,747	98	—	78,000
Western Maryland Col., Westminster, Md.	1868	Lowell Skinner Ensor	651	722	53	1,197,872	44,787
Western Michigan College of Education, Kalamazoo, Mich.	1903	Paul V. Sangren	3,379	4,412	295	—	86,416
Western Montana College of Education, Dillon, Mont.	1893	Rush Jordan	190	200	22	—	25,000
Western Ontario, Univ of, London, Ont., Can.	1878	G. Edward Hall	2,875	4,335	363	2,000,000	200,000
Western Reserve Univ., Cleveland, Ohio	1826	John Schoff Millis	3,582	10,698	871	22,173,684	664,079
Western State Col. of Colo., Gunnison, Colo.	1901	Peter P. Mickelson	632	664	42	—	47,118

Institution and Location	Year Founded	Chief Executive	Full Time Students	Full and Part Time Students	Faculty	Endowment	Bound Library Volumes
Western Washington College of Education, Bellingham, Wash.	1899	Wm. W. Haggard	1,158	1,190	95	—	73,176
West Georgia Col. (Jr.), Carrollton, Ga.	1907	I. S. Ingram	262	262	18	—	11,925
West Liberty State Col., W. Liberty, W.Va.	1837	Paul N. Elbin	458	656	38	—	25,000
Westminster College, Fulton, Mo.	1851	William W. Hall, Jr.	311	311	26	$ 600,000	40,000
Westminster College, New Wilmington, Pa.	1852	Will W. Orr	818	1,018	71	1,050,000	41,927
Westminster College, Salt Lake City, Utah.	1875	Robert D. Steele	252	260	27	180,000	16,500
West Texas State Col., Canyon, Tex.	1909	James P. Cornette	930	1,860	77	—	48,813
West Virginia State Col., Institute, W.Va.	1891	John W. Davis	993	1,008	105	—	40,000
West Virginia Univ., Morgantown, W.Va.	1867	Irvin Stewart	4,038	4,414	417	115,300	200,000
West Virginia Wesleyan Col., Buckhannon, W.Va.	1890	W. J. Scarborough	500	620	33	479,000	37,500
Wheaton College, Norton, Mass.	1834	A. Howard Meneely	532	532	68	1,282,980	69,000
Wheaton College, Wheaton, Ill.	1860	V. Raymond Edman	1,599	1,692	125	910,612	98,000
Wheelock College, Boston, Mass.	1889	Winifred E. Bain	369	369	23	—	15,000
Whitman College, Walla Walla, Wash.	1859	Chester C. Maxey	679	679	52	2,400,000	65,508
Whittier College, Whittier, Calif.	1901	Paul S. Smith	983	1,021	57	1,250,000	53,756
Whitworth College, Spokane, Wash.	1890	Frank F. Warren	655	695	51	65,000	25,000
Wichita, Municipal Univ. of, Wichita, Kan.	1895	Harry F. Corbin	2,186	2,919	189	91,821	93,242
Wilberforce University, Wilberforce, O.	1856	Charles Leander Hill	300	312	40	76,865	17,500
Wiley College, Marshall, Tex.	1873	J. S. Scott	636	699	40	628,775	23,000
Wilkes College, Wilkes Barre, Pa.	1933	Eugene S. Farley	570	1,780	62	551,686	26,000
Willamette University, Salem, Ore.	1842	G. Herbert Smith	1,013	1,064	80	2,164,634	72,071
William and Mary, Col. of, Williamsburg, Va.	1693	Alvin Duke Chandler	1,600	1,621	116	2,101,302	218,972
William and Mary, Col. of, and Virginia Polytech. Inst. in Norfolk (Jr.), Norfolk, Va.	1930	Lewis W. Webb, Jr.	402	1,233	57	—	17,789
William Jewell Col., Liberty, Mo.	1849	Walter Pope Binns	602	652	44	2,545,032	68,549
Williams College, Williamstown, Mass.	1791	James P. Baxter, III	1,045	1,055	124	14,520,903	200,000
William Woods College (Jr.), Fulton, Mo.	1890	T. T. Swearingen	289	307	26	575,000	15,000
Willimantic St. Tch. Col., Willimantic, Conn.	1889	J. Eugene Smith	226	509	41	—	16,608
Wilmington College, Wilmington, Ohio	1863	Samuel D. Marble	453	472	26	500,000	26,663
Wilson College, Chambersburg, Pa.	1869	Paul Swain Havens	338	345	51	1,058,432	62,000
Winona State Tch. Col., Winona, Minn.	1858	Nels Minné	431	452	47	—	40,000
Winston-Salem Tch. Col., Winston-Salem, N.C.	1892	Francis L. Atkins	602	602	32	$ 100,000	30,588
Winthrop College, Rock Hill, S.C.	1886	Henry R. Sims	1,107	1,120	109	—	87,000
Wisconsin, University of, Madison, Wis.	1848	Edwin Broun Fred	16,144	16,144	1,655	5,920,858	760,226
Wisconsin State Col., Eau Claire, Wis.	1915	W. R. Davies	756	764	61	—	30,000
Wisconsin State Col., La Crosse, Wis.	1909	Rexford S. Mitchell	924	928	77	—	47,886
Wisconsin State Col., Milwaukee, Wis.	1880	J. Martin Klotsche	1,714	1,730	120	—	63,000
Wisconsin State Col., Oshkosh, Wis.	1871	Forrest R. Polk	689	1,044	61	-	45,192
Wisconsin State Col., Platteville, Wis.	1866	C. O. Newlun	577	785	54	—	34,555
Wisconsin State Col., River Falls, Wis.	1874	E. H. Kleinpell	598	669	51	—	34,000
Wisconsin State Col., Stevens Point, Wis	1894	W. C. Hansen	683	691	57	—	45,600
Wisconsin State Col., Superior, Wis.	1893	Jim Dan Hill	774	785	60	—	49,664
Wisconsin State Col., Whitewater, Wis.	1868	R. C. Williams	664	1,018	58	—	40,000
Wittenberg College, Springfield, Ohio	1845	C. C. Stoughton	904	1,436	78	2,395,947	91,284
Wofford College, Spartanburg, S.C.	1854	C. C. Norton	517	567	44	950,054	48,975
Woodstock College, Woodstock, Md.	1867	Joseph F. Murphy	160	160	32	—	160,000
Wooster, College of, Wooster, Ohio	1866	Howard F. Lowry	1,084	1,096	98	3,802,769	113,142
Worcester Polytechnic Inst., Worcester, Mass.	1865	Wat T. Cluverius	668	683	82	5,115,916	40,000
Wyoming, University of, Laramie, Wyo.	1886	G. D. Humphrey	2,200	2,315	291	4,754,713	190,000
X							
Xavier University, Cincinnati, Ohio	1831	James F. Maguire	1,202	2,500	128	389,265	100,488
Xavier University, New Orleans, La.	1925	Mother M. Agatha	890	1,026	92	782,400	66,913
Y							
Yakima Valley Jr. Col., Yakima, Wash.	1928	H. A. Hoeglund	317	—	22	—	9,317
Yale University, New Haven, Conn.	1701	Alfred W. Griswold	7,270	7,688	1,592	141,208,881	4,056,276
Yankton College, Yankton, S.D.	1881	J. Clark Graham	235	235	28	749,970	48,000
Yeshiva University, New York, N.Y.	1897	Samuel Belkin	1,732	1,795	203	1,500,000	120,000
Young L. G. Harris Col. (Jr.), Young Harris, Ga.	1886	C. R. Clegg	250	250	18	240,000	10,000
Youngstown College, Youngstown, Ohio.	1908	Howard W. Jones	1,592	3,487	226	957,000	61,808
Yuba College (Jr.), Marysville, Calif.	1927	J. J. Collins	792	2,081	36	—	15,000

URANIUM TEST PIT on the plateau bordering the Colorado river, an area being explored for the Atomic Energy commission in 1951. Four new uranium deposits were discovered during 1950–51

Uranium. A widespread search for new sources of uranium was still going on in 1951, and new deposits with workable concentrations were being mined. While no information had been made public on the actual output in any country, the Atomic Energy commission stated that the United States production of uranium exceeded that of Canada. Belgian Congo remained the largest producer, with the United States second and Canada third. The bulk of the U.S. output came from the Colorado plateau, an area of about 130,000 sq.mi. extending around the junction of the boundaries of Colorado, Utah, Arizona and New Mexico. In Canada the original discovery on Great Bear lake was supplemented by the Goldfields area on Lake Athabasca, where a custom mill was planned for ore treatment, and by developments in British Columbia. A prospective producing area was also discovered 50 mi. north of Sault Ste. Marie.

In Africa, besides the long-established Congo deposit, the enormous tailing piles of the Rand gold area were found to have a uranium content which, while extremely low, was amenable to economic recovery, because of the large tonnages of material already mined and crushed. A recovery plant was expected to be ready for operation sometime in 1952.

In the soviet area, uranium deposits were known in several sections of the Soviet Union, as well as the Joachimsthal region of Czechoslovakia and the Erzgebirge region of the German zone of occupation. Scanty available information did not indicate resources of any great extent, though presumably the deposits were being worked to the limit. (*See* also ATOMIC ENERGY.)

(G. A. Ro.)

Uruguay. A republic in southeastern South America, Uruguay is bounded on the north by Brazil; on the south by the Rio de la Plata; on the east by the Atlantic ocean and on the west by Argentina. It is the smallest country in South America, with an area of 72,172 sq.mi. It has a population of 2,365,000 (est. 1950), mostly of European extraction. Montevideo, the capital, has 850,000 inhabitants (1950 est.). Other leading cities are Paysandú (50,000), Salto (48,000), Mercedes (33,-

000), and Minas (32,000). Religion: Christian, mostly Roman Catholic. President in 1951: Andrés Martínez Trueba.

History.—On March 1, 1951, Andrés Martínez Trueba was inaugurated as president and Alfeo Brum as vice-president of Uruguay. In his inaugural address Martínez Trueba expressed solidarity with the western democracies and the desire of the new government to maintain its civil liberties. He welcomed refugee capital, but warned that he would take care that it did not disrupt the country's economy.

Martínez Trueba sponsored a constitutional reform, which was approved by the two leading political parties, to institute a form of executive in the government similar to the one in Switzerland. The nine-man federal council, charged with executive power, would be made up of six representatives from the majority party and three from the minority. This system had been in effect in Uruguay from 1919 to 1933, when it was abolished by Pres. Gabriel Terra. It was expected to become effective on March 1, 1952, with Martínez Trueba as the new head of the council.

Uruguay faced economic and financial difficulties during 1951. On June 30 the trade pact with Great Britain, regulating the price of meat, expired and was not renewed. Great Britain, however, negotiated a pact with Argentina, which was reassuring to Uruguay, since similar conditions usually prevail for both countries. The export trade in wool was booming in view of the demand for it in the United States. A strike in the national administration of fuel, alcohol and cement extended to other sections of the country's economy, tying up transportation and closing newspapers and theatres. It was settled, however, when some of labour's demands were met. (J. McAd.)

Education.—In 1950 there were 546 urban schools with 157,033 pupils and 1,176 rural schools with 55,476 pupils. The total number of teachers was 6,744. There were also 191 private schools with 36,884 pupils. The University of Montevideo had 11,948 students. In 1950, 25,457,117 pesos were allocated for primary education and 7,047,140 pesos for the university.

Finance.—The monetary unit is the peso, valued at $0.5263 U.S. currency, controlled rate; $0.4082, commercial free rate: and $0.4149, uncontrolled rate, on Oct. 31, 1951. Actual government expenditures in the year 1950 were 306,000,000 pesos; revenue, 280,000,000 pesos. The internal public debt was 779,504,000 pesos on June 30, 1951; external, 115,526,000 pesos. Currency in circulation at the end of Oct. 1951 amounted to 297,000,000 pesos; demand deposits, 423,700,000 pesos; gold reserves $242,000,000. The cost-of-living index for Montevideo stood at 207 in July 1951 (1937=100).

Trade and Communications.—Exports in 1950 totalled $254,281,366; imports, $201,694,860. Chief exports were wool (60%), beef and mutton (14%) and hides, skins and leather (11%); leading imports, raw materials (28%), machinery and vehicles (27%) and building materials (9%). Leading customers were the U.S. (51%), the United Kingdom (13%) and Belgium and France (each 6%); leading suppliers, the United Kingdom (22%), the U.S. (20%), Brazil (9%) and France (7%).

Railways (1948) totalled 1,874 mi.; in 1950 they carried 9,211,000 passengers and 2,091,930 short tons of freight. Highways (1948) totalled 26,000 mi. of which 3,051 mi. were paved national roads. On Dec. 31, 1949, there were 56,500 automobiles and 20,000 trucks. According to *Lloyd's Register of Shipping*, the merchant marine had 47 steamers and motor ships (100 tons and over) aggregating 84,607 gross tons on June 30, 1950. In 1950, 2,072 ships with net tonnage of 9,241,136 entered the port of Montevideo.

Agriculture.—Official production estimates for major crops in the crop year 1950–51 (in short tons) included wheat 479,202; linseed 99,210; oats 37,658; malt barley 15,669; ordinary barley 11,486.

Official estimates (1949) showed 8,700,000 cattle and 23,000,000 sheep. Wool exports in the wool year 1950–51 (Oct. 1–Sept. 30) were 154,006 bales, of which 118,492 bales went to the U.S., 9,735 bales to Belgium and 5,278 bales to France. Meat exports in 1950 included 68,815 short tons of frozen beef, 23,861 tons of canned beef and 14.482 tons of frozen mutton.

Manufactures.—Production figures in 1950 included automobile and truck tires 60,000, beer 36,300,000 litres, wine 70,000,000 litres, rayon woven goods 3,550,000 lb. and paper 28,600 short tons. There were four *frigorificos* for treating meat, eight *saladeros* and seven meat-canning plants in 1951. (J. W. Mw.)

U.S.S.R.: *see* Union of Soviet Socialist Republics.

Utah. A Rocky mountain state, admitted to the union in 1896, Utah is popularly known as the "Beehive state." Area: 84,916 sq.mi. (82,346 sq.mi. land; 2,570 sq.mi. water); pop. (U.S. census 1950): 688,862, an increase of 25.2% since 1940. Of this number urban population amounted to 499,855 and rural population, 239,007. There were 676,909 white persons and 11,953 nonwhites. Capital: Salt Lake City (1950 census) 182,121. Other principal cities with final 1950 census figures were Ogden, 57,112; Provo, 28,937; Logan 16,832.

History.—The chief officers of Utah in 1951 were J. Bracken Lee, governor; Heber Bennion, Jr., secretary of state; Reese M. Reese, auditor; Ferrell H. Adams, treasurer; Clinton D. Vernon, attorney general; E. Allen Bateman, superintendent of public instruction.

The chief political issue of 1951 was the continued economy drive of Republican Gov. J. Bracken Lee which was countered with resistance on the part of the Democrat-dominated legislature, meeting in a special session. The split between Governor Lee and the other chief officers of the state, all of whom were Democrats, was broadened when a feud broke out between Superintendent of Public Instruction E. Allen Bateman and the governor, culminating in the latter's opposition to the raising of Bateman's salary from $6,000 to $10,000.

Riots and year-long turbulence at the state prison seemed headed for settlement by the end of the year when Marsell Graham, formerly with the Federal Bureau of Investigation, was named permanent warden of the institution.

Education.—In 1951, full-time students enrolled in the public schools of Utah numbered 156,677, which marked an increase of 3,292 over the 1950 figure and which constituted a 17.5% increase over the 133,791 students enrolled in 1941. By the end of 1951, the state department of public instruction announced that 88.9% of the 5,960 public school teachers in the state had qualified under the new certification law.

Social Insurance and Assistance, Public Welfare and Related Programs.—Total expenditures for public assistance during the fiscal year July 1950 to June 1951 amounted to $11,879,641.01 (for 26,285 persons), slightly more than a 1% increase from the previous year. The funds were distributed as follows: old-age assistance $5,529,393.56 (10,318 persons); aid to dependent children $3,709,889.94 (11,564 persons); aid to the blind $126,398.02 (237 persons); aid to the disabled $738,235.44 (1,721 persons); aid to unemployables $518,539.48 (999 persons); aid to employables $228,675.90 (917 persons); foster care $271,111.30; institutional care $41,599.73; sight conservation $5,987.11; welfare services $128,027.06; and administration $581,783.47.

For the biennial period ending June 30, 1950, the state reported on its four welfare institutions as follows: Utah state industrial school at Ogden—expenditures of $191,201.97 for fiscal year ending June 1950 for average daily population of 153 persons with a cost per student day of $3.42; Utah state training school at American Fork—expenditures of $402,653.21 for fiscal year ending June 1950 for 1,259 persons; Utah state tuberculosis sanatorium—expenditures of $309,133.54 for biennium, July 1948 to June 1950, for 69 patients admitted for observation and treatment; Utah state hospital at Provo—expenditures of $784,547.19 for fiscal year ending June 1950 for 1,447 patients.

At Utah state prison an all-time high population was reached in Feb. 1951, when 578 inmates were housed in the new prison. By the end of the year the figure had dropped to 472.

Communications.—On Dec. 1, 1951, there was a total of 30,189.5 mi. of road in the state, including the following: state road system, 572.3 mi.; county road system, 16.107.1 mi.; town and city streets, 2,917.7 mi.; federal road system, 5,715.3 mi. Total expenditures on highways for the fiscal year ending June 30, 1951, amounted to $13,785,945.15 of which $2,590,667.12 was spent for maintenance, $2,342,648.64 for state construction costs and $7,224,923.28 for federal construction costs. Motor vehicle registration reached 298,564 vehicles by Dec. 1, 1951, including 237,796 passenger cars. As of Jan. 1, 1952, operating railroads had a combined mileage of 1,977.22 mi.

Banking and Finance.—The 43 state banks had total assets of $323,510,636.63 as of Oct. 10, 1951. On that date the 11 national banks reported total assets of $341,506,360.26. There were 13 state-chartered savings and loan associations with total assets of $55,146,479.31 as reported Dec. 30, 1950.

State receipts for the fiscal year ending June 30, 1951, were $89,679,978.82; disbursements for the same period amounted to $86,782,876.45. The total state debt on June 30, 1951, was $620,000 which would be completely amortized by March 1, 1955, as a result of a bond retirement fund created by the 1943 legislature.

Table I.—*Principal Agricultural Products of Utah*

Crop	1951	1950	Average, 1940–49
Wheat, bu.	9,081,000	7,840,000	6,937,000
Barley, bu.	6,072,000	6,204,000	5,420,000
Oats, bu.	1,886,000	2,340,000	1,957,000
Corn, bu.	1,147,000	1,080,000	756,000
Potatoes, bu.	2,316,000	3,308,000	2,801,000
Sugar beets, tons	413,000	535,000	517,000
Hay (all), tons	1,023,000	1,020,000	1,165,000
Apples, bu.	493,000	282,000	459,000
Peaches, bu.	983,000	130,000	763,000
Cherries, tons	6,400	1,230	5,830
Tomatoes (processing), tons	99,600	61,100	. . .

Source: U.S. Department of Agriculture.

Agriculture.—The total crop value for Utah in 1951, exclusive of livestock and livestock products, amounted to $87,118,000 or 23% above the revised value of 1950 crops and 16% above 1949. Cash receipts from marketings during 1950 had amounted to $104,193,000 for livestock products and $43,013,000 for crops or a total of $147,206,000.

Preliminary figures for 1951 reported 560,000 head of cattle (112,000 milk animals), 71,000 hogs and 1,438,000 sheep and lambs.

Manufacturing.—The total income for Utah in 1950 amounted to $883,000,000, an increase of $58,000,000 over that of the previous year.

(B. D. M.)

Table II.—*Principal Industries of Utah*

Industry	Av. workers per month	Total wages 1950
Wholesale and retail trade	43,874	$113,338,722
Contract construction	12,191	41, 233,419
Transportation, communication and utilities	9,910	29,921,573
Mining	7,311	28,808,071
Service	14,065	27,656,975
Miscellaneous	131	223,906
Total (all industries)	127,176	$367,259,625

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000 and the corresponding data for 1950.

Table III.—*Mineral Production of Utah*

(In short tons, except as noted)

	1950		1949	
Mineral	Quantity	Value	Quantity	Value
Asphalt (gilsonite)	66,186	$ 1,774,330	51,462	$ 1,303,584
Clays	293,958	929,964	221,701	624,164
Coal	6,669,896	32,050,470	6,159,592	29,357,488
Coke*	1,225,545	?	1,034,591	?
Copper	278,630	115,910,080	197,245	77,714,530
Fluorspar	18,936	337,912	8,832	180,166
Gold (oz.)	457,551	16,014,285	314,058	10,992,030
Iron ore	3,484,507	5,746,808	3,022,468	4,403,767
Lead	44,753	17,083,310	53,072	16,770,752
Lime	49,419	456,471	36,082	355,516
Natural gas (thousand cu. ft.)	4,000,000	400,000	6,126,000	368,000
Petroleum (bbl.)	1,208,000	?	637,000	†
Salt	116,694	511,938	78,611	386,935
Sand and gravel	3,435,277	2,251,515	2,331,688	1,553,408
Silver (oz.)	7,083,808	6,411,204	2,331,688	1,553,408
Stone	929,410	880,667	283,020	427,418
Zinc	31,678	8,996,552	40,670	10,086,160
Other minerals	...	?	...	17,140,694
Total		?		$173,218,000

*Values for processed materials are not included in the totals.
†Value included with other minerals.

Utilities, Public: *see* Public Utilities.
Vacation: *see* Tourist Travel.
Valera, Eamon de: *see* De Valera, Eamon.
Vanadium: *see* Mineral and Metal Production and Prices.

Vandenberg, Hoyt Sanford (1899–), U.S. air force chief of staff, was born on Jan. 24 in Milwaukee, Wis. He graduated from the U.S. Military academy at West Point, N.Y., in 1923 and served in various capacities in the U.S. until May 1929 when he went to Schofield Barracks, Hawaii, to join the 6th pursuit squadron, of which he assumed command in Nov. 1929. He next served as flying instructor at Randolph Air Force base, Texas, becoming a deputy stage commander in March 1933. He became an instructor at the Air Corps Tactical school and in Sept. 1938 entered the Army War college, being graduated in June 1939. He next served in the plans division of the office of the chief of the air corps in Washington, D.C., and became operations and training officer of the air staff in Washington after the U.S. entered World War II. In June 1942 he was assigned to the United Kingdom, and helped plan the air participation in the North African campaign. On Feb. 18, 1943, he became chief of staff of the northwest African strategic air force. Returning to the U.S. in Aug. 1943, he was deputy chief of air staff, and in 1944 commanded the U.S. air component in the Allied expeditionary force, assuming command of the 9th air force in Aug. 1944. He was named chief of staff of the air force on April 30, 1948.

On Feb. 19, 1951, he agreed in testimony before a senate committee that air and sea forces alone could not prevent soviet forces from overrunning Europe. He testified on May 28–29 that Gen. Douglas MacArthur was wrong in thinking China could be bombed out of the war. On Aug. 24 he announced that the U.S. air force had been given a new mission, that of using atomic weapons directly against ground troops.

Van Fleet, James Alward (1892–), U.S. general, was born on March 19 in Coytesville, N.J. He studied at the Summerlin institute in Bartow, Fla., attended the U.S. Military academy and was graduated in 1915. He saw action in France during World War I, served with U.S. occupation forces, and was assigned to a series of military education posts during the 1920s and early 1930s. As the pre-World War II defense program expanded, he was named commanding officer of the 8th infantry regiment of the 4th division, and he eventually led this regiment in the invasion of Normandy. He commanded the 4th infantry division in operations against the Siegfried line; the 90th division in crossing the Moselle and the 3rd corps in the advance into Germany.

On Feb. 6, 1948, Pres. Harry S. Truman named him to direct the U.S. military groups on duty in Greece, where he had much to do with the eventual ousting of the Communist guerrilla forces. On April 11, 1951, he was appointed to succeed Gen. Matthew B. Ridgway as U.S. 8th army commander in Korea, in the reshuffling of commands that followed the removal of Gen. Douglas MacArthur. He was named a four-star general by President Truman on July 9, 1951.

Varnishes: *see* Paints and Varnishes.

Vatican City State. This sovereign independent state was established by the Lateran treaty between the Holy See and the Italian government on Feb. 11, 1929. The treaty was recognized in international law, with the reigning pope as sovereign. The area of Vatican City is 108.7 ac., excluding the papal estate of Castel Gandolfo and certain basilicas in Rome which are extraterritorial. Executive powers are exercised by the governor, responsible to the pope.

The Vatican sent 58 representatives, including nuncios, internuncios, apostolic delegates and other representatives, to other countries. Diplomatic representatives were assigned to the Vatican by 39 countries.

The Sacred Consistorial Congregation issued decrees excommunicating all those in Rumania and Czechoslovakia who took part in any way in the arrests of Msgr. Augustin Pacha, bishop of Timisoara in Rumania, and Archbishop Josef Beran of Prague, Czech.

In December a committee of archaeologists and scholars delivered to Pope Pius XII an objective and scientific report that Peter, the first pope, was buried in Rome. The proofs contradicted arguments advanced by those who said St. Peter had never been in Rome and did not establish his see there, or suffer martyrdom on the Vatican hill.

In June the Sacred Roman Rota, the Vatican tribunal, reported that it had decided 151 applications for marriage annulments from all over the world during 1950. Annulments were granted in 37 cases; 50 cases were heard free of charge by reason of the poverty of the clients.

The Italian government granted the Holy See rights over 1,325 ac. of land on the outskirts of Rome for the erection of new Vatican radio transmitters. Vatican City could not accommodate the transmitters, which were to be strong enough to carry broadcasts in dozens of languages to every part of the globe.

The assessor of the Holy Office, Msgr. Alfred Ottaviani, in an article in *Osservatore Romano*, warned the faithful about interest in alleged supernatural events. It is the duty of the magisterium of the Church to judge the facts concerning such events and alleged revelations of divine origin, and it is the duty of the Church's good children to submit to this judgment, the monsignor said.

The Sacred College of Cardinals was reduced to 49 members by the deaths of Francesco Cardinal Marchetti-Selvaggiani, Dennis Cardinal Dougherty and Adam Stefan Cardinal Sapieha. This left 21 vacancies. (*See* also PIUS XII; ROMAN CATHOLIC CHURCH.) (J. LAF.)

Veal: *see* MEAT.

Vegetable Oils and Animal Fats.

The U.S. 1951 production of fats and oils, including the oil equivalent of exported seeds, was forecast for the year beginning Oct. 1951 at new high record levels of about 12,750,000,000 lb., substantially more than the 1950 record and nearly half again as much as the pre-World War II level. In spite of a large supply, it was indicated that civilian per capita consumption would average only 43.2 lb. of edible fats and oils in 1951, 5% less than in 1950 and 3% below the pre-World War II rate.

The largest outturn of oil seeds, 16,345,000 tons, was produced in 1951; the 281,000,000 bu. of soybeans made up more than half the total; cottonseed tonnage was about 50% more than in 1950 and one-fourth above average; peanuts, 1,595,000,000 lb., were one-fifth below either 1950 or average; flaxseed was one-sixth less than in 1950 and 9% below average. Butter production declined by about 45,000,000 lb.; its civilian consumption per capita averaged only 9.7 lb., 90% of 1950 and 58% of pre-World War II consumption. Lard and rendered pork fat production increased by more than 100,000,000 lb. since there was an increased hog kill; civilian consumption per capita in food increased to 12.5 lb., 2% more than in 1950 and 14% higher than the pre-World War II rate.

Margarine used in 1951 was preliminarily estimated at more than 1,000,000,000 lb., a new record, about 6.7 lb. per capita, 10% more than in 1950 and 231% higher than the pre-World War II rate. Further increase in use was predicted for 1952. In 1951 eight more states repealed the prohibition against coloured margarine; as of Sept. 1 its manufacture and sale was still prohibited in eight states.

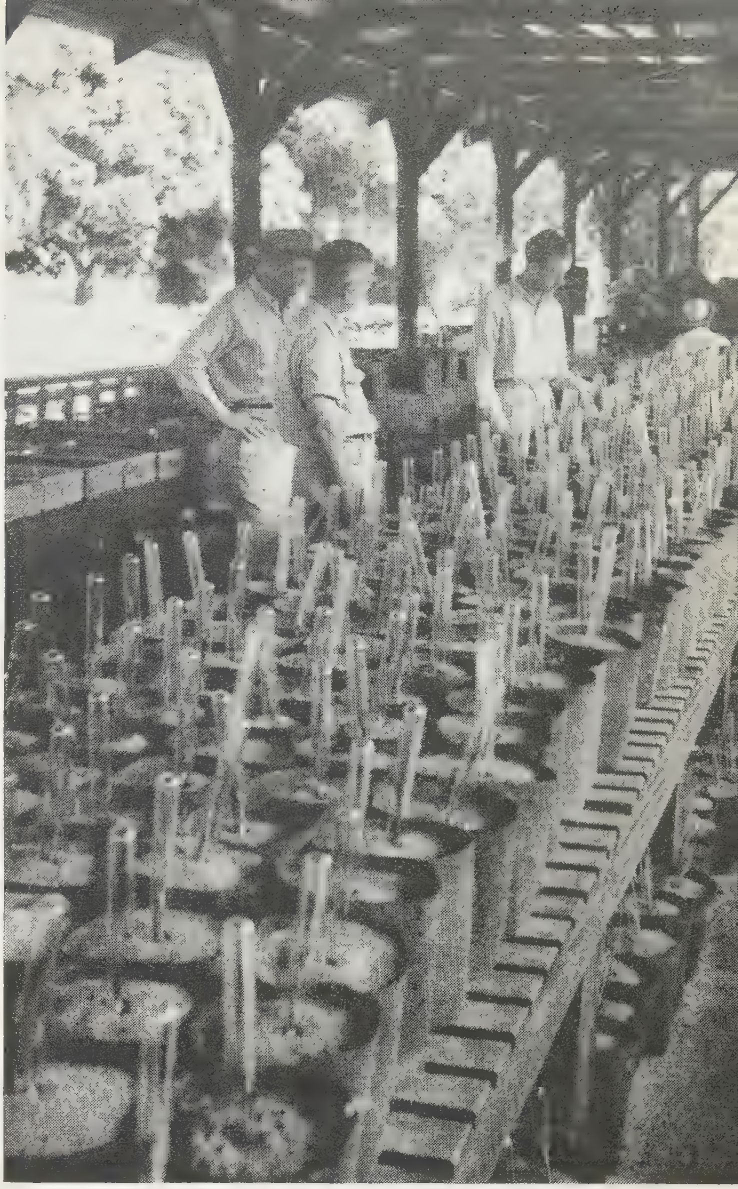
Soap fats and oils also showed some increase for the year, whereas drying oils, abundant in 1950, were less abundant in 1951. In part this latter situation was related to a small linseed crop, but good amounts of these nonedible oils were included in imports which in 1950–51 totalled 608,426,000 lb., valued at $132,168,000, compared with 410,517,000 lb., valued at $78,721,000, in the preceding year.

*U.S. Production of Principal Fats and Oils**

(In millions of pounds)

	1951†	1950	Average, 1937–41
Butter	1,460	1,505	2,220
Lard	2,950	2,840	2,091
Edible tallow	165	165	225
Edible vegetable oils	4,800	4,391	2,253
Soap fats and oils	2,550	2,506	1,523
Drying oils	800	880	363
Other oils	25	19	21
Totals	12,750	12,308	8,696

*Year beginning October.
†Partly forecast.



AFRICAN OIL PALM SEEDLINGS being grown in 1951 in a laboratory of the United Fruit company in Honduras, where palm oil was put in production for the first time in the western hemisphere

Of the 8,562,000,000 lb. of edible fats and oils, including butter, distributed in 1950–51, 12.3% or 1,054,000,000 lb. were exported—somewhat less than the record 1,147,000,000 lb. of the previous year. Of that amount about two-thirds, or 638,000,000 lb., went to Europe, 452,000,000 lb. to countries participating in the European Recovery Program. Latin-American republics received 259,000,000 lb. On a crop year basis, the 11 months from Oct. 1950 through Aug. 1951 evidenced a high level of export—2,173,000,000 lb., compared with 1,895,000,000 lb. a year earlier; included were 584,000,000 lb. of lard, 698,000,000 lb. of soybean oil and oil equivalents in soybeans and 457,000,000 lb. of inedible tallow and grease. Items which contributed substantially to the total were 85,000,000 lb. of fat in emergency aid to Yugoslavia, record large exports of soybean oil to Spain following the poor olive crop of 1950 and large shipments of soybeans to Japan, which normally would draw on Manchurian supplies.

Vegetable oils and lard in 1951 dropped about 30% in price after the early months of the year.

The over-all world fats and oils supply-demand situation appeared to be in better balance at the end of 1951 than at any time since World War II. Olive oil production in the principal producing countries of the Mediterranean basin was expected to be the largest in years, possibly an all-time high of 1,461,600 tons, compared with only 597,100 tons in 1950 and an average for the early 1940s of 854,300 tons. Copra shipments from the Philippines continued large. Argentina's surpluses of oilseed, particularly of linseed, were mostly exhausted. The West African and Indian peanut crops were large. Supplies of coconut and palm oils, which are used to some extent in Europe for food, were expected to be up considerably. (*See* also COTTON; PEANUTS; SOYBEANS.) (J. K. R.)

Vegetables. U.S. production in 1951 of commercial truck crops, based on 25 vegetables and not including strictly market garden areas or farm gardens, was 6% less than in 1950 but 11% higher than the 1940–49 average. Fresh vegetable prices at the producer level were exempted from the provisions of the general price freeze order of Jan. 26, 1951; the value of the 1951 crop was estimated at 18% more than the large one of 1950. The higher price trend was reinforced in November by freeze damage to some of the crops, and in December the index of prices to truck farmers was 33% higher than in November and 57% higher than in Dec. 1950.

It appeared that Cuban and Mexican winter vegetables would be available to the U.S. market in large amounts. U.S. fresh vegetable exports reached an all-time record high of 508,000,000 lb. in 1950, of which 80% went to Canada.

An abundant and valuable 1951 crop of 11 vegetables for commercial processing reached, in total, a new tonnage record, exceeding the 1950 crop by about 20%.

Record high yields were established for lima beans, peas and tomatoes. The crop was valued at $318,000,000, 27% above the previous (1946) record, and 78% above the 1940–49 average. Canned vegetables available to civilians, 41.5 lb. per capita, approximated the 1950 level but were 39% more than the pre-World War II rate; frozen vegetables, 3.5 lb. per person, were increased 6% over 1950.

In total, these U.S. fresh vegetable crops, whether sold as truck or for commercial processing, were estimated to have returned $970,950,000 to their producers, compared with $760,085,000 in 1950 and $674,856,000 average for 1940–49. California was the leading producer with a production valued at $323,680,000, Florida was second ($115,700,000) and New York third ($64,062,000).

Production in 1951 of dried edible beans and peas was large both in the U.S. and the world. The U.S. government filed an antitrust suit against California's Salinas valley lettuce growers and obtained an injunction to stop them from destroying part of the crop to keep prices up.

Commercial Truck Crops for the Fresh Market.—A total of 8,572,300 tons of 25 crops was produced for the fresh market in 1951 and returned a value of $653,184,000; comparable figures for 1950 were 9,072,800 tons valued at $553,008,000, and for 1940–49 an average of 7,717,000 tons worth $496,282,000.

Compared with 1950, production in 1951 was higher for 10 crops and lower for 14, with cabbage, onions and lettuce showing the largest tonnage decreases, celery the largest increase. Tomatoes were the most valuable ($115,475,000); lettuce was second ($111,157,000). California with 2,629,700 tons from 347,020 ac. valued at $230,009,000 was indisputably in first place; Florida produced 1,158,000 tons having a value of $112,764,000 from 244,100 ac.

Table I.—*U.S. Vegetable Production for Fresh Market*

(In thousands)

Crop	Unit	1951	1950	Average 1940–49
Artichokes	boxes	1,000	1,000	1,000
Asparagus	crates	3,688	4,038	4,441
Beans, lima	bu.	1,020	1,312	1,394
Beans, snap	bu.	17,292	16,663	17,109
Beets	bu.	1,308	2,035	2,125
Cabbage	tons	1,192	1,503	1,232
Cantaloupes	crates	12,864	13,198	10,712
Carrots	bu.	26,179	27,811	24,599
Cauliflower	crates	11,917	12,964	10,708
Celery	crates	27,096	25,233	19,826
Corn, sweet	ears	358,100	350,600	304,579
Cucumbers	bu.	7,557	6,920	5,520
Eggplant	bu.	1,242	1,382	1,276
Escarole	bu.	2,374	1,872	1,062
Honeyball melons	crates	27	115	190
Honeydew melons	crates	3,022	2,726	3,128
Kale	bu.	858	840	654
Lettuce	crates	35,285	36,963	28,723
Onions	sacks	39,033	45,453	37,892
Peas, green	bu.	2,128	2,775	5,749
Peppers, green	bu.	8,445	8,799	6,141
Shallots	bu.	520	459	518
Spinach	bu.	10,542	10,537	13,660
Tomatoes	bu.	33,499	32,004	29,075
Watermelons	melons	83,279	82,385	70,454

Commercial Truck Crops for Processing.—The U.S. 1951 crop of 11 vegetables for commercial processing was a record 7,505,600 tons, grown on 1,880,500 ac. and valued at $317,766,000. Comparable figures for 1950 were 5,303,000 tons from 1,622,630 ac. with a value of $207,077,000. For 1940–49 the average was 5,378,000 tons valued at $178,574,000 and grown on 1,830,830 ac. Tomatoes were the leading crop in value ($144,364,000). California was the leading producer ($93,671,000) and Wisconsin was next ($25,822,000).

Table II.—*U.S. Production of 11 Vegetables for Processing*

(In tons)

Crop	1951	1950	Average 1940–49
Asparagus	110,300	107,200	87,400
Beans, lima	93,600	80,500	45,500
Beans snap	273,100	257,200	201,200
Beets	146,200	174,500	129,100
Cabbage	174,900	247,300	173,200
Corn, sweet	1,217,000	974,200	1,149,700
Cucumbers	289,600	176,300	209,000
Peas, green	509,300	432,600	402,500
Pimientos	15,300	45,000	13,400
Spinach	111,400	74,300	84,300
Tomatoes	4,584,900	2,733,900	2,883,400

The U.S. crop of dry edible beans for 1951 was estimated at 16,000,000 bags (100 lb. each, cleaned basis), about 6% more than the previous year but moderately less than the average for 1940–49. A harvested acreage of 1,417,000, 6% less than in 1950, was more than compensated for by the highest yield on record, 1,231 lb. per acre, compared with 1,117 lb. in 1950 and an average of 958 lb. for 1940–49.

California was the leading producer, 4,709,000 bags, though Michigan, with a record yield per acre, produced 4,022,000 bags. The pinto bean, largely produced in the southwest, where drought damage was widespread in 1951, dropped to second place among the classes, with 3,033,000 bags (3,650,000 in 1950), whereas the pea bean was first with 4,060,000 bags, compared with only 3,356,000 bags in 1950.

Prices were favourable at $7.78 per bag, estimated season average price to farmers, compared with $7.37 per bag in 1950. Exports of more than 228,000,000 lb. in 1950–51 were nearly three times as large in quantity and double the value of the previous year.

Production of beans in 50 countries was estimated at 117,000,000 bags for the 1951–52 season, 4% more than the previous year and 10% larger than the pre-World War II or wartime average.

U.S. consumption of dried field peas was about the same in 1951 as in 1950, but 17% above the prewar level. The 1951 crop was a large one, 3,478,000 bags (18% more than in 1950), harvested from 290,000 ac., 24% more than in 1950, with an average yield of 1,298 lb. per acre (1,376 lb. in 1950). Washington and Idaho accounted for 92% of the total. (*See* also Corn; Horticulture; Potatoes.) (J. K. R.)

Venereal Diseases. Less syphilis was reported in the United States in 1951 than in any previous year since 1929 and less gonorrhoea than in any year since 1942. Public clinics—about 2,200 of them—and other treatment centres assured that diagnosis and treatment were available to all people. There were diagnostic serum tests of improved stability and sensitivity. Under investigation was one procedure, the treponemal immobilization test, which might strengthen the laboratory diagnosis of syphilis.

Performance of serologic tests over the nation was creditable, as an evaluation of state serologic laboratories demonstrated. Results of this survey indicated a universal willingness not only to adopt improved tests as they are developed but also to strive for better performance.

The U.S. public health service's estimated U.S. annual minimum incidence of syphilis in the civilian population only was as follows: in 1947, 214,000 cases; in 1948, 178,000 cases; in 1949, 139,000 cases; in 1950, 98,000 cases; and in 1951, 71,000 cases.

Health departments, emphasizing case finding in 1951, were aided in their public appeal, mass testing and contact tracing programs by the public health service. Fifty-eight case-finding projects in 34 states received assistance in the form of funds, services and supplies. The increased emphasis being placed on outpatient treatment of venereal disease meant that less time was available for interviewing patients to learn the identity of their contacts. As a result, intensive training in contact tracing and wide use of all methods of case finding had become necessary.

Venereal disease control officers sought in 1951 to gear their programs to the needs of the national defense effort. Because periods of mobilization had traditionally brought increases in venereal disease rates, these officers took steps to strengthen case-finding measures in defense areas where increases were likely to occur first. Especially important were efforts to continue and improve co-operative procedures between the civilian and military control programs. As a result, state health departments assigned civilian case-finding specialists to military installations where such services were requested by post commandants.

A uniform system of reporting case-finding activities was developed, and case-finding personnel of the armed forces were being trained in public health service centres.

Research in venereal disease went ahead in the three research centres of the division of venereal disease, at Chamblee, Ga., Hot Springs, Ark., and Chapel Hill, N.C. Among the problems under study were immunity in syphilis; the artificial cultivation of the organism which causes syphilis, *Treponema pallidum;* and certain variations in response of the organism, syphilis therapy and in host reactions. Much work was in progress on the treponemal immobilization test and on standardization of serologic tests, so that the diagnosis of syphilis through blood tests could be more specific and simplified.

The laboratory at Chamblee, Ga. had as one of its basic functions the maintenance of standards of serologic work in state and local laboratories. In 1951 it continued to supply antigens to these laboratories and evaluated their serologic procedures. It also provided serologic analysis for the approximately 14,000 blood specimens obtained in the Virgin Islands and the 228,000 specimens tested in the Atlanta, Ga., health screening program.

Clinics and rapid treatment centres, state and locally operated, remained the heart of the national venereal disease control program in 1951. Their records reflected the vigour with which health departments were proceeding against venereal disease. Diagnostic observations completed by clinics, numbering more than 2,400,000 observations, resulted in the admission to the clinics for treatment of more than 388,000 cases of venereal disease. Staff members of these centres made about 450,000 investigations to find cases of venereal disease and bring them to treatment.

Admissions to venereal disease inpatient centres numbered 110,000 in 1951, a decline of about 17% from the previous year's record. The average stay for all admissions to all centres was 7.5 days, and for syphilis admissions, 8.9 days. The average cost per patient day was $5.86.

Installations and personnel of the division of venereal disease rendered consultative and teaching services in 1951. The venereal disease research laboratory received 280 trainees for instructions and consultation in laboratory procedures and problems.

The medical centre at Hot Springs, Ark., conducted a variety of orientation and instructional programs for public health workers, hospital nurses and private physicians.

Declines in morbidity reporting and in mental disability and deaths from syphilis amply demonstrated the striking progress in venereal disease control during the decade 1941–51. However, it was estimated that there were 3,000,000 persons in the United States in 1951 who would have positive serologies for syphilis if the entire population were blood tested. Actual reports from the states showed more than 198,000 cases of syphilis among civilians in 1951—more than 18,000 in the early infectious stages, about 52,000 in the early latent stage and more than 107,000 in the later stages. In addition, more than 12,000 cases of congenital syphilis were reported. Gonorrhoea was still reported in hundreds of thousands of cases—more than 270,000 in 1951.

Venereal disease control was still faced with many unsolved problems: (1) the biology of the spirochaete and of immunization for syphilis; (2) lack of specificity of laboratory procedures; (3) care and prevention of late symptomatic syphilis; (4) application of technical knowledge and operational skills in case finding to all areas needing assistance; (5) final evaluation of penicillin therapy; and (6) relative lack of response of gonorrhoea incidence and prevalence to any control procedures yet applied.

See Federal Security Agency, *Annual Report* (1951). (T. J. B.)

Venezuela. A federal republic of 20 states, 2 territories, a federal district and various small islands (population 779) known as federal dependencies, on the north coast of South America, with an area of 352,143 sq.mi., population (census of Nov. 1950) 4,986,000, not including indigenous tribes not living in towns; Caracas, the federal capital, with 487,000 (662,000 in its metropolitan area); Maracaibo, 232,000; Barquisimeto, 105,000; Valencia, 88,000; Maracay, 66,000; San Cristóbal, 56,000; Cumaná, 46,000; Puerto Cabello, 34,000; Ciudad Bolívar, 36,000; Puerto La Cruz, 28,000. Throughout 1951 the governing junta continued as constituted on Nov. 27, 1950, of Germán Suárez Flámerich, president; and Col. Marcos Pérez Jiménez and Col. Luis Llovera Páez, members, with Pedro Moreno, secretary.

History.—The year was one of reasonably full employment but economic activity slowed down somewhat except in the mining and petroleum industries. The average daily petroleum production exceeded 1,700,000 bbl. The first cargo of iron ore was shipped by the Bethlehem Steel company to Baltimore, Md., early in 1951. Building of major highways, urban and statewide, and many schools, hospitals and other public structures continued through the year; and the expansion of the capital continued to sustain land values and speculative building.

The First National Petroleum convention met in Caracas Sept. 9–18, under the presidency of Santiago E. Vera, minister of mines and petroleum. It was attended by cabinet officers and functionaries of virtually all petroleum-producing countries in the world, except the U.S.S.R. and areas it controlled, and by representatives of virtually all private oil-producing enterprises in the world. Late in 1951 steps were taken toward the revision of the trade treaty between the United States and Venezuela, but no decisive action had occurred before the end of the year.

Late in December announcement was made that the source of the Orinoco had at last been located by an official expedition.

Sporadic disorders occurred late in the year in several areas. The universities were closed in consequence of continued controversy between the ministry of education and the faculties on the subject of official intervention; student rioting also had some part in bringing about the cessation of classes. Toward the end of the year, a movement to establish a nonofficial university in the capital was begun. (C. Me.)

Education.—In Oct. 1949 there were more than 5,300 primary schools with 464,697 pupils enrolled. In April 1951 secondary and special schools, public and private, numbered 151 with 24,925 students and 1,869 teachers; the 31 normal schools had 2,860 students and 342 teachers. In 1950–51 the Central university had 4,747 students matriculated, Los Andes 866, Zulia 840 and the Instituto Padagógico 448. Education was allotted 7.3% of the 1951–52 budget.

Finance.—The monetary unit is the bolívar, valued at $0.2985 U.S. currency, controlled and free selling rates, during 1951. Actual government expenditure in the fiscal year ending June 30, 1951, was 2,134,000,000 bolívares; revenue, 2,112,000,000 bolívares. The 1951–52 budget was balanced at 1,951,000,000 bolívares; it had been raised to 1,979,643,000 bolívares by Oct. 31, 1951. The treasury balance was only 145,000,000 bolívares on Sept. 30, 1951. There was no external debt; the internal debt was reported to be 14,700,000 bolívares on Oct. 31, 1951. Currency in circulation (Sept. 30, 1951) was 722,000,000 bolívares; demand deposits 745,000,000 bolívares; gold reserves $373,000,000; foreign exchange reserves $6,000,000; dollar exchange in U.S. banks $76,000,000. The retail food price index (Caracas) stood at 332 in Sept. 1951 (1937=100).

Trade and Communications.—Exports in 1950 totalled 3,888,454,877 bolívares; imports 1,798,417,935 bolívares. Chief exports were crude petroleum and petroleum products (97%), coffee (1%) and cacao (1%); leading imports, machinery and equipment (29%), foodstuffs and beverages (21%) and metals and manufactures (13%). Leading suppliers were the U.S. (68%), the United Kingdom (7%), Canada (4%) and Germany (3%); leading customers, the Netherlands Antilles and the U.S.

Railways (1950) totalled 700 mi.; highways, 3,750 mi. of all-weather roads and 1,600 mi. of unimproved dry-weather roads. According to *Lloyd's Register of Shipping*, the merchant marine had 93 steamers and motor ships (100 tons and over) aggregating 156,910 gross tons on June 30, 1950.

Agriculture.—Production figures for the 1950–51 crop year included coffee 550,000 bags of 132 lb. each and cacao 19,000 short tons. Exports in 1950 were 310,490 bags and 17,150 tons respectively. Sugar production in 1950 was 55,572 short tons. The 1950 census (preliminary figures) showed 5,359,654 cattle and 1,292,808 pigs.

Manufactures.—Production in 1950 included cement 552,258 short tons; soap 16,428 short tons; cigarettes 1,943,716,000 units; beer 82,040,000 l.; electric energy 520,341,000 kw.hr.; natural gas 15,775,571,000 cu.m.

Mineral Production.—Production of crude petroleum by the 13 companies in operation in 1950 reached the record figure of 546,764,525 bbl., of which Creole accounted for 46% and Shell for 31%. Refinery throughout was 90,099,847 bbl., an increase of 70% over 1949, and the 14 refineries and topping plants in operation at the end of 1950 had capacity of 308,700 bbl. per day. Exports of refined products increased to 67,250,000 bbl. Gold production was 34,460 oz. and diamonds, 60,389 carats. Bethlehem Steel's Venezuelan subsidiary mined 1,241,151 short tons of iron ore in the first 11 months of 1951; production increased from 76,442 tons in Jan. 1951 to 163,241 tons in Nov. 1951. (J. W. Mw.)

Vermont.

A north Atlantic state of the United States of America, the only one of the New England states without a sea coast, Vermont is popularly known as the "Green Mountain state"; it was admitted to the union in 1791. Area: 9,609 sq.mi., of which 331 sq.mi. are water. Population (1950) 377,747 (including 240,135 rural, 137,612 urban).

Montpelier is the capital city with a population (1950 census) of 8,599. The chief cities are Burlington (33,155) and Rutland (17,659).

History.—The general assembly met from Jan. 3 to May 18, 1951, the longest session in the history of the state. Legislation enacted or amended included bills relating to aid for education of homebound children, consolidation of high schools, a change in the definition of the school year, licensing of amusement machines, salary withholding of state income taxes, civil defense and powers and duties of the health department.

The chief officers of the state during 1951 were: George D. Aiken and Ralph E. Flanders, U.S. senators; Winston L. Prouty, U.S. representative to congress; Lee E. Emerson, governor; Joseph B. Johnson, lieutenant governor; George H. Amidon, state treasurer; Howard E. Armstrong, secretary of state; David V. Anderson, auditor of accounts; Clifton G. Parker, attorney general.

Education.—The 762 elementary schools in the state in 1950–51 had an enrolment of 47,094 and a teaching staff of 1,888. There were 82 public high schools, with an enrolment of 15,693 and a teaching staff of 748. The total current expense for these schools was $11,481,314.50, of which the state paid 23.7% ($2,717,423.20). The state superintendent of schools was the commissioner of education, A. John Holden.

Social Insurance and Assistance, Public Welfare and Related Programs.—Relief in general was administered by the overseer of the poor in each town. Approximately 6,972 persons a month received old-age assistance from state funds amounting to $3,137,949 for the year 1951. Total payment of $665,760 to mothers' aid recipients (covering needy relatives and children) was made to an average number of 3,596 individuals monthly. Blind assistance funds to the amount of $89,674 for the year were distributed to about 182 persons a month. Aid to adult crippled and permanently disabled persons amounted to $61,266 for the year, distributed to approximately 179 persons a month.

Unemployment compensation payments made under the Vermont law numbered 72,244 and amounted to $1,378,504 in 1951; readjustment allowance payments under the G.I. Bill of Rights numbered 169 for an amount totalling $3,287. The three state correctional institutions during the fiscal year ending June 30, 1951, had an average of 387 inmates; their total expenses were $582,094.76.

Communications.—The total mileage of the public highway system (state, state-aid and town highways) as of June 30, 1951, was 13,676.76, of which 1,821.28 mi. were in the state system and 2,773.56 mi. were in the state-aid system. Total expenditures during the fiscal year ending June 30, 1951, amounted to $9,132,717.18, of which $5,651,903.94 was for state highways and $1,949,853.34 for state-aid highways. There were 932.42 mi. of railways in the state in the year ending Dec. 31, 1951; airports in the state numbered 20, seaplane landing areas 4 and airways 2, with a total mileage of 144. Telephone subscribers were estimated at 79,500 Dec. 31, 1951.

Banking and Finance.—The number of state and national banks as of June 30, 1951, was 77, of which 38 were state banks with total deposits of $216,229,854.13 and assets of $241,869,398.39. The eight co-operative building, savings and loan associations had total assets of $4,255,133.28.

Total receipts of the state as of June 30, 1951, were $36,426,483.88; disbursements $36,271,000.70; unappropriated surplus $637,031.78; obligations outstanding $5,644,000.00.

Agriculture.—The total value of crop production in Vermont in 1951 was reported by the U.S. bureau of agricultural economics at $51,575,000 compared with $52,407,000 in 1950.

The 1950 preliminary agricultural census returns indicated a decrease of more than 7,000 in the number of farms in the state in five years' time; the average size of the farms increased from 148.4 ac. in 1945 to 185.2 ac. in the latest count.

Table I.—*Principal Crops of Vermont*

Crop	1951	1950	Average 1940-49
Corn, all, bu.	2,788,000	3,312,000	2,423,000
Hay, all, tons	1,341,000	1,191,000	1,417,000
Oats, bu.	1,476,000	1,120,000	1,439,000
Potatoes, late, bu.	738,000	1,215,000	1,430,000
Apples, commercial, bu.	1,080,000	972,000	695,000
Maple syrup, gal.	733,000	875,000	802,000

Source: U.S. Department of Agriculture.

Manufacturing.—The Vermont unemployment compensation commission estimated that 38,800 workers were employed in manufacturing industries in the state throughout 1951. (C. E. Fe.)

Table II.—*Principal Manufacturing and Processing Industries of Vermont*

Industry	Value of products 1950	1949
Machines, machine tools and allied industries	$60,780,700	$63,061,400
Woollen, cotton and knit goods	47,606,280	51,571,000
Woodworking, furniture and lumber, etc.	41,070,720	36,906,150
Granite, marble and other stone industries	28,271,610	26,531,000
Paper and paper products	27,963,600	26,435,650
Dairy products	17,115,000	16,500,000

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

Table III.—*Mineral Production of Vermont*

(In short tons)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Lime	32,843	$415,910	28,914	$356,381
Sand and gravel	1,040,977	661,994	1,581,614	728,394
Slate	238,740	4,471,869	184,040	3,624,230
Stone	447,310	8,038,892	441,770	8,276,287
Talc	72,135	906,396	64,508	788,341
Other minerals		?		3,610,685
Total		?		$17,384,000

Veterans Administration (U.S.).

By the end of 1951, living U.S. veterans of all wars numbered nearly 19,000,000, of whom 80% served in World War II. Veterans with their families made up about one-third of the nation's total population.

A number of laws were enacted during 1951 furnishing benefits to a young new group of veterans—those who served after June 27, 1950, the date of the outbreak of hostilities in Korea.

As a result of these laws, the veterans might get the following benefits under the same conditions that applied to their older fellow veterans of World War II: medical and hospital care, vocational training for the disabled, disability compensation and pensions and free cars for those with certain disabilities. In addition, the veterans were entitled to a new system of insurance protection.

Finally, the families of those who died were entitled to death compensation and pension and burial benefits, also on the same basis as for the families of deceased World War II veterans.

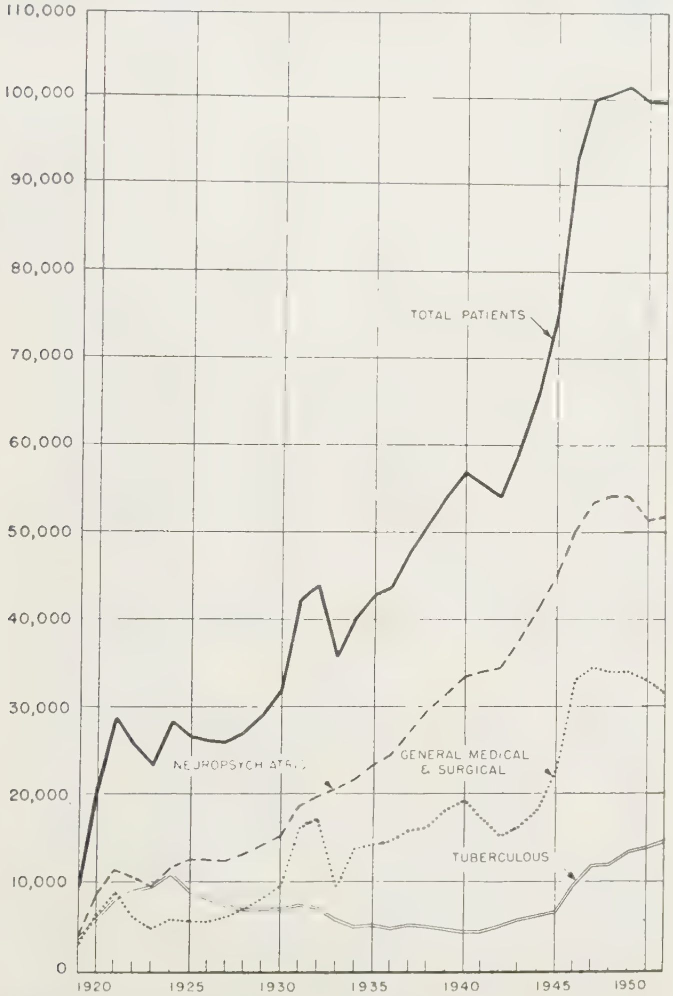
Following are close-ups of these and other benefits administered by the Veterans administration.

Medical and Hospital Benefits.—By Nov. 1, 1951, the VA was operating a network of 153 hospitals for the treatment of ill and disabled veterans. It also was utilizing beds in civil, state and other federal hospitals on a contract or agreement basis. At that time, a total of nearly 106,000 patients were in VA and non-VA hospitals.

A $750,000,000 VA hospital construction program was under way and was expected to result in 66 modern, new hospitals with a total of 37,000 beds. By Nov. 1, 1951, a total of 35 of the hospitals had been completed.

Veterans of all wars, as well as those with service after June 27, 1950, discharged under conditions other than dishonourable, were entitled to VA hospital care under the following priority system: (1) emergency cases; (2) those suffering from injuries or diseases incurred in or aggravated by wartime service; (3) those who stated under oath that they were unable to pay hospital charges for the treatment of nonservice-connected ailments. These veterans, if not emergency cases, had to wait until beds were available.

Vocational Training for the Disabled.—Vocational rehabilitation, at government expense, was available to disabled veterans of World War II, as well as to those disabled after fighting started in Korea. The veterans had to meet these qualifications: (1) a discharge other than dishonourable; (2) a compensable service-connected disability; and (3) a need for training to overcome the handicap of the disability.



NUMBER OF VETERANS remaining in VA and non-VA hospitals on Dec. 31 from 1919 to 1951 by types of disability, as compiled by the Veterans administration

VETERANS OF KOREAN combat exercising in a gymnasium at Walter Reed General hospital, Washington, D.C., in 1951. While learning to use artificial limbs, they kept other body muscles in proper form by daily workouts

Eligible veterans might train in schools, on-the-job or on-the-farm. While in training, and for two months afterward, they might receive subsistence allowances in addition to their disability compensation.

By Nov. 1, 1951, a total of nearly 600,000 disabled World War II veterans had taken training, at some time or other, under the program. Nearly half of them had completed their training and were declared rehabilitated. By the same date, 29 Korean veterans were in training, but the number was expected to grow as more received discharges from the service.

Compensation and Pension.—Compensation was payable to veterans with service-connected disabilities resulting from either war or peacetime service. Wartime rates ranged from $15 to $150 a month, depending upon the degree of disability, plus statutory awards for certain disabilities which might bring total payments up to as high as $360 a month. Peacetime rates were 80% of these wartime sums. Veterans disabled as a result of service after June 27, 1950, were entitled to the wartime rates.

Pensions, on the other hand, were payable to veterans of either World War I or World War II and to those who served after June 27, 1950, under the following basic conditions: (1) the veteran had to be totally and permanently disabled for reasons not traceable to his military service; and (2) his income could not exceed $1,000 a year if he was single, or $2,500 if he was married or had a minor child. The monthly pension rate was $60, which was increased to $72 after ten years or when the veteran reached age 65.

Widows, children and dependent parents of deceased veterans could qualify for death compensation, but only widows and children for death pension.

On Nov. 1, 1951, more than 3,000,000 veterans and dependents of deceased veterans were on VA's pension and compensation rolls. Of this number, about 10,000 were drawing payments as a result of the Korean conflict.

Insurance.—VA administers three systems of insurance: U.S. Government life, for World War I veterans; National Service life, for World War II veterans, and the Indemnity and Insurance acts of 1951, for those with service after the start of the Korean war.

The last set up an entirely new type of government life insurance for military personnel and veterans. It also changed the other two types of insurance in many ways.

Under the newest system, those in active military service after June 27, 1950, and certain other groups, were automatically covered, without cost, against death in active service for $10,000, less any other government insurance they might have had at that time. The free indemnity lasted for 120 days after separation from service, for those on active duty for more than 30 days.

Also, under the program, a veteran, upon separation from service, could apply for certain specified types of insurance which he could hold so long as he paid the low-cost premiums.

Through Nov. 1, 1950, VA had allowed nearly 2,000 indemnity claims from the families of deceased servicemen.

The number of National Service life insurance policies in force at that time was 7,126,000, totalling nearly $50,000,000,000. Also, 464,000 U.S. Government life insurance policies were in force, totalling $2,000,000,000.

The G.I. Bill.—Of the three major provisions of the G.I. bill for World War II veterans, one still was in force during 1951, one had passed the cut-off point and the third had expired for most veterans.

Under the G.I. loan program, which had five more years to run, a total of 2,800,000 veterans had obtained loans valued at $16,600,000,000 by Nov. 1, 1951. The G.I. education and training program passed its cut-off date for starting on July 25, 1951. By that time, 7,500,000 veterans—or half of all who served in World War II—had taken training.

The third benefit, readjustment allowances for unemployed and self-employed veterans, ended for most former servicemen on July 25, 1949. Nearly 9,000,000 veterans had received allowances in the amount of $3,800,000,000. (*See* also Medical Rehabilitation of the Disabled; Tuberculosis.)

(C. R. Gy.)

Veterans' Organizations.

United States.—In 1951 there were fewer veterans who paid dues to national veterans' organizations than in any year since World War II. The figure probably totalled considerably less than 5,000,000.

The developments in Korea had made the nation once more aware of the veteran problem, but had not yet had any effect on membership. All of the organizations, however, had amended their constitutions so that they might accept Korean veterans for membership.

American Legion. — The American Legion (membership 2,800,000) faced a major membership and financial problem. For the past three years it lost members at the rate of 200,000 a year. The Legion national convention held in Miami, Fla., elected Donald Wilson of Clarksburg, W.Va., national commander replacing Erle Cocke, Jr., of Georgia. Highlight of the convention was an address by General of the Army Douglas MacArthur who heavily attacked the foreign policy of the administration of Pres. Harry S. Truman. The platform of the American Legion also attacked the far eastern policy of the government and of Secretary of State Dean Acheson. It urged immediate adoption of universal military training and extension of benefits to veterans of Korea.

AMERICAN LEGION headquarters building being dedicated by Pres. Harry S. Truman in Washington, D.C., on Aug. 14, 1951

Veterans of Foreign Wars.—The Veterans of Foreign Wars (V.F.W.) continued to lose membership, its total at the close of 1951 being about 1,000,000. The V.F.W. national convention, held in New York city, elected Frank C. Hilton of Reading, Pa., as national commander to succeed Charles C. Ralls. The outstanding event of the V.F.W. convention was the failure of a resolution favouring a bonus for World War II veterans. This was the first time a probonus resolution had failed in V.F.W. history since World War II. The V.F.W. convention, like the American Legion, hit a high political note. Included among the platform resolutions passed were the following: an attack on Secretary of State Dean Acheson; a request for a congressional investigation of the World Federalist movement; a demand that the U.N. boycott Communist China; the banning of Communist meetings; universal military training.

Disabled American Veterans.—The Disabled American Veterans, which in 1951 had a membership of 125,000, was the most service minded of all veterans groups. Its membership had varied the least and the organization had usually steered clear of political controversy. The national convention, held at Milwaukee, Wis., elected Ewing W. Mays of Little Rock, Ark., as national commander, replacing Boniface Maile of Detroit, Mich. The convention, concentrating on veterans' issues, attacked the Hoover committee recommendations, urged an increase in disability compensations and asked for veterans' benefits for Korean veterans.

American Veterans of World War II (Amvets).—American Veterans of World War II, with a membership of 75,000, was the largest of the organizations for veterans of World War II. The national convention, held in Boston, Mass., elected John Smith of Ohio to succeed Harold Russell of Boston, Mass., as national commander. The convention program urged: the ouster of Carl Gray as head of the Veterans administration; a G.I. bill of rights for Korean veterans; a peace and preparedness program based on co-operation with the United Nations.

American Veterans' Committee.—American Veterans' committee, whose membership was 20,000, was the second largest World War II veterans' group. The national convention reelected Michael Straight of Washington, D.C., as national commander. The convention adopted resolutions urging the ouster of Veterans Administrator Carl Gray, the extension to Korean veterans of the G.I. Bill of Rights and universal military training.

Other Organizations.—The International Federation of War Veterans celebrated its first year of existence in convention at Belgrade, Yugoslavia, by changing its name to the World Veterans federation. Fourteen nations representing 13,000,000 veterans were affiliated with this group. In 1951 groups from Canada, Norway, Denmark, Philippines and Israel joined. Represented from the United States were the American Veterans of World War II, Disabled American Veterans, American Veterans Committee and the Blinded Veterans association.

Veterans' organizations in 1951 seemed to be awaiting the outcome of the uncertain international situation so that they might know in which direction to move—toward expansion or contraction. (Ri. A. B.)

Canada.—The Canadian Legion (largest single Canadian veterans' group, with about 300,000 members in 2,200 branches) opened the year with a call for a country-wide drive to bring compulsory military training to Canada quickly. The drive also protested the believed shortages of national defense equipment and the inadequacies of defense organization. National registration, as part of the compulsory military training in reserve forces, was advocated. Brooke Claxton, National defense minister, replied to the Legion by revealing that Canada had $330,000,000 of aircraft, $96,000,000 of ships, $35,000,000 of clothing on order, and that during the second six months of 1950 the number of Canadian fighting units had been doubled. Later in the year the Legion and the national council of veterans' associations in Canada began a drive for an increase in the basic pension rates for all veteran pensioners, as well as war veteran allowance rates. In November federal veterans' affairs minister Hugues Lapointe announced basic pension increases ranging from 33⅓% to 45%; and a special governmental committee was announced for the study of proposed changes in the war veterans' allowance act.

Major changes were made in the constitution of the Canadian Legion by an act of parliament. The power of making bylaws was taken from the national executive and placed in the hands of the national convention of the Legion; the revisions to the act gave provincial conventions the right to make bylaws for provincial commands. A special order stated that expulsion faced any legionnaire who was a Communist or was associated with the so-called Peace Council. (C. Cy.)

Veterinary Medicine.

During 1951 new schools were founded to confer the degree of doctor of veterinary medicine. Also teaching staffs were enlarged, new college buildings erected and enrolment of veterinary students increased despite higher entrance requirements, particularly in the far east, Germany and the United States. The critical world food situation continued to turn more and more attention to the control of diseases of food-producing livestock. Commercial research laboratories devoted to pet animals were constructed and existing ones refined and enlarged to keep pace with the developments of that branch of medicine, and numerous luxurious and scientifically equipped pet animal hospitals were established.

The Role of Domestic Animals in Q Fever.—A notable change took place in the knowledge of Q fever. Formerly (until 1944) believed to exist only in Australia and the United States, later studies showed that this rickettsial infection was actually world-wide. Cases were reported in Greece, Bulgaria, Spain, Italy, Germany, Algeria, India, Iraq and Panama during the year, and, moreover, sheep and goats as well as cattle were proved to be carriers of the specific organism—*Rickettsia burnetii.* An outbreak in southern California in 1947 revealed by 1951 that the previously undiagnosed disease was widespread in many countries among the handlers of domesticated ruminants.

Artificial Insemination in Cows.—The insemination of cows artificially increased in efficacy and general popularity. In round numbers 3,000,000 cows were bred in the United States in that manner during 1951, or approximately 15% of the dairy cow population. The increasing resort to this method of breeding dairy cows was attributed mainly to improved methods of handling bulls' semen. It was demonstrated that the addition of antibiotics—streptomycin alone or with penicillin—more assuredly maintained the fertility and longevity of the spermatozoa so that small dairy farmers were able to procure the service of selected bulls at faraway places.

Egg yolk buffered with sodium citrate (2.9%) in 75 to 100 parts of sterile water for each part of ejaculate, plus 500 micrograms of streptomycin per millimetre of the diluent, was the recommended preparation of bulls' semen for artificial insemination. It was, however, generally accepted that accurate prediction of the fertilizing property of any ejaculate was not possible in any event.

Bovine Anaplasmosis Travels Northward.—Although the insect-borne disease, anaplasmosis of cattle, had been recognized in 28 states of the south and southern part of the middle west for many years, its discovery in 1951 for the first time as far north as Minnesota came as a surprise. It seemed to have been brought to Minnesota in 1949 with Hereford cattle imported from the southwest. The diagnosis was made by local veterinarians and confirmed by investigators of the U.S. bureau of animal industry who not only isolated the causal organism—*Anaplasmosis marginale*—but reproduced the disease by experimental inoculations. Inasmuch as one of the principal vectors is the stable fly of the family Tabanidae which flourishes in all parts of the temperate zone, veterinarians were warned against mistaking the apparently new visitation in the acute form for anthrax, haemorrhagic septicaemia, forage poisoning, mineral toxicosis, etc. They were also reminded that the mild form in calves may remain unobserved, but nevertheless is capable of spreading the infection through the natural means of infection—insect vectors—or by means of the surgical instruments employed in castration, ear tagging, blood testing or dehorning. Tiny particles of blood of an affected animal were again shown to be a common source of the infection among gregarious animals, surgically treated one after the other.

Equine Encephalitis in the United States.—A report of the U.S. bureau of animal industry, dated May 31, 1951, revealed the incidence of infectious equine encephalomyelitis during 1950. A graphic map showing the location of outbreaks indicated that 33 states were involved and that the total of reported cases was 1,033 with a mortality of 41%, compared with 60% in 1949. The peak months were from July to October. Control methods included the vaccination of 89,000 animals. No human cases were reported. The report again emphasized the virtue of the specific vaccine generally employed in districts where outbreaks occur.

Tuberculosis of Animals.—Though bovine animals are the natural hosts of the tubercle bacillus, few species of domestic animals and wildlife escape the infection and, moreover, the varieties (types), called human, bovine and avian are not as host-specific as their names imply. According to studies carried out at the Mayo foundation, the varieties, *Mycobacterium hominis, M. bovis,* and *M. avian* are more interchangeable than the prevailing belief had indicated. An individual subject (man or animal) may be carrier of one or more of these varieties. Swine, for example, were found to be infected with both avian and bovine types or even all three types at the same time, and the finding of the human bacillus in the bovine species was no longer a rarity. That consumptive human beings infect their cattle was amply proved, and the danger of cohabitation of man with tuberculous cows was well known. Adequate control of tuberculosis and eventual elimination from a species depends upon its elimination from all species. Though milk is the usual transmitter of bovine tuberculosis to man (and especially children) the farmer, caretaker, butcher, veterinarian and housewife may contract the infection by the handling of animals or their products. No mammal or fowl is absolutely secure against the tuberculosis of the species of the other.

Aureomycin.—Among the antibiotics having a wide speculum of activity in diseases of animals, aureomycin was shown to stand first as a utilitarian product of its kind. Discovered in 1947, it won a higher rating in chemotherapy than the other products of Streptomyces because it was effective against both gram-negative and gram-positive organisms, besides having the property of not elaborating a protective antagonist like, for example, penicillin. It had been widely employed in human medicine and in the United States had undergone extensive field trials. Unlike penicillin, aureomycin is suitable for oral use. Except in calves before the rumen function has developed, it is given intravenously because its action interferes with the growth of the useful flora of the rumen. It has a wide range of usefulness in cattle, horses, dogs, cats and foxes, and was shown to be particularly active against *Trichmonas foetus,* in which infection it proved to be much more active than the other antibiotics.

Caesarean Section in Cows.—New interest in the operation in cows was revived by a contribution on the subject at the session of the *Société de médecine vétérinaire* of Lyon (France) held in connection with *les Journées vétérinaires de 1950.* The preparation, restraint, instruments and operative technique were described in minute detail. The technique described made a considerable impression on the veterinarians of English-speaking countries.

Mexican Foot-and-Mouth Disease Epizootic.—The international commission of Mexico and the United States appointed to take charge of the outbreak of foot-and-mouth disease that occurred in five districts of central Mexico in 1946 announced in 1951 that the epizootic had been brought under complete control. There were but two trivial flare-ups in 1949 and 1950 and none in 1951. The commission, however, decided to maintain its rigid quarantine and supervision for two more years before announcing that its work was finished. Credit was given to the virtue of extensive vaccination and strict quarantine measures.

American Veterinary Medical Association.—The 88th annual meeting of the American Veterinary Medical association was held at Milwaukee, Wis., Aug. 20–24, 1951. The registered attendance was 3,124, and the scientific and commercial exhibits far exceeded those of former meetings. Among the discussions which characterized the veterinary profession's current objectives were (1) the relationship of veterinary medicine with the U.S. public health service and local health programs, (2) the participation of veterinary practitioners in the control of human brucellosis, (3) the probable replacement of virus-serum vaccination of hog cholera by an avirulent vaccine produced by the passage of the virus through rabbits, (4) the urge for more general participation in poultry medicine, (5) the medullary pinning of fractures in small animals, and the use of the Thomas splint and Schaffer sleeve, and (6) planning for the proper utilization of veterinarians for the national defense.

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Viêt-Nam: *see* INDOCHINA.

Vinson, Frederick Moore (1890–), chief justice of the U.S. supreme court, was born on Jan. 22 at Louisa, Ky. He was graduated from Kentucky Normal college in 1908; received his B.A. (1909) and his law (1911) degrees from Centre college, Danville, Ky., and practised law in Louisa. He served seven terms in the U.S. house of representatives, and was a key man in congress during the early days of the Franklin D. Roosevelt administration. In 1938 he was named associate justice of the U.S. court of appeals for the District of Columbia, and in May 1943 was named director of the Office of Economic Stabilization.

Vinson changed posts three times in 1945, becoming respectively federal loan administrator, director of the Office of War Mobilization and Reconversion and secretary of the treasury. In June 1946, Pres. Harry S. Truman appointed him chief justice of the U.S. supreme court. In the early political alignments looking forward to the 1952 presidential elections, Justice Vinson was frequently regarded by Washington observers as the Truman choice for the Democratic nomination for the presidency, provided Truman decided not to run again himself.

Virginia. One of the 13 original states of the United States, Virginia was admitted to the union June 26, 1788; it is known as the "Old Dominion" and as the "Mother of Presidents." Southernmost among the middle Atlantic states, Virginia has an area of 40,815 sq.mi., including 922 sq.mi. of water. Pop. (1950) 3,318,680, compared with 2,677,773 in 1940. Principal urban areas include the capital, Richmond (230,310 in 1950), Norfolk (213,513), Arlington county (135,449), Roanoke (91,921) and Portsmouth (80,039).

History.—The year 1951 was a quiet one for Virginia's state government. The general assembly did not convene, though a number of its interim committees were active. One of these was charged with recommending new congressional district lines to provide a tenth district by reason of population increases. Another investigated the state's high rate of automobile deaths (slightly more than 1,000 persons died in auto accidents during the year) and offered proposals by which the toll might be reduced. A third committee surveyed the state's ten tax-supported institutions of higher learning, and recommended that a chancellor of higher education be named to supervise the entire system. Other groups looked into means of promoting greater commerce at the port of Hampton Roads, and at the methods for providing judicial review of actions taken by state administrative agencies. At the end of the state's fiscal year in June, when it was found that general fund revenues had surpassed $105,000,000, a reduction of 20% in state income tax payments was decreed for 1951. John Stewart Battle served as governor throughout the year; his term was to expire in 1954. L. Preston Collins was lieutenant governor and J. Lindsay Almond, Jr., attorney general.

Education.—In 1950–51 elementary school enrolment was 470,190, with a teaching staff of 12,856; secondary school enrolment was 154,951, with a teaching staff of 5,772. The teaching staff also included 1,263 instructors in vocational education and 1,951 principals and head teachers. D. J. Howard was state superintendent of public instruction.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ended June 30, 1951, 10,974 persons received $1,187,934 in general relief; 23,889 received $5,148,191 in old-age assistance; 11,921 families with 34,176 dependent children $4,923,233; 5,628 under the foster care program $933,546; 2,548 totally and permanently disabled $478,750; and 1,805 blind $550,417. In 1951, 333,061 checks representing 381,065 weekly payments were written for civilian unemployment compensation, amounting to $5,928,687. This was nearly $5,000,000 less than such compensation in 1950. Also, in 1951, 990 checks representing 1,660 payments for war veterans' readjustment allowances were written for $32,828.

The average daily population of six penal institutions for adults was 5,320, and of four industrial schools for juveniles was 606, at the end of the fiscal year in June 1951.

Communications.—On Jan. 1, 1951, there were 8,996 mi. of highway in the state's primary system; on July 31, 1951, there were 39,089 mi. in the secondary system. During the year ended June 30, 1951, the state spent $65,446,325 on its highways, up 16% from the previous year's expenditures. The total railroad mileage was 4,127.31 on Jan. 1, 1951. There were 602,163 telephones in Virginia on Nov. 30, 1951.

Banking and Finance.—On June 30, 1951, Virginia had 180 state banks with 58 branches and 132 national banks with 36 branches. On June 30, 1951, deposits in national banks were $1,123,259,000 and assets $1,224,774,000. On June 30, 1951, deposits in state banks totalled $819,266,818 and assets $897,635,760. Resources on Dec. 31, 1950, of 16 industrial loan associations were $12,592,065; of 55 building and loan associations $3,687,727; of 29 credit unions $2,396,422.

For the fiscal year ended June 30, 1951, the state treasurer received revenues of $338,852,720, about 7.9% more than in the previous year; expenditures were $359,086,240. The gross debt on June 30 was $12,384,450; a sinking fund of $11,638,964 left a net debt of $745,487. The fiscal year ended with a cash general fund surplus of $62,864,586, plus an invested surplus of $16,754,800.

Agriculture.—The 1951 crop year suffered from a serious drought in the late summer which reduced corn yields and had a highly adverse effect on hay and pastures. Total acreage in principal crops was estimated at 3,600,000 ac. The state's cattle herds were at the largest point on record, with 1,200,000 head; the year's crop of 1,500,000 pigs pushed the record of 1943. In the Shenandoah valley area, turkey growers worked closer toward a year-round industry with 3,500,000 turkeys sent to market. Tobacco production was the second largest on record, and had the largest value.

Table I.—*Principal Crops of Virginia*

Crop	1951	1950	Average 1940–49
Corn, bu.	41,624,000	44,528,000	39,743,000
Wheat, bu.	7,497,000	6,768,000	8,117,000
Oats, bu.	4,818,000	4,378,000	3,700,000
Rye, bu.	276,000	280,000	478,000
Barley, bu.	2,624,000	2,714,000	2,221,000
Buckwheat, bu.	33,000	36,000	117,000
Tobacco, all types, lb.	175,330,000	165,496,000	131,971,000
Peanuts, lb.	226,300,000	221,920,000	188,021,000
Hay, all, tons	1,641,000	1,637,000	1,588,000
Apples, commercial, bu.	10,064,000	12,580,000	9,331,000
Peaches, bu.	1,950,000	837,000	1,572,000
Cotton, lint, bales	16,000	4,000	24,000
Potatoes, bu.	6,882,000	7,964,000	8,998,000
Sweet potatoes, bu.	2,210,000	2,210,000	3,255,000
Soybeans for beans, bu.	2,988,000	2,888,000	1,277,000

Source: U.S. Department of Agriculture

The total value of crops, including fruit crops, was placed at $319,802,000, 3% above the corresponding 1950 value of $311,857,000.

Table II.—*Principal Industries of Virginia*

Industry	1950	1949
Tobacco products	$785,153,000	$748,982,000
Chemical products	500,122,000	439,003,000
Textiles and their products	430,228,000	325,195,000
Food and kindred products	422,083,000	315,993,000
Paper and allied products	148,218,000	116,363,000
Furniture and fixtures	116,585,000	87,265,000
Wearing apparel	99,264,000	75,874,000
Lumber and wood products	96,901,000	59,347,000
Fabricated metals	62,635,000	39,338,000
Stone, clay and glass products	60,378,000	39,378,000
Printing and publishing	47,826,000	30,523,000

Table III.—*Mineral Production of Virginia*

(In short tons)

	1950		1949	
Mineral	Quantity	Value	Quantity	Value
Clays	545,984	$ 519,641	449,122	$ 403,598
Coal	17,666,647	96,965,407	15,584,087	82,366,554
Coke*	197,879	2,930,883	157,812	2,300,193
Feldspar	30,104	188,153	38,008	234,442
Lead	3,254	878,580	3,313	1,046,908
Lime	428,339	3,861,932	349,132	3,213,897
Sand and gravel	4,373,984	4,144,846	4,412,583	4,049,157
Stone	9,272,740	16,434,602	7,509,740	12,442,765
Zinc	12,396	3,520,464	13,166	3,265,168
Other minerals		?		9,270,172
Total		?		$116,293,000

*Values for processed materials are not included in the totals.

Manufacturing.—The value of products manufactured in Virginia was estimated by the state department of labour and industry, on the basis of reports from 2,088 plants, at $3,143,689,000 in the year ended Dec. 31, 1950. Total wages and salaries were placed at $573,215,000, of which 182,915 production workers received $443,218,000, and 29,630 supervisory and clerical workers $129,997,000. (J. J. Kt.)

Mineral Production.—Table III shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the close of 1951.

FILMS OF 1951.—*Mount Vernon in Virginia* (McGraw-Hill Book Co., Text-Film Department).

Virgin Islands.

The Virgin Islands have the status of an organized but unincorporated territory of the United States, located 1,400 mi. S.E. of New York city and 40 mi. E. of Puerto Rico. The three largest islands, with a total area of 133 sq.mi., are St. Croix (pop. 12,096, preliminary census of 1950), St. Thomas (13,811) and St. John (747). The chief cities are Charlotte Amalie, the capital (11,463), on St. Thomas and Christiansted (4,110) and Frederiksted (1,925) on St. Croix.

Morris F. de Castro was inaugurated as governor on March 24, 1950. He was the first Virgin Islander to hold the position.

History.—Considerable progress was made on important projects under the $10,000,000 federal public works program for the Virgin Islands during 1951. Contracts were awarded for the construction of a 116-bed hospital at Charlotte Amalie, St. Thomas; a 60-bed hospital at Christiansted, St. Croix; a 12-bed clinic and public health facility at Frederiksted, St. Croix; and a 4-bed public health facility at Cruz Bay, St. John. The waterfront improvement project in St. Thomas was begun. The potable water supply facilities were completed and placed in operation.

The telephone communication facilities were being installed and were expected to be completed in 1952. Preliminary plans for high school and elementary school facilities in St. Thomas and St. Croix were being prepared.

Education.—Enrolment in the public schools of the Virgin Islands during 1951 totalled 4,944 as compared with 4,604 in 1950. Of this number, 2,196 students were enrolled in the elementary schools and 984 in high school in St. Thomas, while in St. Croix 1,352 were enrolled in the elementary schools and 412 in high school. Expenditures for public education in the Virgin Islands totalled $520,285, of which $99,639 was made available by the federal government. The average annual cost of education per pupil in the public schools was $70.28. This did not include the daily school lunch service. The average monthly salary per teacher in St. Thomas was $127.50; in St. Croix $123.95.

Finance.—Budgeted expenditures of the municipality of St. Thomas and St. John during the fiscal year 1951 amounted to $1,257,801. A total of $927,434 was raised through local taxation, and $279,200 was allocated from the federal deficit appropriation. Transfers and contributions from other funds, and temporary loans, made up part of the difference. The municipality ended the fiscal year with a deficit of approximately $51,367, chiefly because of a substantial reduction in the yield from trade taxes and customs dues, which were less than the estimated income from these sources.

In the municipality of St. Croix, a total of $431,777 was raised from local taxes. The allocation of $465,800 from the federal deficit appropriation enabled the municipality to meet its total budgeted expenditures of $901,199.

Trade.—The value of goods imported into the Virgin Islands during the calendar year 1950, $11,036,282, showed an increase over the value of imports in 1949, $9,967,225. There was also an increase in the value of exports in 1950, $3,106,282, as compared with $2,501,056 for 1949.

During the fiscal year 1951 a total of 332 commercial ships with a gross tonnage of 1,419,825 entered the port of St. Thomas, as compared with 335 ships and a gross tonnage of 1,794,697 in 1950.

Agriculture and Industry.—About 7,400 tons of sugar were produced, compared with 10,752 tons in 1950. A total of 459,544 proof gal. of alcoholic beverages was exported from St. Thomas as compared with 634,000 proof gal. in 1950. In St. Croix 70,250 proof gal. of alcoholic beverages were exported as against 27,943 proof gal. in the preceding year. (M. F. de C.)

Virgin Islands, British: *see* LEEWARD ISLANDS.

Viruses: *see* INFANTILE PARALYSIS; MEDICINE; RESPIRATORY DISEASES.

Visual Education: *see* MOTION PICTURES.

Vital Statistics: *see* BIRTH STATISTICS; CENSUS DATA, U.S.; DEATH STATISTICS; INFANT MORTALITY; MARRIAGE AND DIVORCE; SUICIDE STATISTICS.

Vitamins and Nutrition.

An attempt was made in 1951 to gain further information concerning the metabolism of certain of the B vitamins in the newborn infant and to seek evidence of biosynthesis of these substances in the intestinal tract during the first week after birth. The investigations indicated that during the first days of life the infant excretes quantities of thiamine, riboflavin and niacin in excess of those ingested in the diet. However, by the fourth day the infant is retaining ingested thiamine and riboflavin and is, therefore, in positive balance for these vitamins. This is not true, however, for niacin; excretion of this vitamin and its metabolites greatly exceeds the quantities ingested. The finding was not readily explained; other evidence indicated that the stores of niacin in the infant at birth are not great.

Riboflavin and niacin compounds in faeces were reduced after the first several days. Faecal thiamine excretion was not similarly decreased. Reduction of the faecal content of these vitamins may be taken as evidence of clearing of the intestines of these materials. Because reduced faecal excretion rates persist and do not increase, it may be reasonably concluded that the three vitamins are not synthesized by intestinal bacteria in any appreciable quantity within the first week after birth.

Nutrition and the Antibiotics.—Vitamin nutrition was found to be influenced by the common antibiotic agents such as penicillin and aureomycin that had come into such common use in the treatment of many infectious diseases. When added in minute amounts to the diet of some types of experimental animals, these antibiotics greatly increase the rate of growth. Research emphasized that the antibiotics have a particularly striking growth-stimulatory effect in crude diets that are deficient in vitamin B_{12} and also possibly in some growth factors which were still unknown in 1951.

H. Linkswiler, C. A. Baumann, and E. E. Snell, of the University of Wisconsin at Madison, reported that aureomycin increased the growth of rats that were fed a diet limited in vitamin B_6. The Wisconsin laboratory also studied the effects of several antibiotics on the growth of rats that were receiving limited amounts of thiamine, riboflavin or pantothenic acid. Groups of five weanling rats were fed diets deficient in one of these vitamins. Limited amounts of the vitamin with and without an antibiotic were included after varying depletion periods.

Rats receiving 0.5 mg. of thiamine per kilogram of diet and no antibiotic weighed 55 g. after a four-week feeding period, contrasted with weights of 69 g., 76 g. and 115 g. when the same diet was supplemented with streptomycin, aureomycin or penicillin respectively. Essentially similar growth-stimulation from these antibiotics was observed when the diet contained thiamine at a level of 1.0 mg. per kilogram of diet. Chloromycetin and terramycin did not stimulate growth under these conditions. The response with sulfasuxidine appeared to be somewhat delayed. The growth-stimulatory effect of this drug was equal to that of aureomycin between the second and fourth weeks of the experiment.

The growth-stimulating action of aureomycin or penicillin on marginal riboflavin intakes was paralleled by increased liver storage of this vitamin. Livers from rats on 0.5 mg. of riboflavin per kilogram of diet contained 51.7 micrograms of riboflavin, whereas the livers from rats on similar diets receiving penicillin contained 82 micrograms of riboflavin.

Rats receiving limited amounts of dietary pantothenic acid (0 to 4 mg. per kilogram of diet) grew better when the diet was fortified with aureomycin, streptomycin or penicillin.

These experiments were of particular interest in view of reports that the extensive use of antibiotics in human patients may lead to vitamin deficiencies. Results of the experiments seemed to be in conflict with these reports and again raised the question of the role of the antibiotics as they may influence intestinal bacteria in the synthesis and utilization of vitamins in humans. For example, it was reported that aureomycin and chloramphenicol therapy in man results in a marked stimulation of yeast growth in the faeces, and the feeding of live yeast was demonstrated to increase the requirement for thiamine in man.

The results by the Wisconsin workers did, however, suggest that the growth-promoting action reported when antibiotics are added to crude diets may well be associated with marginal or submarginal intakes of known B vitamins.

Diets of Older Persons.—An attempt to add to the knowledge of dietary intakes in a group of older people was reported from studies of chronically hospitalized older patients in Copenhagen, Den.

The patients studied (16 females and 4 males) were noted to have oral changes at the time of investigation suggestive of poor nutrition, and hence dietary intakes were followed to determine the nutritional habits of persons with such deficiency signs. All patients were leading a bed or wheel-chair existence and were not urged or assisted in the taking of food which was measured without the patients' knowledge for two one-week periods. Average daily consumption of calories, protein, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid and vitamin D were then calculated and recorded.

The reported data indicated deficient intakes of all the nutritional elements studied, although marked variations in intake of different elements in the same person occurred. Thus patients who preferred milk received nearly normal amounts of calcium and phosphorus but suffered considerable inadequacy in their caloric intakes. Based on averages for the group, the most markedly deficient daily intakes were those of iron, thiamine, niacin, and vitamin D. Most of these subjects obtained less than half the minimal recommended intake of these nutrients. Despite the extremely low iron intake only six patients had haemoglobin values below 80% of normal, the lowest value being 66%. Other sources of iron not mentioned by the author such as drinking water might well be considered in explaining this discrepancy. Slightly higher daily ingestion was recorded for protein, calcium, phosphorus, vitamin A and riboflavin, but vitamin C intake alone approached the minimal requirements.

Caloric intake varied from 635 to 1,376, with averages for women and men being 1,037 and 1,332 respectively.

A somewhat comparable study was conducted in England among 30 active, apparently well, older persons and 24 with various infirmities. The British patients appeared to have higher caloric intakes (1,934 to 2,313) than those of the Copenhagen patients, and protein ingested was only slightly reduced (more than 42 g. in 80% of subjects). Markedly decreased intakes of vitamin C were found in the females in this study which contrasts with the nearly normal values found in the Copenhagen study. Vitamins A and D were also below minimum recommended levels, but B vitamin intakes were adequate in the British study as were calcium and phosphorus. While it should be emphasized that the patients studied in Copenhagen had pre-existing deficiency syndromes and were suffering from incapacitating diseases, the discrepancies in certain nutritional intakes such as vitamin C suggested wide differences in the diets offered. Thus not only do the tastes of individuals vary, but the dietary habits of given countries may vary so widely as to emphasize the dangers of the application to one country of dietary studies performed in another.

In older handicapped patients whose eating habits are likely to have become rigid it would seem wise to ensure that those foods which they take readily are of high nutritive quality, by enrichment or otherwise.

Glutamic Acid.—Articles in popular magazines inferred that the amino acid known as glutamic acid has special therapeutic properties for the treatment of various mental disorders; glutamic acid was described as a "brain food." It was claimed to result in an increase in the I.Q. of mentally retarded children and adults. These claims did not stand up under careful examination and were a good example of premature, sensational publicity based on inadequately controlled studies. Such claims usually result in more harm than good because of the false hopes they create. (*See* also CHEMOTHERAPY; MEDICINE; NUTRITION, EXPERIMENTAL.)

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(M. F. T.; F. J. SE.)

Vocational Rehabilitation, Office of.

This office, a constituent unit of the Federal Security agency, administers grants-in-aid and supplies leadership and technical assistance for the state-federal vocational rehabilitation program, a public service to prepare handicapped civilians for or to keep them in jobs commensurate with their fullest capabilities. In 35 states, separate agencies are responsible for rehabilitating the blind. In other states, rehabilitation of the blind and the generally disabled is the responsibility of a single agency.

Various combinations of the following services are provided, according to the disability and need of each individual. Those numbered 1, 2, 5, 8 and 9 are furnished without charge and the others are paid for from public funds to the extent of the individual's inability to pay: (1) medical examination to determine eligibility and extent of disability, to discover hidden disabilities and to ascertain work capacity; (2) individual counsel and guidance, including interest and aptitude tests, to help the disabled person choose and attain a job objective within his physical limitations but commensurate with his best potential abilities; (3) medical, surgical and psychiatric treatment and hospital care to reduce or remove the disability; (4) artificial appliances such as limbs, braces and hearing aids to improve work ability; (5) training in school, on the job or by tutor to fit the individual for the right job; (6) maintenance and transportation during physical restoration and training; (7) occupational tools, equipment and licences to give the handicapped person a fair start; (8) placement on the right job; and (9) a follow-up to make sure the rehabilitant and employer are mutually satisfied or to effect necessary adjustment.

Any person of or near working age who has a physical or mental disablement which constitutes a substantial vocational handicap is eligible. Through 1951, nearly 613,000 persons had been rehabilitated since the first vocational rehabilitation act was adopted in 1920.

During the fiscal year ending June 30, 1951, 66,193 persons were rehabilitated into self-supporting jobs and another 14,435 persons had been placed in jobs and were awaiting a post-rehabilitation check at the year's end. In addition, 12,948 persons were ready for jobs on June 30 and the active rolls listed 112,184 persons in earlier stages of rehabilitation.

According to preliminary tabulations for 1951, more than two-thirds of the rehabilitants were men and 48% had one or more dependents. Approximately 71% were unemployed when services were started and nearly 11% had never worked before. Orthopaedic disabilities were the most common, being the primary handicap of 42% of the rehabilitants. Of these, 12% were amputees and 30% suffered from other impairments of the extremities or bones. Visual disabilities accounted for 12%; aural, 9%; tuberculous, 9%; mental, 7%; cardiac, 4%; and all other defects, including ulcers, hernia, speech and asthma, 17%.

The annual rate of earnings of the rehabilitants when services were started was estimated at $18,000,000, mostly in temporary, unsafe or otherwise unsuitable jobs. The annual rate of earnings for the first year after rehabilitation was estimated at $100,000,000, on which federal income taxes were estimated at $5,900,000. Within four years, the 1951 rehabilitants would pay in income taxes as much as the entire 1951 federal expenditure for the rehabilitation program, which was $21,000,000. At the same time, they would also be paying state taxes. State expenditures totalled $9,271,000.

The rehabilitants of 1951 added an estimated 100,000,000 man-hours a year to the nation's productive effort. About 10,000 of these entered the skilled trades and were serving in occupations essential to the defense program, and more than 6,000 were farmers or agricultural workers. About 1,400 were teachers, many helping to relieve a severe shortage in the primary grades. At least 260 qualified as engineers, and an estimated 1,400 went into medicine and related work in hospitals, laboratories and similar facilities. Twenty per cent of the handicapped persons receiving vocational training under the program in ten states chosen for study were being prepared for occupations listed by the department of labour as critical to the defense effort.

The number of men and women throughout the country who were disabled to the extent of needing rehabilitation services was estimated at between 1,500,000 and 2,000,000 in 1951. Every year as a result of chronic illness, accidents and congenital defects about 250,000 persons were becoming disabled to a degree requiring rehabilitation services. (*See* also MEDICAL REHABILITATION OF THE DISABLED; VETERANS ADMINISTRATION [U.S.].)

(M. E. SR.)

Wages and Hours.

Manufacturing pay rolls in the U.S. during Sept. 1951 reached a dollar level 4.4 times that of 1939. This represented a gain of 14% over 1950, and compared with an increase in manufacturing employment of 2.5% for the year.

Total employers' disbursements, including wages and salaries, reached $14,308,000,000 in Sept. 1951. This was a 14% increase over the same month in 1950.

The postwar upward progress in real wages continued during 1951, although the all-time peak of 148.8 (based upon 1939 averages) was reached in Dec. 1950. Average real wages for the first 10 months of 1951 exceeded the 1950 figures by 1.7%, as shown by Table I.

Table I.—*U.S. Real Wage Indexes*

(1939=100)

	Consumers' price index		Index of average weekly manufacturing wages		Index of real wages	
Months	1951	1950	1951	1950	1951	1950
Jan.	182.6	167.9	267.2	235.9	146.3	140.5
Feb.	184.9	167.5	267.6	236.3	144.7	141.1
March.	185.6	168.0	270.6	236.9	146.0	141.0
April	185.7	168.3	271.3	238.6	146.1	141.8
May	186.5	169.6	270.5	241.2	145.0	142.2
June	186.3	171.2	272.8	246.6	146.4	144.0
July	186.6	173.0	269.2	248.2	144.2	143.5
Aug.	186.6	174.4	270.4	252.8	144.9	145.0
Sept.	187.7	175.7	274.3	254.1	146.1	144.6
Oct.	188.5	176.7	273.1	259.8	144.9	147.0
Nov.	—	177.4	—	260.8	—	146.9
Dec.	—	179.9	—	267.7	—	148.8

Source: *Survey of Current Business*, United States Department of Commerce.

The building construction industry continued to enjoy the highest average weekly earnings: $85.52. This marked an increase of 12.7% over the highest figure for 1950. The greatest comparative increase in average weekly earnings was one of 13.3% in both metalliferous mining and bituminous coal mining.

The lowest average "take-home pay" was made to hotel employees ($35.90), not including tips, board, room or uniforms.

Clerks in general merchandise stores again received second lowest weekly earnings ($37.02), but this ignored calculation of commissions. For manufacturing as a whole, average weekly earnings increased 8.1% over 1950, compared with a 10.3% gain in the previous year. Weekly earnings were down in 1951 in textile-mill production and in miscellaneous manufacturing, the declines apparently attributable to layoffs. The weekly income in anthracite mining also declined substantially, despite an increase of 11.7% in hourly wages. Anthracite coal miners had the shortest average work week (27.4 hours) in any recorded industry.

Table II.—*Average U.S. Weekly Earnings, Average Weekly Hours, and Average Earnings Per Hour In Major Industries*

Industry	Average weekly earnings September		Average weekly hours September		Average hourly earnings September	
	1951	1950	1951	1950	1951	1950
ALL MANUFACTURING	$65.45	$60.54	40.6	41.0	$1.612	$1.479
Durable goods	70.84	65.14	41.6	41.7	1.703	1.562
Nondurable goods	58.75	55.30	39.4	40.1	1.491	1.379
Iron and steel	78.30	69.30	40.8	40.2	1.919	1.724
Electrical machinery	68.35	61.48	41.6	41.4	1.643	1.485
Nonelectrical machinery	77.29	68.94	43.3	42.4	1.785	1.626
Transportation equipment	77.62	72.39	41.2	40.9	1.884	1.770
Automobiles	77.92	73.81	40.0	40.6	1.948	1.818
Nonferrous metals	69.49	64.44	40.9	41.2	1.699	1.564
Lumber and wood products	60.56	57.84	40.4	41.2	1.499	1.404
Furniture and fixtures	58.46	55.42	41.2	42.6	1.419	1.301
Stone, clay and glass	65.13	60.88	41.3	41.5	1.577	1.467
Textile mill products	48.89	49.98	36.9	40.7	1.325	1.228
Apparel, etc.	46.05	43.09	35.7	35.7	1.290	1.207
Leather and leather products	45.99	45.72	35.9	38.1	1.281	1.200
Food and food products	61.94	56.36	42.6	42.0	1.454	1.342
Tobacco manufactures	44.60	42.02	39.4	39.2	1.132	1.072
Paper and allied products	65.40	63.10	42.8	44.0	1.528	1.434
Printing and publishing	77.85	74.48	39.3	39.2	1.981	1.900
Chemicals and allied products	68.39	64.16	41.7	41.8	1.640	1.535
Products of coal and petroleum	83.21	76.77	41.5	41.7	2.005	1.841
Rubber products	70.36	66.58	41.0	41.9	1.716	1.589
Miscellaneous manufacturing industries	57.51	64.04	40.5	41.2	1.420	1.331
NONMANUFACTURING						
Coal mining						
Anthracite	60.72	68.45	27.4	34.5	2.216	1.984
Bituminous	81.50	71.92	36.4	35.5	2.239	2.026
Metalliferous mining	75.25	66.38	43.6	42.2	1.726	1.573
Street railways and buses	72.96	67.42	46.0	45.1	1.586	1.495
Telephone	59.97	55.80	39.4	39.6	1.522	1.409
Telegraph	72.33	64.49	44.4	44.6	1.629	1.446
Gas and electric utilities	73.13	67.35	42.2	41.6	1.733	1.619
Wholesale trade	65.56	60.93	41.0	40.7	1.599	1.497
General merchandise stores	37.02	36.11	35.8	36.4	1.034	.992
Hotels	35.90	34.30	43.2	43.8	.831	.783
Building construction	85.52	75.86	38.3	36.7	2.233	2.067

Source: *Survey of Current Business,* United States Department of Commerce.

In Sept. 1951, 71% of the industries shown in Table II paid average weekly earnings in excess of $60. This compared with 67.7% in 1950. About 42% of the industries paid average weekly earnings exceeding $70, compared with 19.4% in Sept. 1950.

Table II indicates that the highest average hourly earnings occurred in bituminous coal mining ($2.239), followed closely by a rate of $2.233 in building construction. Proportionately, the greatest gain in hourly rates was one of 12.7% in the telegraph industry, followed by an 11.7% average hourly increase in anthracite coal mining. The weakest improvement was one of 4.2% in general merchandise stores, while the lowest dollar rate paid was $.831 in hotels. For manufacturing as a whole, average hourly earnings soared 9.0% above Sept. 1950, as compared with an increase of 4.6% in 1950 and one of 1.8% in 1949.

Table III reflects a 5-year climb of 43.6% in hourly earnings rates for all manufacturing industries. The greatest 5-year increase was noted in lumber and allied products (58.8%). For the most part, the strongest 5-year gains noted in 1951 were in the soft goods industries. This probably was attributable to the strong wartime gains made earlier in durable goods employment.

The Sept. 1951 average hourly rate for common labour was $1.637, compared with $1.561 in 1950 and $.47 in 1941. There was a strengthening in farm wages from $.66 per hour (not including room and board) in 1950 to $.73 in Sept. 1951. This was still slightly below 1949 and 1948, but marked an increase during the year of 10.6%.

Table III.—*Rise in Hourly U.S. Earnings Rates*

(August rates)

Industry	1946	1947	1948	1949	1950	1951	Index, 1951 (1941 =100)
ALL MANUFACTURING	$1.112	$1.236	$1.373	$1.398	$1.464	$1.597	214.4
Durable goods	1.186	1.312	1.441	1.473	1.539	1.683	202.8
Nondurable goods	1.036	1.158	1.293	1.319	1.374	1.482	225.2
Iron and steel	1.222	1.376	1.514	1.539	1.593	1.877	215.5
Machinery (nonelectrical)	1.246	1.377	1.498	1.530	1.603	1.764	211.0
Automobiles	1.373	1.501	1.660	1.703	1.783	1.937	183.3
Lumber and allied products	.928	1.048	1.289	1.306	1.382	1.474	250.7
Textile products	.924	1.032	1.175	1.180	1.220	1.311	246.0
Food and food processing	1.015	1.140	1.235	1.269	1.343	1.457	221.4
Tobacco products	.885	.951	.963	.993	1.097	1.144	220.0
Rubber products	1.295	1.445	1.497	1.507	1.587	1.704	197.9
NONMANUFACTURING							
Coal mining							
Anthracite	1.598	1.780	1.900	1.827	1.976	2.225	225.0
Bituminous	1.466	1.787	1.961	1.900	2.001	2.216	214.5
Wholesale trade	1.148	1.258	1.366	1.406	1.485	1.583	198.4
Building construction	1.462	1.668	1.874	1.931	2.025	2.207	220.5

Source: *Survey of Current Business,* United States Department of Commerce.

The steady increase in average weekly earnings throughout the postwar period continued through 1951, as did the steady upward trend in the cost of living. These two factors, plus the observed fillip in hourly wage rates, clearly indicate the strong inflationary pressures which remained in the economy. Some soft spots appeared in textile production and anthracite mining, as reflected in shorter work weeks, but these particular weaknesses did not indicate an economy-wide trend affecting economic stability.

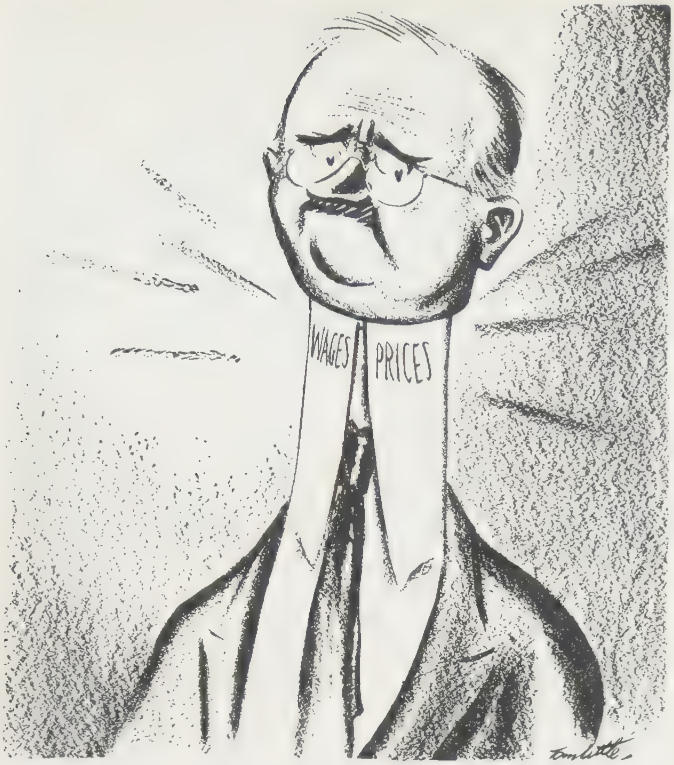
The general trend throughout 1951 in hourly and weekly earnings and in real wages continued to be upward.

(D. J. H.)

Europe.—The rises in retail prices during 1951, caused mainly by the sharp increase in world prices of raw materials and certain foodstuffs and by the inflationary effects of rearmament superimposed on conditions of full employment, led to widespread demands for higher wages in many countries. By the middle of 1951 general consumer prices in France were 29% above those of 1949, in Norway 24%, in Sweden 19% and in Great Britain 13%. These increases hit especially persons living on fixed incomes and workers paid by time who were unable to increase their earnings by working longer hours.

Average hours worked showed some tendency to rise: in France from 44.5 a week in 1949 to 45 in 1950 and to 45.2 in the early months of 1951; in Great Britain from 45.5 in 1949 to well over 46. In most of the countries affected, the trade unions made special claims for increases in the wages paid to the lowest paid groups of workers, including those in the public services, whose earnings had tended to lag seriously behind. But these increases also provoked protests from the more skilled workers, who complained, especially in time-week occupations, that their differentials were being reduced to a point seriously prejudicial to recruitment and training for skilled trades.

There was a drift of juvenile and even of adult skilled labour from such industries as the railways to the engineering and electrical trades, where piecework and other incentive payments were more generally to be had. In France, governments faced by huge budget deficits and by a threatening inflationary situation were forced to grant wage advances, by the combined pressure of all sections of the trade union movement; but real wages continued to lag and considerable hardships were experienced. Italy suffered from the same problem and so to a smaller extent did Western Germany. In Great Britain the policy of wage restraint, which had been repudiated by the Trades Union congress in 1950, definitely came to an end, and substantial



"WHITE COLLAR MAN," a 1951 cartoon by Little of the *Nashville Tennesseean*

increases were given to a number of trades. Compulsory arbitration, however, remained in force up to Aug. 1951 when it was given up and the National Arbitration tribunal was able to exert a moderating influence.

Table IV.—*Average Hours Worked in Great Britain*

	Men	Women	Youths	Girls
1938	47.7	43.5	46.2	44.6
1950	47.0	41.9	44.2	42.5
1951	47.9	42.0	44.5	42.7

In France, average hourly rates of wages (not earnings) in March 1951 were, for men 97.20 fr., for women 85.50 fr. and for both sexes 93.90 fr. In Australia, at the same date, adult men earned on an average £11 6*s.* 8*d.* a week, and the weekly rate for women averaged 144*s.* 1*d.* In western Germany weekly earnings in manufacturing industries averaged for men DM.73.80 and for women DM.43.50. In Sweden, the hourly earnings averaged 2.60 kronors for men and 1.85 kronors for women. In Norway the men's hourly average was 3.50 kronors. Comparable figures distinguishing the sexes were not available for other countries.

Table V.—*Average Weekly Hours in Nine Countries*

	Men and Women	Date
United States	41.1	March 1951
Japan	49.5	March 1951
France	45.2	March 1951
Australia	40.0	Dec. 1950
Canada	42.2	March 1951
Finland	45.2	Sept. 1950
Germany (western)	49.1	Sept. 1950
Switzerland	47.8	March 1951
Great Britain	46.3	April 1951

For men and women together, weekly earnings in manufacturing trades averaged $64.60 in the United States and $50 in Canada. The figures for June 1951 were higher—for the United States $65.30 and for Canada $51.60.

(*See* also AGRICULTURE; BUILDING AND CONSTRUCTION INDUSTRY; BUSINESS REVIEW; CENSUS DATA, U.S.; LABOUR UNIONS; PRICES.) (G. D. H. C.)

Wage Stabilization Board: *see* DEFENSE MOBILIZATION AGENCIES, U.S.

Wales: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

Walnuts: *see* NUTS.

Walton, Ernest Thomas Sinton

(1903–), Irish physicist, was born at Dungarran, County Waterford, Ire., Oct. 6. He was educated at Banbridge (County Down) and Cookstown (County Tyrone) academies and at the Methodist college, Belfast. In 1922 he entered Trinity college, Dublin (of which he was later a fellow from 1934), and in 1927 went on to Trinity college, Cambridge university, where he worked with Sir John Douglas Cockcroft (*q.v.*) under Lord Rutherford at the Cavendish laboratory. He held successively an 1851 overseas research scholarship (1927–30), the senior research award of the department of scientific and industrial research (1930–34) and the Clark Maxwell scholarship (1932–34). From 1946 he was Erasmus Smith's professor of natural and experimental philosophy in the University of Dublin. On Nov. 15, 1951, the Royal Academy of Sciences, Stockholm, Swed., announced that the Nobel prize for physics had been awarded jointly to Walton and Cockcroft for their fundamental work on "the transmutation of atomic nuclei by artificially accelerated atomic particles."

War, Law of: *see* INTERNATIONAL LAW.

War Prisoners: *see* PRISONERS OF WAR.

Warren, Earl

(1891–), U.S. governor, was born on March 19 in Los Angeles, Calif. He was graduated from the University of California, Berkeley, in 1912, received his law degree in 1914 and was admitted to the bar the same year. He served in the army during World War I, and from 1925 to 1938 he was district attorney of Alameda county, Calif. In that year he was elected attorney general of California. He won a reputation as a "racket buster," and in 1942 was elected governor of California. In 1946 he shattered precedent in the state by winning both the Republican and Democratic nominations in the June primaries, making his re-election assured. He ran as vice-presidential candidate on the G.O.P. ticket in 1948, with Thomas E. Dewey, but lost.

He was sworn in for a third term as governor Jan. 8, 1951, and told the state legislature that it was facing "not just a possible but a probable third world war," and must accordingly make civil defense a major objective. On Feb. 27 he opposed the proposal of former Pres. Herbert Hoover that the U.S. might develop itself into an "American Gibraltar," and recommended taking the advice of military rather than of political men on the question of limitation of the number of troops that should go to the defense of Europe. On Nov. 14 he announced himself as a candidate for the presidential nomination of the Republican party in 1952.

War Savings Stamps: *see* POST OFFICE.

Washington.

A state in the extreme northwestern United States, popularly known as the "Evergreen state," Washington was admitted to the union Nov. 11, 1889. Total area: 68,192 sq.mi., of which 66,786 sq.mi. are land; pop. (1940): 1,736,191; native 1,525,812; foreign-born 210,379. The 1950 U.S. census determination, as of April, placed the state's population at 2,378,963, an increase of 37% over 1940. In 1950 the urban population was 1,503,166 or 63.2% of the total population. The population of the three largest cities (1950 census) with the percentages of increase over 1940 were: Seattle, 467,591 (26.9%); Spokane, 161,721 (32.1%); Tacoma, 143,673 (31.3%).

History.—Although the Democrats had a majority in both houses of the state legislature in 1951, eight dissident Democratic state senators from time to time coalesced with the Republicans, particularly upon fiscal measures. The regular session of the 32d legislature met between Jan. 8 and March 19. Among numerous measures enacted pertaining to counties and cities was one designed to enable Spokane to purchase the electrical power facilities in the city. Anticipating the introduction of natural gas into the state, a law was passed to extend eminent domain to common carriers of oil and gas.

On the score that the legislature had not provided sufficient revenue to assure a balanced budget, Gov. Arthur B. Langlie vetoed the appropriation bill and called an extraordinary session of the legislature to convene on March 27. During this 11-day session, the legislature enacted an omnibus appropriation tax bill. On Aug. 20, the state supreme court declared this measure unconstitutional on the ground that the provision for the 4% tax on the income of corporations violated the rule of uniformity of taxes and that the bill had embraced more than one subject. A second extraordinary session of the legislature, which sat from Aug. 24 to Sept. 1, finally passed a separate appropriation bill and a "package" tax law, both of which were signed by the governor.

The chief state officers for 1952 were: governor, Arthur B. Langlie; lieutenant governor, Victor A. Meyers; secretary of state, Earl S. Coe; treasurer, Tom Martin; auditor, Cliff Yelle; attorney general, Smith Troy; state superintendent of public instruction, Pearl Wanamaker (elected on nonpartisan basis); state commissioner of public lands, Jack Taylor; state insurance commissioner, William A. Sullivan; chief justice of the state supreme court, E. W. Schwellenbach.

Education.—During the school year 1950–51, average daily attendance in the public schools was 364,351. The total number of teachers was 16,765 and the average salary for all certified personnel was $3,476.23. The total current expenditures were $87,543,000 (less school lunch receipts) and the cost per pupil in attendance was $240.10. The combined enrolment for the fall term of 1951 at the University of Washington, the State College of Washington and the three colleges of education was 21,463. Nine junior colleges, integrated with the secondary school program of the state but operated with state funds, had a total enrolment of 2,675 students.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the period Nov. 1950 through Oct. 1951, inclusive, public assistance in the state, including federal expenditures and state aid, cost $91,169,404.29. An average of 139,587 persons received assistance to the total amount of $86,455,284.79. An average of 19,006 persons received a total of $8,485,118.95 in general assistance. An average of 75,414 old persons received a total of $53,128,237.84. An average of 41,232 children were assisted to the total amount of $16,742,275.09. An average of 936 blind persons received a total of $840,738.60. The above total amount for public assistance included a total amount of $2,241,834.18 allotted to an average 526 disabled persons, during the period April through Oct. 1951; a total amount of $171,163.88 for burials during the period May through Oct. 1951; and a total of $5,464,448.48 for health care during the period Oct. 1950 through April 1951.

During the month of Oct. 1951, eleven state charitable institutions had an average total population of 10,742 and four correctional institutions had a total of 2,368 inmates. The total appropriation for both programs for the fiscal biennium of April 1, 1951, to March 31, 1953, was $22,885,000.

Communications.—Railroad mileage in the state was 6,176 on Dec. 31, 1950. On Jan. 1, 1950, there were 178 airports in Washington of which 116 were in class I. The total mileage of highways in Washington on Jan. 1, 1951, was 41,896; total mileage of federal-aid highways on the state highway system was 5,926; total mileage of primary and secondary state highways 6,003; and the total mileage of highways, roads, and streets under county jurisdiction and management was 35,893. Total state expenditures for highways during the period Feb. 1, 1950, to Jan. 31, 1951, was $37,261,352; $25,651,564 was spent for construction and $11,609,788 for maintenance and administration. The number of telephones on Dec. 31, 1950, was 742,661.

Banking and Finance.—In 1951 the state board of equalization placed the value of taxable real and personal property at $3,783,793,312 and equalized it for purposes of taxation at $1,891,896,656. On March 31, 1951, the bonded indebtedness was $1,909,000; outstanding warrants amounted to a total of $49,706,436.98; and the treasurer's cash balance was $61,051,789.78. For the year ending March 31, 1951, total receipts were $535,864,930.99 and disbursements, including cash transfers, were $529,449,851.48.

On June 30, 1951, 121 banks in the state reported a total capital of $38,890,000; capital surpluses, undivided profits, and reserves at $145,993,401.32; deposits of $2,212,793,348.01; and total assets of $2,371,239,618.13.

Agriculture.—In 1945 the state had 79,887 farms whose acreage totalled 16,719,870, and in 1950 the new definition resulted in a reduced listing of 69,820 farms. The acreage for crops harvested in 1950 was 4,237,605. Total agricultural production in 1951 amounted to $644,611,000, of which field crops contributed $269,766,000, fruit, nut and berry crops $99,427,000, vegetables $25,962,000, livestock and livestock products $226,190,000, and specialty crops $23,266,000.

Table I.—*Principal Field and Fruit Crops of Washington*

	1951	1950	Average 1940–49
Wheat, bu.	75,152,000	69,692,000	61,580,000
Hay, all, tons	1,431,000	1,460,000	1,778,000
Potatoes, bu.	11,600,000	11,780,000	9,254,000
Hops, lb.	27,387,000	24,081,000	17,405,000
Peas, dry (100-lb. bags)	2,398,000	1,803,000	3,027,000
Oats, bu.	6,670,000	8,256,000	7,336,000
Barley, bu.	3,384,000	8,763,000	6,180,000
Apples, bu.	20,034,000	35,532,000	28,469,000
Pears, bu.	5,874,000	5,703,000	7,153,000
Cherries, tons	19,100	20,750	31,620
Peaches, bu.	810,000	135,000	2,387,000
Strawberries (crates)	840,000	792,000	614,000

Source: U.S. Department of Agriculture.

Manufacturing and Trade.—In 1950 the value added by manufacture was $1,113,362,000, in contrast to $926,630,000 in 1949 and $874,036,000 in 1947. There were 6,022 establishments subject to unemployment compensation in 1951.

Table II.—*Principal Industries of Washington*

Industry	Pay roll (for 12-month period ending Sept. 30, 1950)
Logging and lumber products	$137,600,000
Food products	81,100,000
Aircraft	72,100,000
Plywood, millwork, etc.	56,900,000
Pulp and paper	53,300,000
Chemical (including Hanford)	41,500,000
Basic nonferrous metals	25,100,000
Machinery	19,700,000
Fabricated products (metal)	17,700,000
Furniture	11,400,000

The output of lumber in 1950 was 3,817,000,000 bd. ft. (estimated); pulp and paper production 1,868,000 tons (estimated); and plywood production for the Pacific Northwest was 2,579,000 sq.ft. (estimated).

In 1950 commercial fisheries reported a total production of 151,382,450 lb., of which the salmon catch of 43,538,788 lb. had a wholesale value of $27,816,675.

During the period of Oct. 1950 through Sept. 1951, the Washington customs district reported total exports of $215,710,038 and imports for consumption of $228,932,734. (H. J. De.)

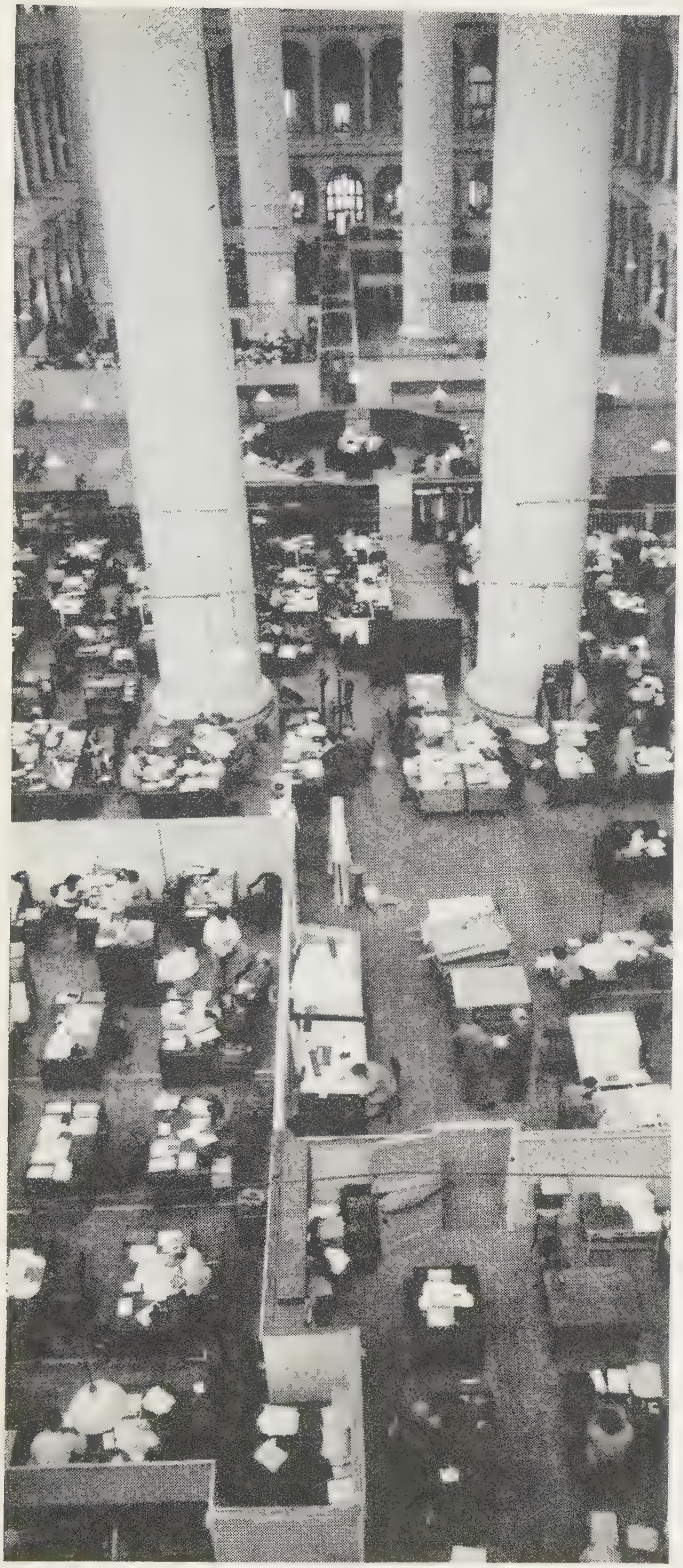
Table III.—*Mineral Production of Washington*

(In short tons, except as noted)

	1950		1949	
	Quantity	Value	Quantity	Value
Clays	216,886	$ 251,850	219,738	$ 267,300
Coal	873,989	5,828,555	899,046	6,028,636
Copper	5,057	2,103,712	5,275	2,078,350
Gold (oz.)	92,117	3,224,095	71,994	2,519,790
Lead	10,334	2,790,180	6,417	2,027,772
Sand and gravel	10,605,791	7,435,340	9,215,914	6,391,412
Silver	363,656	329,127	357,853	323,875
Stone	4,930,820	5,374,563	3,688,890	4,105,516
Zinc	14,807	4,205,188	10,740	2,663,520
Other minerals	...	?	...	14,456,398
Total		?		$40,862,569

Mineral Production.—Table III shows the tonnage and value of mineral production of the state in 1949 for commodities having values in excess of $100,000 and corresponding data for 1950, so far as they were available at the end of 1951.

Washington, DISTRICT OF COLUMBIA, national capital of the United States, had by the 1950 census a population of 802,178, making it the 9th U.S. city in population and the 11th among the urbanized areas. The very young and the very old increased in numbers more than the total population, and for every 100 women there were 89 men in the district. The nonwhite population had doubled in the decade 1940–50. The federal government in 1951 owned 42.4% of the District of Columbia, with an estimated assessed value of $826,590,307, or 29% of the assessed value of all property in the district, although the federal government, which pays no taxes, had in recent years paid less than 10% of the expenses of the district. In Dec. 1951 the commissioners of the district presented to the bureau of the budget a plan to reorganize the district agencies in the interest of efficiency. The home-rule proposals encountered constitutional complications and failed to pass congress.



INQUIRY CENTRE for defense production operating in a hall of the former Pension Office building in crowded Washington, D.C., during 1951. The hall was once used as a ballroom for celebrating presidential inaugurations

The national capital park and planning commission in 1951 issued five reports following the general summary of the comprehensive plan made public in Dec. 1950. They covered: people and the land; housing in relation to the comprehensive plan; open spaces and community services; moving people and goods; and regional aspects of the comprehensive plan. The planning commission prepared and submitted to the bureau of the budget suggested legislation to strengthen planning for the district and surrounding national capital region. It proposed the appointment of an advisory regional planning council to work with the reorganized national capital planning commission.

Alexandria, at the southern tip of Arlington county, was permitted by the Virginia supreme court of appeals to annex 7.65 sq.mi. from Fairfax county, enabling the city to double in size.

The proposal to disperse new federal buildings throughout the national capital area caused local planning agencies to inquire how housing, schools and other public facilities would be financed in districts where taxpaying property was reduced by new federal holdings.

The District of Columbia Redevelopment Land agency had selected a district in southwest Washington for rehabilitation. By the end of 1951, the extensive repairs and improvements to the White House were almost completed so that the president was expected to resume residence in the executive mansion early in 1952. (H. Js.)

Water Supply: *see* PUBLIC HEALTH ENGINEERING.

Wealth and Income, Distribution of.

The 1951 *Survey of Consumer Finances* in the United States, published by the board of governors of the federal reserve system, supplied information on the U.S. distribution of income in 1950 and liquid assets in early 1951. The surveys were based on small field canvasses of consumer spending units, defined as all persons living in the same dwelling and related by blood, marriage or adoption who pooled their incomes for their major items of expense.

Survey data on the percentage distribution of spending units according to size of holdings of liquid assets—U.S. government bonds, savings accounts and checking accounts—are provided in Table I. It may be seen that from 1950 to 1951 the proportion of spending units with medium sized holdings ($200–$1,999) showed a marked increase—from 31% to 37%. On the other hand, the percentage with large holdings ($2,000 or more) declined from 22% to 19%. The proportion of spending units having no liquid assets showed a decline (from 31% in 1950 to 28% in 1951) which reversed an increase in evidence since the end of World War II.

Table I.—*Distribution of Spending Units by Size of Liquid Asset Holdings*

(Per cent)

Amounts of liquid assets held*	1946	1947	1948	1949	1950	1951
None	24%	24%	27%	29%	31%	28%
$1–$199	15	14	15	16	16	16
$200–$499	14	12	13	13	11	14
$500–$999	14	14	12	11	10	11
$1,000–$1,999	14	14	12	11	10	12
$,2000–$4,999	13	14	12	12	13	11
$5,000–$9,999	4	5	5	5	6	5
$10,000 and over	2	3	4	3	3	3
All units	100%	100%	100%	100%	100%	100%
Median holdings of all units	$400	$470	$350	$300	$250	$300
Median holdings of those with assets	$750	$890	$820	$790	$810	$710

*Includes all types of U.S. government bonds, checking accounts and savings accounts in banks, postal savings and shares in savings and loan associations and credit unions. Excludes currency holdings.

Source: Board of Governors of the Federal Reserve System.

Table II.—*Distribution of Spending Units and Money Income Received, by Income Groups*

Annual income (money income before taxes)	1945		1946		1949		1950	
	Spending units	Total money income	Spending units	Total money income	Spending units	Total money income	Spending units	Total money income
Under $1,000 .	20%	5%	17%	3%	14%	2%	13%	2%
$1,000–$1,999.	27	16	23	12	19	9	17	7
$2,000–$2,999.	23	23	25	21	21	16	19	13
$3,000–$3,999.	15	20	17	20	19	19	19	18
$4,000–$4,999.	7	12	8	13	11	15	12	16
$5,000–$7,499.	5	11	6	11	11	19	14	23
$7,500 and over	3	13	4	20	5	20	6	21
All units . . .	100%	100%	100%	100%	100%	100%	100%	100%

Source: Board of Governors of the Federal Reserve System.

Table II summarizes data provided by the surveys on the distributions of spending units and total money income according

Table III.—*Percentage of Money Received by Each Fifth of Families and Single Persons*

Families and single persons ranked from lowest to highest income	1935–36	1941	1944	1950
Lowest fifth	4.0%	3.5%	3.6%	4.1 %
Second fifth	8.7	9.1	10.1	10.7
Third fifth	13.6	15.3	16.3	16.4
Fourth fifth	20.5	22.5	23.0	22.7
Highest fifth	53.2	49.6	47.0	46.1
All groups	100.0%	100.0%	100.0%	100.0 %

Source: Council of Economic Advisers, based on survey data from National Resources Planning Board (1935–36), Department of Labor (1941), National Bureau of Economic Research (1944) and Board of Governors of the Federal Reserve System (1950).

to size of income. The 1950 data revealed a resumption of the upward movement in the post-World War II income distribution which had been arrested during 1949, a year of minor economic recession. The postwar expansion of total money income resulted in a shifting of many consumers to higher income levels. This shifting pervaded the entire income distribution. It was found that when the nation's spending units were ranked into tenths by size of income the proportionate shares of total money income received by each tenth were almost the same in 1950 as in 1945. Within the period, however, the percentage of income received by the highest tenth rose to a peak of 33 in 1947 and then decreased steadily to 29 in 1950.

Table IV.—*U.S. Income Payments to Individuals, by States and Regions*

State and region	Total income payments						Per capita income, 1950	
	Amount (In millions of dollars)				Per cent increase			
	1940	1948	1949	1950	1949 to 1950	1940 to 1950	Amount (dollars)	Per cent national average
Continental United States	75,852	202,007	196,128	217,245	11	186	1,436	100
New England	6,124	13,492	13,211	14,511	10	137	1,554	108
Connecticut	1,417	3,294	3,195	3,556	11	151	1,766	123
Maine	431	1,067	1,017	1,083	6	151	1,161	81
Massachusetts	3,309	6,928	6,874	7,520	9	127	1,600	111
New Hampshire	269	631	614	672	9	150	1,282	89
Rhode Island	511	1,143	1,105	1,230	11	141	1,561	109
Vermont	187	429	406	450	11	141	1,184	82
Middle East	24,319	55,771	54,770	60,268	10	148	1,676	117
Delaware	239	510	531.	609	15	155	1,909	133
District of Columbia	905	1,825	1,891	2,057	9	127	1,986	138
Maryland	1,222	3,065	3,054	3,389	11	177	1,547	108
New Jersey	3,138	7,039	6,993	7,744	11	147	1,689	118
New York	11,830	26,514	26,068	28,301	9	139	1,864	130
Pennsylvania	6,225	14,724	14,302	16,058	12	158	1,523	106
West Virginia	760	2,094	1,931	2,110	9	178	1,049	73
Southeast	9,043	27,802	27,022	30,304	12	235	959	67
Alabama	763	2,479	2,305	2,561	11	236	836	58
Arkansas	493	1,585	1,426	1,578	11	220	825	57
Florida	900	2,818	2,932	3,376	15	275	1,210	84
Georgia	986	2,991	2,931	3,351	14	240	969	67
Kentucky	880	2,575	2,469	2,694	9	206	911	63
Louisiana	847	2,525	2,645	2,809	6	232	1,045	73
Mississippi	444	1,530	1,319	1,523	15	243	698	49
North Carolina	1,131	3,446	3,351	3,880	16	243	951	66
South Carolina	545	1,681	1,583	1,762	11	223	831	58
Tennessee	927	2,925	2,840	3,171	12	242	962	67
Virginia	1,127	3,247	3,221	3,599	12	219	1,158	81
Southwest	3,908	12,453	12,940	13,957	8	257	1,225	85
Arizona	237	832	826	935	13	295	1,240	86
New Mexico	190	619	673	766	14	303	1,109	77
Oklahoma	829	2,301	2,286	2,388	4	188	1,070	75
Texas	2,652	8,701	9,155	9,868	8	272	1,278	89
Central	21,664	59,029	55,861	62,018	11	186	1,546	108
Illinois	5,740	14,973	14,034	15,329	9	167	1,752	122
Indiana	1,858	5,399	5,096	5,735	13	209	1,451	101
Iowa	1,233	3,798	3,327	3,737	12	203	1,417	99
Michigan	3,425	9,145	8,937	10,128	13	196	1,583	110
Minnesota	1,424	3,876	3,634	3,998	10	181	1,332	93
Missouri	1,914	5,203	5,027	5,560	11	190	1,401	98
Ohio	4,448	12,016	11,349	12,590	11	183	1,582	110
Wisconsin	1,622	4,619	4,457	4,941	11	205	1,431	100
Northwest	3,363	10,562	9,771	11,111	14	230	1,379	96
Colorado	589	1,732	1,686	1,864	11	216	1,392	97
Idaho	232	723	698	763	9	229	1,287	90
Kansas	757	2,380	2,288	2,567	12	239	1,338	93
Montana	321	878	782	960	23	199	1,605	112
Nebraska	569	1,846	1,667	1,961	18	245	1,467	102
North Dakota	237	851	701	811	16	242	1,298	90
South Dakota	242	937	732	863	18	257	1,308	91
Utah	265	806	810	883	9	233	1,271	89
Wyoming	151	409	407	439	8	191	1,509	105
Far West	7,431	22,898	22,553	25,076	11	237	1,711	119
California	5,606	16,937	16,731	18,542	11	231	1,751	122
Nevada	92	268	265	300	13	226	1,875	131
Oregon	633	2,150	2,068	2,322	12	267	1,523	106
Washington	1,100	3,543	3,489	3,912	12	256	1,642	114

Source: United States Department of Commerce.

A longer-term comparison of changes in the distribution of income was afforded by Table III. From 1935–36 to 1950 there was a redistribution of income in the United States away from the highest income bracket. The second, third and fourth income brackets significantly improved their relative positions, whereas the percentage of total money income received by the highest bracket declined from 53 to 46.

State Distribution of Income.—Income payments to individuals expanded in every state in 1950, the latest year for which department of commerce estimates were available in 1951. Against the setting of a generally expansionary economic situation, total income moved up in most sections of the country at rates similar to the 11% rise for the country as a whole.

The largest regional gain, 14%, was scored by the northwest (*see* Table IV). The smallest gain, 8%, occurred in the southwest. In both of these regions, the 1949–50 change in total income was materially affected by large fluctuations in agricultural income. In respect to the flow of nonagricultural income, the northwest's 11% rise matched the nation-wide rate, whereas the southwest's 13% advance exceeded it and was the highest of any region.

For the country as a whole, per capita income payments (total income divided by total population) were $1,436 in 1950. On a state basis, per capita incomes ranged from $698 in Mississippi to more than $1,900 in Delaware and the District of Columbia. Others in the top rank included Nevada ($1,875), New York ($1,864), Connecticut ($1,766), Illinois ($1,752) and California ($1,751). Average income levels were lowest in the south, where all 15 states, along with Maine, Vermont and West Virginia, were grouped at the bottom of the per capita income array.

Despite the substantial progress they had made over the past two decades, the southern states in 1950 had a composite per capita income 36% below the average for all other states.

From 1940 to 1950, a decade of tremendous economic growth, there was a pronounced relative shift of total income from the New England and middle east regions to the south and west. As shown in Table IV, the rates of income expansion in the southwest, southeast, far west and northwest substantially exceeded the nation-wide rise of 186%, whereas the gains in New England and the middle east fell far short of it. The proportionate share of the nation's total income received by the four regions of the south and west increased 18% from 1940 to 1950, whereas that of the northeastern area (New England and middle east) declined 14%.

However, aggregate income in the northeast in 1950 still accounted for more than one-third of the national total. (*See* also INCOME AND PRODUCT, U.S.) (C. F. Sz.)

United Kingdom.—The White Paper on national income published in April 1951 gave the distribution of incomes for 1949. To supplement the figures given there, the total number of income recipients had to be estimated and from that the number with incomes under £250 was deduced. As in previous years, no details were available for the distribution of incomes within

Table V.—*Distribution of Incomes in the United Kingdom, 1949*

Range of incomes (in £)	Number of incomes (in thousands)	Amount of income before tax (in million £)	Amount of income after income tax and surtax (in million £)
Under 250	(10,200)*	2,209	2,185
250– 500	10,310	3,546	3,360
500– 1,000	2,443	1,614	1,375
1,000– 2,000	545	728	539
2,000–10,000	219	760	436
10,000 and over	11	190	44
Total	(23,700)*	9,047	7,939
Unallocated private income†		1,664	997
	Total	10,711	8,936

*Figures in parentheses are private estimates. Figures will not add because of rounding.

†Including undistributed profits, interest on savings certificates, dividends of co-operative societies, income in kind, income of nonprofitmaking bodies, etc.

Source: *National Income and Expenditure of the United Kingdom, 1946 to 1950.* (Cmd. 8203, H.M.S.O., London, 1951).

the lowest group, which still comprised more than 40% of the income recipients.

As a result of rising wage rates, a further shift took place from the lower to middle income groups. The number with incomes under £250 fell by almost 2,000,000 compared with 1948, but only about 150,000 crossed the £500 limit. In the higher ranges of income the numbers remained almost unchanged. Hardly any change was recorded in the relative incidence of income taxation. Taxes remained low (under 5% of income) up to an income of £500, but they reduced incomes by one-quarter in the range £1,000–£2,000, by nearly one-half in the range £2,000–£10,000 and by more than three-quarters in the range above £10,000. Compared with 1948, receipts from indirect taxes and expenditure on price subsidies were diminished in approximately equal amounts. Tax liabilities, both direct and indirect, offset by price subsidies, were still at their post-World War II peak of 28% of personal incomes. Comparing the distribution for 1949 with that for the prewar year 1938, it appeared that the share of the richest 11%–12% in taxable personal incomes was reduced from 41% to 33% and that of the richest 3.5% from 26% to 19%; taking incomes after taxation, these reductions were from 36% to 27% for the former class and from 21% to 13% for the latter. (*See* also BUDGET, NATIONAL.) (T. BAR.)

Weather: *see* METEOROLOGY.
West Africa, British: *see* BRITISH WEST AFRICA.
Western European Union: *see* EUROPEAN UNION.
Western Samoa: *see* NEW ZEALAND; TRUST TERRITORIES.
West Indies, British: *see* BAHAMAS; BARBADOS; JAMAICA; LEEWARD ISLANDS; TRINIDAD AND TOBAGO; WINDWARD ISLANDS.

West Virginia.

The 25th state to enter the Union, West Virginia was admitted conditionally on Dec. 31, 1862, and was proclaimed a separate state on April 20, 1863, effective 60 days later. It has an area of 24,181 sq.mi., of which about 101 sq.mi. are water surface. In 1950 the population was 2,005,552, or only 5.4% more than in 1940. Charleston, the capital, had a 1950 population of 73,501. Other cities of 10,000 or more population were: Huntington, 86,353; Wheeling, 58,891; Clarksburg 32,014; Parkersburg, 29,684; Fairmont, 29,346; Morgantown, 25,525; Weirton, 24,005; Bluefield, 21,506; Beckley, 19,397; South Charleston, 16,686; Martinsburg, 15,621; and Moundsville, 14,772.

The urban population of the state was 694,487, or 34.6% of the total.

History.—The state officers in 1951, all Democrats, were: governor, Okey L. Patteson; secretary of state, D. Pitt O'Brien; auditor, Edgar B. Sims; treasurer, William H. Ansel, Jr.; attorney general, William C. Marland; state superintendent of free schools, William W. Trent; and commissioner of agriculture, J. Blaine McLaughlin. Important acts of the 50th legislature in a 60-day regular session included the following: a bond issue of $90,000,000 to raise funds for cash bonuses to resident veterans of World War I and World War II and levy of additional tax on alcoholic beverages, non-intoxicating beer and cigarettes to pay for the issue over a period of 20 years; establishment of schools of medicine, dentistry and nursing as parts of the state university and levy of a tax on soft drinks to finance it; amendment of the motor vehicles law and fixing of financial responsibility of owners and operators involved in accidents; redistricting of the state for the purpose of electing members of the house of delegates (increased from 94 to 100), state senators and members of congress; and increasing of the number of judicial districts in the state from 24 to 27.

Education.—In 1950–51 the total net enrolment of the 3,895 elementary schools was 299,390. For the 385 high schools (junior and senior) it was 143,745. There were 10,497 elementary and 5,747 secondary teachers. Total receipts for the public school program were $68,446,781.88. There were nine state-supported institutions of higher learning under control of the state board of education, which had a total enrolment in the first semester of 1950–51 of 7,345, of whom 851 were veterans, and a total teaching staff of 544. The state university at Morgantown and Potomac State school at Keyser, a junior college, were under control of a board of governors.

Social Insurance and Assistance, Public Welfare and Related Programs.—In the year ending June 30, 1951, the total expenditures of the state department of health were $2,305,737.93, of which $881,367.18 were federal funds. The federal funds were used primarily in aid of special programs, such as cancer, tuberculosis, mental hygiene, venereal disease and heart disease control. Regular expenditures of the department of public assistance totalled $21,426,325, of which $8,510,052 was for old-age assistance; $398,006, aid to the blind; $12,480,265, aid to dependent children; and $37,999, aid to permanently and totally disabled persons. General relief items and the respective total expenditures were: crippled children, $470,688.66; medical and hospital aid, $1,156,839.53; correction of vision and prevention of blindness, $15,690.47; child welfare, $64,569.79; general assistance, $1,586,928.96; and boarding care, $677,408.23.

A total of $1,653,745.82 was spent for personal service, current expense and equipment.

Communication and Transportation.—There were 32,122 mi. of primary and secondary roads. Total highway income for the fiscal year ending June 30, 1951, was $52,764,000. On Nov. 1, 1951, there were 322,716 Bell telephones and 44,740 (Jan. 1) on lines of connecting companies.

Banking and Finance.—On June 30, 1951, deposits in 106 state banks and trust companies totalled $445,537,131.66, and those of 74 national banks $503,331,000. Resources of 21 federal savings and loan associations were $51,224,708.12; of 16 state building and loan associations $14,856,036.80; and of 26 industrial loan companies $18,398,546.56. There were 125 small loan companies with total resources of $25,600,183.02 and loans of $22,039,152.98, and 26 state-chartered credit unions had total resources of $894,106.99 and loans of $771,078.67.

Total state receipts for 1950–51 were $268,780,031.91, and the cash balance, as of June 30, 1951, was $43,732,649.13. The total disbursements for 1950–51 were $271,461,973.04, but the unencumbered balance in the state fund, general revenue, as of June 30, 1951, was only $4,908,751.88. Total bonded indebtedness of the state, as of July 2, 1951, was $79,702,000, and the total assessed valuation of property was $2,640,106,157.

Agriculture.—The total gross farm income for 1950 was $167,601,000. Of this total $2,050,000 was government payments, $25,974,000 was from crops and $89,879,000 was from livestock and livestock products, sold and traded. The estimated value of products consumed on farms where produced was $49,698,000 which left a net cash income of $117,903,000 or $1,597,000 more than in 1949. The only crops with increased acreage in 1950 were hays and barley. On Jan. 1, 1951, there were more cattle and sheep in the state than a year earlier, but fewer hogs, horses and chickens.

Table I.—*Principal Agricultural Products of West Virginia*

Crop	1951	1950	Average, 1940–49
Corn, bu.	8,580,000	8,806,000	11,804,000
Wheat, bu.	1,073,000	1,221,000	1,550,000
Oats, bu.	1,600,000	1,590,000	1,750,000
Buckwheat bu.	114,000	123,000	176,000
Hay (all), tons	1,048,000	1,011,000	986,000
Apples (commercial), bu.	3,654,000	4,260,000	3,779,000
Potatoes (Irish), bu.	1,575,000	1,785,000	2,942,000
Barley, bu..	286,000	406,000	274,000
Tobacco, lb.	4,030,000	3,379,000	3,208,000
Peaches, bu.	607,000	557,000	539,000

Source: U. S. Department of Agriculture.

Industry.—In 1950–51 industry and business employed 532,340 persons, not including about 85,000 in agriculture, 36,000 in professional services, 23,000 in domestic service and 8,500 in finance, insurance and real estate. Those employed in industry and business earned an average of $2,904, or 14.1% more than in 1949–50, and a grand total of $1,545,720,000, or 20.7% more than in 1949–50. (C. H. A.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950, so far as they were available at the end of 1951. West Virginia ranks fourth among the states in value of mineral production and first in coal.

Table II.—*Mineral Production of West Virginia*

(In short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays	569,615	$ 925,305	477,503	$ 759,065
Coal	144,115,683	754,370,245	122,610,578	649,696,884
Coke*	3,690,935	40,765,301	3,359,965	36,906,180
Lime	?	?	350,311	3,535,352
Natural gas (thousand cu.ft.)	170,100,000	28,236,000	181,176,000	29,296,000
Natural gasoline (gal.)	46,662,000	3,148,000	41,880,000	2,945,000
Petroleum (bbl.)	2,788,000	9,280,000	2,839,000	8,770,000
Petroleum gases (gal.)	152,745,000	4,262,000	116,060,000	3,591,000
Salt	367,942	1,238,588	355,515	1,288,471
Sand and gravel	3,613,046	6,241,057	3,284,805	5,491,274
Stone	5,367,510	7,825,653	4,854,590	6,960,191
Other minerals	....	?	....	5,786,036
Total		?		$718,119,273

*Values for processed materials are not included in the totals.

"Wetbacks": *see* AGRICULTURE.
Whaling: *see* FISHERIES.

Wheat. The 1951 U.S. wheat crop of 987,474,000 bu. was 3% smaller than the 1950 crop and less than 1,000,000,000 bu. for the first time since 1943. There were 78,059,000 ac. planted, compared with 71,287,000 ac. for the 1950 crop. However, because of damage by winter kill, insects and disease, plus abnormally wet weather at harvest time, only 61,424,000 ac. were harvested, compared with 61,610,000 ac. harvested in 1950. The yield per acre was 16.1 bu., compared with 16.5 bu. in 1950 and an average for 1940–49 of 17.1 bu. per acre.

The winter wheat crop of 645,469,000 bu. was smaller than the 740,682,000 bu. of 1950, the 1949 crop of 895,101,000 bu., or the 1940–49 average of 791,764,000 bu. Unfavourable factors hit this part of the crop hard, reducing the 55,802,000 ac. planted in the fall of 1950 to 39,762,000 ac. harvested. The average yield was 16.2 bu. per acre; that of 1950 was 17.1 bu. and the ten-year average was 17.7 bu.

An excellent spring wheat crop of 342,005.000 bu., compared with 278,707,000 bu. in 1950 and an average for 1940–49 of 279,546,000 bu., partly balanced the lower outturn of winter wheat. Expansion in acreage planted to 22,257,000 ac. from only 18,888,000 ac. in 1950 and an official "guide" of 21,400,000 ac., accounted for much of the increase. Only 595,000 planted acres were not harvested. The average yield of 15.8 bu. per acre was higher than the 15.2 bu. of 1950 and slightly above the 15.7 bu. average for 1940–49.

Table I.—*U.S. Wheat Production by Leading States*

(In thousands of bushels)

State	1951	1950	Average, 1940–49
North Dakota	150,975	123,986	137,943
Kansas	126,113	178,060	193,512
Montana	97,988	91,434	68,845
Washington	75,152	69,692	61,580
Nebraska	58,073	88,482	63,652
South Dakota	57,260	33,488	41,358
Oklahoma	38,902	42,363	73,998
Idaho	37,968	37,087	31,154
Colorado	34,967	36,909	35,996
Ohio	34,308	46,596	46,592
Illinois	33,383	27,632	28,879
Michigan	30,800	29,666	23,553
Oregon	28,999	23,693	22,666
Indiana	23,529	32,193	29,529
Missouri	22,406	23,782	22,658
Minnesota	20,022	15,512	22,004
Pennsylvania	18,832	18,986	18,440
Texas	17,307	18,992	63,486
New York	10,319	11,344	8,367
California	9,741	13,671	10,969
Utah	9,081	7,840	6,937

The durum type crop of spring wheat amounted to 35,820,000 bu., compared with more than 37,000,000 bu. in 1950. A reduction in harvested acreage to 2,518,000, 11% below 1950, more than offset the yield of 14.2 bu., one bushel per acre more than in 1950.

Hard red winter wheat continued, as in past years, to be the most abundant class with 381,964,000 bu., but it declined sharply, compared with the 508,595,000 bu. average for 1940–49. Hard red spring wheat (264,024,000 bu.) was more abundant than the 208,885,000 bu. of 1950 or the average for the previous decade. The white wheat of the Pacific northwest (154,166,000 bu.) was slightly more abundant even than in 1950 and well above the average 115,380,000 bu. of 1940–49. Soft red winter wheat, produced mostly east of the Great Plains, with 150,748,000 bu. was somewhat less abundant than in 1950, definitely so compared with the 200,694,000 bu. average for 1940–49.

United States exports of wheat and wheat flour in 1950–51 were 373,810,000 bu. valued at $747,923,000 compared with 314,231,000 bu. valued at $683,596,000 in the preceding year. The U.S. export quota of 235,858,000 bu. for 1950–51 under the International Wheat Agreement was exhausted four months before the end of the year and the subsidy provided amounted to about $182,000,000 compared with only $77,000,000 in the previous year. In late Dec. 1951 U.S. sales under the agreement were progressing rapidly, having reached nearly 200,000,000 bu. of a quota of 255,149,000 bu. for the year to end July 31, 1952. The subsidy was averaging about 75 cents per bushel. It was estimated that total wheat exports, under and outside the quota, would probably reach 365,000,000 bu., about the same as in 1950–51.

In summary, the U.S. supply included a carry-over of about 396,000,000 bu., a crop of 987,474,000 bu. and probable imports of 40,000,000 bu. of feed wheat from Canada, a total supply of about 1,425,000,000 bu., of which 500,000,000 bu. would be used for food, 140,000,000 bu. for feed, 90,000,000 bu. for seed and industrial processing and 365,000,000 bu. for export, leaving probable carry-over stocks by June 30, 1952, of about 335,000,000 bu.

Wheat prices remained moderately near the support levels prior to June, but as the U.S. winter wheat crop deteriorated and the later Canadian crop proved difficult to harvest and importing countries became more anxious, prices moved to the highest levels since 1948, reaching about $2.70 per bushel (at Chicago, Ill.)

The question of providing 2,000,000 tons of grain, much of it wheat, to India to alleviate famine was discussed for several months before the United States in June agreed to lend India $190,000,000 under special and easy credit terms for the purchase of such foodstuffs. The U.S.S.R. scaled its original offer of 500,000 tons of wheat to 100,000 tons, to apply against Indian export goods.

A large 1951 world wheat crop of 6,550,000,000 bu. was indicated notwithstanding some late decline in outturn in Canada and the U.S. resulting from a wet and delayed harvest, and in southern hemisphere areas because of drought.

In spite of the large size of the 1951 crop, the distribution indicated an increased deficit margin in the heavy importing areas of western Europe and an increased concentration of surplus supplies in North America, particularly in Canada. The decline of the southern hemisphere in export potential was marked. The U.S.S.R. crop, though moderately hit by drought, was thought to have been somewhat larger than the 1,110,000,000 bu. of 1950 since there was an expansion in acreage, partly at the expense of rye. Britain expected to get 200,000 tons of wheat from the U.S.S.R. as a result of an agreement signed in September.

World trade in wheat and flour in 1951–52 was expected to total about 900,000,000 bu., slightly more than during the previous year. Stocks carried over on July 1, 1951, were about 800,000,000 bu. Canada, with 225,000,000 bu. of that total plus a near record harvest, appeared to be in a position to supply a large percentage of the trade in the spring and summer of 1952.

Table II.—*World Wheat Production for Selected Areas**

(In millions of bushels)

Country	1951	950	1949	Average, 1935–39
United States	987	1,019	1,141	759
Canada	562	462	371	312
Mexico	14	20	18	14
Europe	1,580	1,525	1,500	1,599
Great Britain	82	97	82	62
North Africa	75	87	84	73
Union of South Africa	24	26	15	16
Asia	1,630	1,535	1,410	1,498
Indian Union	232	288	204	262
Pakistan	148	148	153	117
Argentina	125	213	189	222
Australia	155	184	218	170
U.S.S.R.	.....	1,110	1,100	1,240
World total	6,545	6,317	6,185	6,024

*Revised estimates by the U.S. Department of Agriculture on basis of incomplete reports from several countries with adjustments for year of harvest, and including allowance for missing data and forecasts for crops being harvested.

In July 1951 an official U.S. production goal was established for a 1952 wheat harvest of 1,165,000,000 bu. from about 78,850,000 ac., a production which, if attained, would be sufficient to meet anticipated domestic and export demands and add about 100,000,000 bu. to the carry-over. The price support for 1952 crop wheat was announced to be not less than $2.17 per bushel.

At the end of 1951 it was estimated that 56,257,000 ac. had been seeded to winter wheat for harvest in 1952, about 1% more than the large acreage seeded in the fall of 1950. The condition (88%) of the new crop in Dec. 1951 permitted a forecast of a 918,000,000 bu. crop which, with a normal spring wheat crop, would fully meet the production goal. (*See* also FLOUR.)

(J. K. R.)

Wildlife Conservation. Problems of wildlife conservation in the United States during 1951 were dramatized by the plight of the diminutive key deer, not more than 50 of which still survived on the coral islands extending from the Florida mainland to Key West. Victims of poachers, motorists and fire, these tiny deer could be saved only by a federal refuge. Legislation to this end failed of passage during 1951, and conservation organizations stepped in to seek protection of the animals temporarily through contributions to the key deer fund established by the National Wildlife federation.

Migratory waterfowl, as always, held an important position in wildlife management and conservation. A good breeding season in 1951 resulted in slight liberalization of the waterfowl hunting regulations. The length of the open season was increased by five days in the Atlantic, central and Pacific flyway states, and by ten days in the Mississippi flyway states. Bag limits and possession limits remained the same.

Important in waterfowl management was the enactment of a law authorizing expenditure for law enforcement of 15% of the annual income from the sale of the federal stamp required on all waterfowl hunting licences. The fish and wildlife service estimated that the illegal kill of ducks and geese amounted to about 20% of the legal kill. The new law was expected to produce about $200,000 more to bring the enforcement staff to 120 men.

Emphasis on restoration and improvement of habitat featured the Federal Aid in Wildlife Restoration program under the Pittman-Robertson act, which provided for the use, in behalf of wildlife, of income from the federal excise tax on sporting arms and ammunition. The fiscal year ending June 30, 1951, showed a sum of $17,846,423 available for this wildlife conservation work. This had to be matched by a 25% contribution from the states to carry out approved projects.

Enactment of the Dingell-Johnson act provided for use of a similar formula for fisheries restoration, the excise tax on sport fishing equipment being earmarked for this purpose. About $2,900,000 of federal funds thus became available for this conservation activity.

Among the research programs looking to sounder management of wildlife resources were continued studies of migratory waterfowl as a basis for hunting regulations; investigation of the possibilities of introducing certain foreign species of game birds into depleted areas in the United States; study of the problem of trichomoniasis, a disease of the throat of mourning doves that had caused extensive losses in the southeast; investigation of the effects of repellent chemicals on birds, mammals, fishes and other wildlife forms.

Integrity of the national wildlife refuge system, a major factor in protecting an adequate breeding stock of migratory waterfowl and certain big game animals, was challenged to some degree by demands for the use of these areas for other purposes, principally national defense. Two important additions to the refuge program were made, one in Palm Beach county, Fla., and the other in the San Joaquin valley of California. (*See* also NATIONAL PARKS AND MONUMENTS.)

CONDORS, rare birds of which fewer than 100 remained in the U.S. in 1951, shown at a 10,000-ac. refuge set up for them during the year by the U.S. department of the interior in the Los Padres National forest, Calif. Condors are not prolific, laying only one egg in four years

BIBLIOGRAPHY.—*Wildlife Review*, a periodical listing books, articles in journals, and other publications (U.S. Department of the Interior); *Audubon Magazine, Nature Magazine, Outdoor America, Journal of Wildlife Management, The Auk: A Quarterly Journal of Ornithology* (periodicals). (H. Z.)

Canada.—The federal government amended the Migratory Birds Convention act to extend the powers of a game officer to seize motor vehicles or aircraft used in violation of the act or of regulations based upon the act. Discovering that bounties for the killing of harbour seals and sea lions, which destroy commercial salmon, were not the answer to the problem of controlling those predators, the federal government moved toward direct action. The fisheries research board reported, after detailed investigations, that lumbering operations and water power development were definitely decreasing the spawning beds for British Columbia salmon, which created a long-range problem in fisheries conservation. The board suggested raising the level of egg production, increasing the growth rate and shortening the period salmon spend in fresh water before going to sea.

The Ontario department of lands and forests convened a conference of its senior conservation officers and departmental biologists, who discussed 116 different wildlife topics. The conference was so successful it was slated as an annual event. The $500,000 southern research station at Maple was rushed to completion, and became one of the most modern and complete centres of its kind in North America devoted to fish, wildlife, tree insects and related studies. (C. Cy.)

Other Countries.—The International Union for the Protection of Nature held a meeting at The Hague, Neth., from Sept. 19–22, 1951. One hundred and thirty people of many nationalities took part.

In Great Britain, negotiations were well advanced for the acquisition or management of a number of reserves. Two large areas of varied moorland, one in Scotland and one in northern England, were shortly to pass into the hands of the Nature Conservancy.

In Uganda, legislation was prepared for the establishment of the four national parks recommended by the National Parks committee. The importance of the preservation of the gorilla was recognized by the inclusion among the parks of the existing gorilla sanctuary adjoining the Parc National Albert in the Belgian Congo. Game in the reserves held its own, but, outside them, fared badly from excessive tribal hunting and poaching.

In Tanganyika, the boundaries of the Serengeti national park were fixed to include an area of 5,670 sq.mi., making a reserve for the last great congregation of East African wild animals. A new and greatly improved game ordinance was drawn up.

In Northern Rhodesia, the controlled area system under which hunting parties were allowed into certain areas under licence and part of the fees paid allotted to the local native authorities, continued to be successfully applied. But it became increasingly obvious that the value of the system depended upon its understanding by African residents, so that they should, in their own interests, limit their demands on the game population.

In Cape Province, South Africa, a new ordinance to protect wildlife came into effect. The export of all kinds of tortoises, other than water tortoises, and all kinds of lizards and chameleons, except under permit, was prohibited. In Natal, the Kamberg nature reserve was established.

The Wild Life Conservation committee appointed by the government of India held its first meeting at Delhi in July 1951. The Bombay state legislature passed the Bombay Wild Animals and Wild Birds Protection act.

In spite of bandit activity in Malaya work on the re-establishment of the King George V national park proceeded. Definite signs of the existence of rhinoceros were seen for the first time since the Japanese occupation.

The government of Singapore set aside six nature reserves, with a total of 14 sq.mi. to preserve the indigenous fauna and flora of the colony. Included were two mangrove areas in the hope that many species of orchids which had disappeared might reappear in the process of regeneration of the mangrove.

In Tasmania, the Animals and Birds Protection board acquired the leases of a number of islands in the Bass strait. These would provide sanctuary for many forms of bird life including the Cape Barren goose. The brush opossum and the ringtail opossum were given complete protection.

In New Zealand, the need for the protection of the native fauna and flora continued to make necessary the reduction of introduced mammals. A campaign was waged particularly against the Australian silver-grey opossum and against red deer, both of which had become a dangerous menace by defoliation of forests. Twenty thousand acres of Waipoua forest, the last substantial kauri forest, were proclaimed a forest sanctuary.

A report was received by the Fauna Preservation society that there still existed in a reserve in Java about 30 specimens of the Javan rhinoceros (*Rhinoceros sondaicus*), probably the world's rarest large animal.

FILMS OF 1951.—*Elk For The Future* (Wild Life Films); *Meet the Ducks* (Associated Screen News Ltd); *Return of the Buffalo* (Skibo Productions). (C. L. Be.)

Wilson, Charles Edward (1886–), U.S. industrialist and government official, was born on Nov. 18 in New York, N.Y. He began working at the General Electric company in New York at the age of 13, meanwhile attending night school. He worked successively in the accounting, production, engineering, manufacturing and marketing departments of General Electric. From 1930 to 1937 he was merchandising department manager and a vice-president; from 1937 to 1939, executive vice-president, and on Jan. 1, 1940, he became president of the company. In Sept. 1942 he became vice-chairman of the War Production board, the top industrial and economic control agency of the World War II emergency administration. In Feb. 1943 he became executive vice-chairman of WPB, serving in that capacity until Feb. 1944.

The outbreak of the Korean war in 1950 impelled Pres. Harry S. Truman to set up a new emergency defense production agency, and Wilson was sworn in as its director on Dec. 21, 1950. In April 1951 he predicted, in an address before the American Newspaper Publishers association, that the U.S. would be able to "meet the demands of all-out war, if need be, out of our production lines," by the end of 1953. In December, after conferring with President Truman, he told reporters that he had not let civilian production interfere with war production, as some critics had charged, but that he would cut civilian production if it interfered with the filling of military requirements.

Windward Islands. The British colonies of Grenada, St. Vincent, St. Lucia and Dominica, forming the southern part of the Lesser Antilles in the Caribbean, constitute the British Windward Islands.

Pop.: 95% Negro; some Caribs on Dominica. Language: English; on Dominica and St. Lucia also French patois. Religion: Christian. Capital towns (pop., 1946 census): St. George's (Grenada, seat of governor, 5,774); Roseau (Dominica, 9,751); Castries (St. Lucia, 7,056); Kingstown (St. Vincent, 4,831). Governor in 1951, Sir Robert Arundell.

	Area (sq. mi.)	Population	
		(1946 census)	(1950 est.)
Grenada	133*	72,387	75,913
St. Vincent	150*	61,647	67,544
St. Lucia	233	70,113	79,511
Dominica	305	47,624	53,964

*Excluding the Grenadines (8 sq.mi.) attached in part to Grenada and in part to St. Vincent.

History.—New constitutions came into operation during 1951 and elections on full adult suffrage were held in October. Elected members had a clear majority over the ex officio and nominated members in the legislative council; and the beginnings of responsible government were seen in the power of the legislative councils to select three of their elected members for the executive councils. There were serious disturbances in Grenada in February and March arising from a strike called by a newly formed trade union. The elections, however, passed off quietly. They resulted in the return of candidates who supported the leader of the new trade union to six out of the eight available seats in the legislative council. In St. Vincent, all eight seats were captured by members of another newly established union.

In Grenada the cocoa rehabilitation scheme financed by colonial development funds made good progress, as did the superfine sea island cotton industry in St. Vincent. A coconut oil processing factory was set up in St. Vincent; in Dominica, the least developed of the four colonies, both the banana-growing and fruit-canning industries took steps forward. The rebuilding of Castries, capital of St. Lucia, which was practically destroyed by fire in 1948, proceeded steadily after delays caused by a shortage of steel.

Education.—Average school attendance (1950): Grenada 12,638; St. Vincent 9,414; St. Lucia 8,391; Dominica 6,729.

Finance and Trade.—Currency, British Caribbean dollar valued at 58.33 cents U.S. Values in the table are in British Caribbean dollars.

	Budget (1951 est.)		Foreign Trade (1950)	
	Revenue*	Expenditure*	Imports	Exports
Grenada	$2,848,000	$2,827,000	$6,024,321	$7,020,826
St. Vincent	1,945,613	2,264,740	3,941,997	2,114,134
St. Lucia	2,080,221	1,936,995	4,746,784	2,088,835
Dominica	1,398,000	1,516,063	4,205,854	2,183,732

*Excluding grants-in-aid and colonial development expenditure.

Principal exports: arrowroot, bananas, citrus products, cocoa, copra, sea island cotton, mace and nutmegs, sugar. (P. H-My.)

Wines.

Total world wine production for 1951 amounted to 4,973,800,000 gal. according to official reports and estimates compared with 5,313,200,000 gal. for 1950 (a more accurate figure) or an over-all decrease of 439,400,000 gal. Some figures, notably those from soviet-influenced countries, were pure estimates.

World Production of Wine

(Millions of gallons)

Country	1951	1950	Average		Quality 1951
Algeria	362.8	377.7	450.6	(1935–39)	
Argentina	290.4	330.0	183.0	(1935–44)	Poor
Australia	31.0	41.5	32.0	(1946–50)	Average
Austria	25.6	34.1	29.0	(1935–39)	Poor
Brazil	32.0	31.7	....		
Bulgaria	11.3	11.3	....		
Canada	4.6	7.1	5.6	(1942–51)	Well above average
Chile	84.0	92.5	81.9	(1942–50)	Very poor
Cyprus	7.2	7.6	....		Very poor
Czechoslovakia	10.0	11.5	10.9	(1935–39)	
Egypt	0.7	0.7	....		
France	1,333.4	1,619.3	1,555.0	(1929–38)	Fair
Germany	63.4	85.5	45.8	(1939–50)	Good average
Greece	117.0	109.1	88.5	(1935–40)	
Hungary	97.2	97.2	94.0	(1930–40)	
Iran	0.1	0.1	....		
Israel	1.4	1.4	1.5	(1945–50)	
Italy	975.0	959.0	1,060.0		Fair
Japan	1.8	1.3	....		
Lebanon	0.8	0.8	....		
Luxembourg	4.0	4.0	2.4	(1935–39)	
Malta	1.0	1.1	0.9		
Mexico	5.0	5.5	....		
Morocco	26.4	18.8	14.7	(1935–39)	
New Zealand	0.7	0.7	....		
Peru	3.4	3.9	4.0	(1945–49)	
Portugal	209.7	233.6	221.9	(1946–50)	Average
Rumania	110.0	112.5	186.5	(1935–39)	
South Africa	76.8	70.2	57.6	(1940–48)	Satisfactory
Spain	475.5	435.9	491.2	(1935–39)	Magnificent
Switzerland	27.5	18.9	202.0	(1941–50)	Average
Tunisia	20.5	20.5	....		No variation
Turkey	3.4	3.6	....		Poor
Uruguay	19.2	19.2	16.0	(1935–39)	
U.S.A.	168.0	136.3	102.5	(1940–45)	No variation
U.S.S.R.	273.0	273.0	....		
Yugoslavia	100.0	136.1	124.6	(1935–39)	
Total	4,973.8	5,313.2			

Countries like the United States, marked "No variation" in the above table, produce uniform wines from year to year because of stable climatic conditions and methods of production used.

France was the largest producer of wine in 1951. The total production of famous growth (*Appelation contrôlée*) wines amounted to 116,000,000 gal. compared with a total of 175,000,000 gal. in 1950. The famous growths of Burgundy and Rhône produced 18,700,000 gal. against 28,800,000 gal. the previous year, the quality being weak, and Bordeaux 24,700,000 gal. of disappointing quality compared with the 1950 yield of 83,800,000 gal. Champagne production was 5,490,000 gal., only ⅔ of the ten-year average and of mediocre quality. During 1951 government control continued to stabilize wine prices which started falling in 1949. Algerian production was off 4% from 1950.

In Spain, the Jerez district produced 10,560,000 gal. of magnificent quality sherry against the normal quantity of 9,250,000 gal. the previous year. Of the Portuguese wines, port wine, controlled to world demand, was held to 5,841,000 gal.

United States production was estimated to be ahead of 1950 for a new record production. About 90% of the production was from California.

United States consumption of imported table wines and vermouth in 1951 was at the highest level since the repeal of prohibition.

Because of higher labour costs and inflationary pressures, prices of European wines were sharply advanced. (J. We.)

Wisconsin.

One of the north central states of the United States, Wisconsin, popularly called the "Badger state," entered the union as the 30th state in 1848. Area: 56,154 sq.mi., of which 1,449 sq.mi. are water. Pop. (1950 census) 3,434,575, an increase of 9.5% since the census of 1940. Capital, Madison (1950 census, 96,056). Milwaukee (637,392) is the largest city. Other large cities are Racine (71,193), Kenosha (54,368), Green Bay (52,735) and La Crosse (47,535).

History.—The biennial session of the legislature enacted a substantial body of important legislation during 1951. It increased the maximum old-age pensions from $50 to $75 a month, increased educational benefits and pensions for teachers, raised the maximum veterans' housing loan limit to $3,500 on a $15,000 instead of a $10,000 house, added $4,000,000 to the veterans' rehabilitation trust fund, appropriated $15,120,000 for state building construction, raised all state salaries substantially, passed a record-breaking $211,844,000 biennial budget and at the same time reduced taxes, repealing the 25% surtax on incomes and the 3% dividend tax. Unemployment compensation benefits were raised from a maximum of $26 a week to $30; the workmen's compensation maximum from $46 a week to $52.86. The controversial problem of reapportionment of legislative representation was the most hotly debated measure of the session. Reapportionment on the basis of the population totals for each federal census, required by the state constitution, had not been carried out since 1931. A study by a civilian-legislative committee headed by the retired chief justice, Marvin B. Rosenberry, produced the so-called Rosenberry bill, providing for reapportionment in accordance with population. This became an administration measure. The legislature finally provided that the Rosenberry bill would become law Jan. 1, 1954, if a proposed constitutional amendment to provide for reapportionment on a combined area-population basis were rejected by popular referendum at the Nov. 1952 election.

State officers continued without change: Walter J. Kohler, Jr. (R), governor; George M. Smith (R), lieutenant governor; Fred R. Zimmerman (R), secretary of state; Warren R. Smith (R), state treasurer; Vernon W. Thomson (R), attorney general; George F. Watson, superintendent of public instruction.

Education.—There were 5,641 elementary and approximately 445 secondary schools, 23 county normal schools and 9 teachers' colleges in 1950–51. Elementary school enrolment totalled 354,285; in secondary schools it was 145,499. The county normal schools had 1,099 students. Teachers in the elementary schools numbered 14,045; in secondary schools 6,352; in the county normal schools 96. The teachers' colleges employed 610 faculty members to teach 10,330 college and 2,303 training school students. The 1951 Wisconsin legislature changed the name of the teachers' colleges to "state colleges." State aid for education in the elementary and secondary schools for the fiscal year 1949–50 amounted to $18,401,567. Total expenditures in all elementary and secondary schools were $120,531,125.

Social Insurance and Assistance, Public Welfare and Related Programs.—The number of cases receiving public assistance as of June 30, 1951, was as follows: general relief 5,517; old-age assistance 52,075; aid to the blind 1,374; aid to totally and permanently disabled 764; dependent children in their own or a relative's home 8,784; dependent children in foster homes 1,534—a total of 70,048 households. Expenditures for public assistance in the year ending June 30, 1951, were: general relief $4,692,305; old-age assistance $30,975,919; aid to the blind $874,556; aid to the totally and permanently disabled $609,784; aid to dependent children in their own or a relative's home $11,714,444; aid to dependent children in foster homes $765,957—making a grand total of $49,632,965. Civilian unemployment benefits during the calendar year 1951 were $7,358,355 as against $13,061,617 in 1950 and $19,626,899 in 1949. The contributions on pay rolls for 1950 totalled $14,115,733 as compared with $12,909,761 in 1949 and $10,788,433 in 1948.

Wisconsin's 12 charitable, mental and correctional institutions were operated at a cost of $10,559,226 during the fiscal year 1950–51. The average daily population for June 1951 was 10,144.

Communications.—Public highways as of Jan. 1, 1951, totalled 94,728 mi. divided as follows: 85,825 (towns), 2,511 (villages) and 6,392 (cities). Expenditures by the highway commission during the fiscal year amounted to $67,532,014. Railway mileage (steam and electric) as of Dec. 31, 1950, was 6,612.6, with 65.91 mi. of trolley coach route (trackless). There were 981,456 telephones, and on Sept. 1, 1951, there were 156 airports and 13 seaplane bases.

Banking and Finance.—At the end of the year 1950 there were 95 national banks and 461 state banks. National banks had deposits of $1,500,024,000 and assets totalling $1,600,230,000. Deposits in state banks amounted to $1,617,421,279, and their assets were $1,733,658,543. Credit unions increased from 534 in 1949 to 542 in 1950, and listed assets of $42,875,076. Assets of the 113 savings and loan associations totalled $263,408,389.

State receipts for the fiscal year ending June 30, 1951, were $231,193,403; disbursements totalled $226,926,523. Taxes collected by the state and returned to local subdivisions amounted to $64,106,476; agency collections returned to counties $2,277,526; state aids $69,508,910; transferred to other funds (building fund, retirement fund, veterans' fund, etc.) from the general fund $19,071,560.

Agriculture.—Total acreage harvested in 1951 was 10,125,700, slightly less than that in 1950. Cash receipts in 1950 amounted to $968,910,000, consisting of $851,737,000 from livestock and livestock products and $117,173,000 from crops. Crop yields for 1951 on the whole were as good as or better than average in spite of unusual weather conditions throughout the crop season. Latest census figures showed a decrease in the number of farms but an increase in their size.

Table I.—*Principal Crops of Wisconsin*

Crop	1951	1950	Average, 1940–49
Corn (bu.)	103,759,000	109,098,000	107,906,000
Oats (bu.)	143,302,000	141,814,000	113,497,000
Tobacco (lb.)	23,576,000	31,434,000	32,968,000
Potatoes (bu.)	9,805,000	13,400,000	12,708,000
Barley (bu.)	6,633,000	8,979,000	9,930,000
Wheat (bu.)	1,856,000	2,084,000	1,912,000
Flaxseed (bu.)	150,000	155,000	142,000
Canning peas (lb.)	320,660,000	257,460,000	—
All tame hay (tons)	8,797,000	6,542,000	—
All clover and timothy (tons)	3,566,000	2,694,000	3,997,000
Alfalfa (tons)	5,021,000	3,516,000	2,372,000
Cherries (tons)	14,600	13,000	12,840
Cranberries (bbl.)	190,000	219,000	137,000
Apples (bu.)	710,000	740,000	729,000

Source: U.S. Department of Agriculture.

Manufacturing.—The total value of manufactured products in Wisconsin increased from $2,360,947,000 in 1949 to $2,687,346,000 in 1950. The most important industries in value of manufactured products in 1949 were machinery (except electrical), food and kindred products, paper and allied products, transportation equipment and fabricated metal products. In 1950 the estimated average number of wage earners in Wisconsin manufacturing establishments was 332,600 as compared with 312,900 in 1949 and 337,100 in 1948, while the average estimated weekly pay roll increased from $17,837,000 in 1949 to $20,752,000 in 1950. (C. L. L.)

Mineral Production.—Table II shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950.

Table II.—*Mineral Production of Wisconsin*

(In short tons)

Mineral	1950		1949	
	Quantity	Value	Quantity	Value
Iron ore	1,905,813	?	1,574,468	*
Lead	532	$ 143,640	857	$ 270,812
Lime	124,530	1,448,095	107,339	1,254,751
Sand and gravel	19,117,115	11,959,012	17,023,466	10,456,561
Stone	6,999,630	14,494,750	7,326,710	13,636,020
Zinc	5,722	1,625,048	5,295	1,313,160
Other minerals		?		8,946,642
Total		?		$35,878,000

*Value included with other minerals.

Withholding Tax: *see* LAW.

Woman's Christian Temperance Union, National: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Women's Clubs, General Federation of: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Wool. World production of apparel and carpet wools in 1951 was estimated to have been slightly greater than in 1950. Most of the increase was in apparel-type wools, the production of which increased about 105,000,000 greasy lb., or 3% over the year before. Record high prices and heavy demand had caused sheep growers in the major wool-producing countries to increase their flocks as much as possible. Economic conditions within the industry were, therefore, responsible for the increased wool-growing activity throughout the world. The principal wool-producing countries and the amount of wool produced by each are disclosed in the table.

World Wool Production

(greasy shorn pounds)

Country	1951	1950
Australia	1,087,000,000	1,116,000,000
New Zealand	380,000,000	372,000,000
Argentina	440,000,000	420,000,000
Uruguay	190,000,000	176,000,000
South Africa	240,000,000	230,000,000
United States	279,000,000	274,000,000
Total	2,616,000,000	2,588,000,000*
Others	1,466,000,000	1,357,000,000*
Grand total	4,082,000,000	3,945,000,000*
Apparel types	3,231,000,000	3,126,000,000*

*Revised.

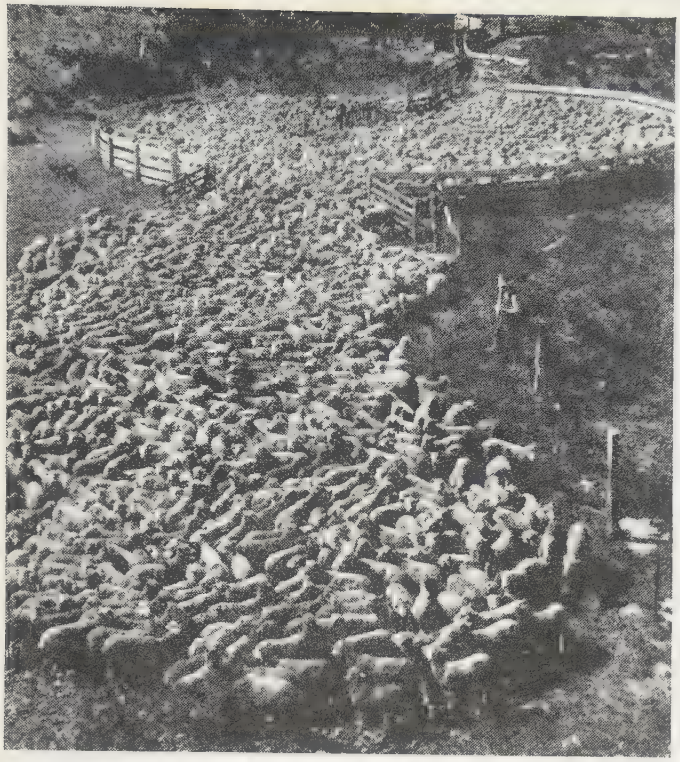
Source: Computed by the New York Wool Exchange from data released by the U.S. Department of Commerce and the International Wool Secretariat.

For the first time in five years consumption of apparel- and carpet-type wools was less than production. The average decline seems to have been about 15%, or nearly 700,000,000 lb., and the curtailment in the use of wool was apparent in virtually all consuming countries. This decline can be attributed to record high prices at which wool sold early in 1951. This development not only caused consumer resistance to 100% wool fabrics, but also was the contributing cause of heavy weights of synthetic fibres being blended with wools in order to keep clothing prices on a competitive level with other types of apparel cloths.

It was estimated that world wool production in 1951 exceeded consumption by between 200,000,000 and 300,000,000 lb. The carry-over of wools into 1952 was therefore greater by that amount on Dec. 31 than a year previously. It was the first year since World War II that apparel wool stocks throughout the world were not materially reduced.

In the United States, one of the major wool-consuming countries, inventories of finished goods and wool clothing were unusually large at the beginning of 1951, and the industry found it difficult to liquidate them. After the frantic wool buying and manufacturing activity in the months immediately following the outbreak of hostilities in Korea, much the same situation was apparent in many other countries.

In the first quarter of 1951 wool prices reached heights never before attained in the history of the wool trade. Fine Australian wools, which act as a world price barometer, rose to the unheard of level of $4.30 per clean pound in March, compared with $1.82 one year before, and wools in other producing areas of the southern hemisphere as well as in the United States and Great Britain recorded similar advances. Such a price level



SHEEP STRIPPED of their fleece being herded for dipping at a farm in Marlborough, N.Z., after the 1951 harvest

for apparel wool, however, quickly curtailed international trade in wool, with the result that prices fell precipitously until the reopening of the Australian auctions in September when the same fine wools were quoted at $1.65. One result of this price slump was to curtail wool buying almost entirely in the United States and to restrict it severely in Great Britain and Europe. Extreme caution became evident throughout the world, and wool inventories were difficult to move because civilian business was negligible and government procurement programs, particularly in the United States, became sharply curtailed. During the last quarter of the year, however, prices became firmer in Australia and elsewhere, as mills re-entered the market, although on a somewhat hand-to-mouth basis. Even this relatively small demand resulted in substantial price advances for wools, and at the close of the year Australian fine wools were quoted between $2.10 and $2.20 per clean pound. (*See* also Textile Industry.) (S. L. L.)

Words and Meanings, New.

English adds many new words to its vocabulary every year, some destined to live long, others to die soon. The words listed below, pertaining largely to 1950–51, are but a small residue of those collected by the committee preparing this article.

Several groups of the coinages below may be commented upon briefly. As usual, scientific and technological advances were well represented among the new words and meanings: witness "Bt," "citrovorum factor," "Compound F," "convertiplane," "hydroflap," "krotoscope," "lampshade," "Nike" and "pod plane." New terms like "brain washing," "depurgee," "Gibraltarism," "GI-X," "menticide," "multilateralism," "Reichsfront" and "Skylon" reflected the international scene. The U.S. scene was represented by a number of interesting coinages in fields from national politics to sport: for example, "chicken," "end money," "escalation," "gray mobilization," "I formation," "neo-isolationism," "roll-forwards," "whomp" and "WOC."

The words listed below became prominent or were seemingly used for the first time during 1950 and 1951. Dates within the parentheses following a word or definition indicate the first recorded use of the new word or meaning in the files of the committee.

A hyphen preceding the date means that the word or meaning is suspected of being older than the date given. If no date is given, the first record on file is 1951.

accommodator, *n. Specif.* A woman who performs part-time domestic services, such as helping out at a party.

Acthar. Trade name for the ACTH marketed by Armour & Co. (1950)

aeropause, *n.* That part of the atmosphere that exceeds an altitude of 75,000 ft.

ailurophile (Gr. *ailouros* "cat" + *-phile*), *n.* A lover of cats.

Air-Evac. Short for air evacuation, a service for flying wounded soldiers home.

avgas, *n.* **Av**iation **gas**oline. (1945)

big lie. Descriptive of a statement or of a conscious policy regarding statements containing a misstatement so great that it compels belief. (1948)

bird, *n. Mil. Slang.* A guided missile. (1948)

brain washing, *n.* A systematic procedure of indoctrination used in some totalitarian countries.

Bt. Tentative name of a B vitamin which may be necessary for growth of certain insects. (1948)

bug, *n. Slang.* A lottery. (1945)

certificate of necessity. A government authorization.

chicken, *n.* A game in which teen-agers in two automobiles drive straight toward each other. The driver who turns aside first is "chicken."

citrovorum factor. A new growth factor in the B-vitamin group, possibly beneficial in certain anaemias. (1950)

cobalt bomb. A foot-thick lead-walled cylinder with a small shuttered opening in one end, containing about an ounce of radioactive cobalt-60. It is used to treat cancer.

cold welding. A process of welding nonferrous metals by applying pressure. (1950)

Collator, *n. Specif.* An optical machine which, by superimposing a page of one copy of a text (for example, the First Folio of Shakespeare's works) on the same page of a second copy, speeds up collation, or comparison of the texts. (1950)

communize, *v. Specific.* To make the Russian-dominated Communist-party form of communism the basic government.

comparatist, *n.* One who studies comparative literature. (1946)

COMPO. **C**ouncil **O**f **M**otion **P**icture **O**rganizations. (1950)

Compound F. Hormone of the adrenal gland, with antiarthritic properties. Also called **hydrocortisone.**

convertiplane, *n.* A type of aircraft utilizing the principles of a helicopter in taking off and landing and those of an aeroplane during flight. (-1951)

cook, *v. t. Specif.* To make "hot" or radioactive. (1950)

cuddling, *n.* Broadcasting on a wave length very close to another wave length.

Dacron. Trademark of a washable, mothproof synthetic fabric very resistant to wrinkling. Originally known as Fiber V.

depurgee, (*de-*+*purge*+*-ee*), *n.* Term applied in occupied countries of Europe and Asia to one returned to political rights after being purged because of acts unfriendly to the Allies.

divarty, *adj.* Pertaining to **div**ision **art**iller**y**.

dump, *v. t.* To cause (a game) to be lost by dishonest play. **dumping,** *n.*

end money. Funds held in reserve in case the cost of the production of a film exceeds its budget.

escalation, *n.* The condition in which price is permitted to rise as costs rise. (1942)

Fiber V. (1950) *See* **Dacron.**

field, *v.* To equip and train (a soldier). (-1950)

Flying Crane. A jet-driven helicopter. (1948)

fly-past, *n. Brit.* Ceremonial parade of planes in formation. (1946)

fording kit. Device for waterproofing a tank to enable it to operate in water.

frogman. A member of an underwater demolition team. (1945)

GARIOA. Government and Relief in Occupied Areas. (1950)

Gibraltarism, *n.* Term applied to the view that the western hemisphere should be made as strong defensively as Gibraltar.

GI-X. Symbol of the millionth soldier killed in all U.S. wars since the first fell at the battle of Lexington, April 19, 1775.

Gleep. The nuclear reactor at Harwell, Eng.

global bomber. A long-range bomber.

gray mobilization. Semimobilization. (1950)

ground zero. That point on the ground which lies directly under a bomb explosion, such as that of an atomic bomb, and which is used as a focal point for various calculations. (1946)

hard core. The crucial or essential part. (1950)

hot, *adv.* Said of an aeroplane which must land at a high rate of speed. (1944)

hoverplane, *n.* A helicopter. (1950)

hydrocortisone. *See* **Compound F.**

hydroflap, *n.* A hinged flap on a seaplane which can be lowered into the water to keep the nose of a landing plane up, to act as a brake and to serve as a rudder. (1948)

hydro-jet, *n.* A theoretical jet-propulsion engine using sea water. (1946)

Hypo. High-power atomic boiler, a form of nuclear reactor. (1950)

I formation. *Football.* A formation in which the three backs line up behind the quarterback.

Influence peddler. One who seeks special privileges from the government for his clients. (1949)

Iron Triangle. A triangular defense area of the Chinese Communists in North Korea, whose points are Pyonggang at the north, Chorwon at the west and Kumhwa at the east.

JP-3. Jet-plane fuel.

krotoscope (Gr. *krotos* "handclapping" + *-scope*), *n.* An instrument for determining the amount of applause. (1950)

lampshade, *n.* A device, shaped something like a lampshade, about a foot in diameter at the bottom, which can determine in a very short time the height of an atomic airburst and ground zero (*q.v.*). Also called **radiation lampshade.**

Lopo. Lo-power atomic boiler, a form of nuclear reactor. (1950)

Matador, *n.* The B-61 pilotless bomber, a guided missile.

menticide, *n.* The gradual destruction of a man's mind, through psychiatric or other means, to the point where he will accept an ideology formerly loathsome to him.

Mig Alley. A rectangular area in northwestern Korea, some 30 mi. wide and extending about 70 mi. from Uiju on the Yalu river southeast to Sinanju, over which the U.N. air men encountered Chinese-piloted MIG-15 fighter planes.

multilateralism, *n.* The policy of balancing trade in terms of the world market. (1943)

NATO. North Atlantic Treaty Organization.

neo-isolationism, *n.* An isolationism in which military preparedness plays a part. (1950)

neo-orthodoxy, *n.* Term applied to certain re-emphases in theology, especially on original sin, the "wholly-otherness" and righteousness of God and the Bible as a source of revealed religious truth to which man must respond in every life situation by a decision involving obedience or disobedience. (–1946)

Nike. An anti-aircraft guided missile of the U.S. army.

Operation Killer. Code name of U.N. offensive in Korea.

Operations Research. An applied science which breaks down complex activities and operations into simpler parts. (1949)

paramedic, *n.* A doctor in the parachute service; a **paradoctor.**

petrochemistry, *n.* Petroleum chemistry. **petro chemical,** *adj.* (1950)

pod plane. An experimental aeroplane equipped with a detachable fuselage called a pod. (1950)

power net. Knitted nylon elastic. (1950)

primaquine, *n.* A synthetic chemical which, especially when administered with quinine, tests indicate may be an effective antimalarial. (1950)

privileged sanctuary. Phrase used by Gen. Douglas MacArthur to denote the area in Manchuria behind the Korean border where the Chinese Communists were immune from attack. (–1951)

protonsynchroton, *n.* A giant atomic accelerator. (1949)

quarterback, *v.* To direct. (1945)

radiation lampshade. *See* **lampshade.**

Reichsfront, *n.* A neonazi party in western Germany.

roadblock, *n. Fig.* A blockage, stopping. (1945)

roll-forwards (analogy of **rollback**), *n. pl.* Price increases.

semi-works, *n.* A pilot plant. (1949; 1938 in technical usage)

service mark. A mark, such as *Greyhound* bus, used to identify a service as a trade-mark is used to identify merchandise. (1945)

short-circuit, *v.t.* To pay (money) not to and through a treasurer but more hastily straight to another person by by-passing the treasurer.

Skylon, *n.* A structure which symbolized the Festival of Britain.

skysweeper, *n.* An anti-aircraft weapon, under development by the U.S. army, which is aimed by means of radar. (1950)

super-Schmidt, *n.* A telescope camera designed to photograph meteors.

sweptwing, *adj. Aeronautics.* Short for swept-back wing.

synoptophore, *n.* Instrument for correcting eye-muscle defects. (1946)

target date. Deadline; date set for completion of a project. (–1945)

telecon (radio-teletype conference), *n.* 1. A device of the U.S. army which transmits and receives teletype messages over long distances by means of radio or submarine cable and flashes them on a screen, thus making possible conferences between groups in widely separated places. 2. A radio-teletype conference. (1950)

thermonuclear, *adj.* Pertaining to the heat energy produced by or associated with change in the nuclei of atoms. (1942; 1939 in technical usage)

veepee, *n.* A vice-president. (1950)

whomp, *v.t.* To defeat decisively. (–1947; 1942 in British usage)

WOC (without compensation). A dollar-a-year man. (1950)

Zeep. The Canadian nuclear reactor at Chalk River. (1950)

(I. W. R.)

World Bank: *see* INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.

World Council of Christian Education: *see* RELIGIOUS EDUCATION.

World Council of Churches: *see* CHRISTIAN UNITY; RELIGION.

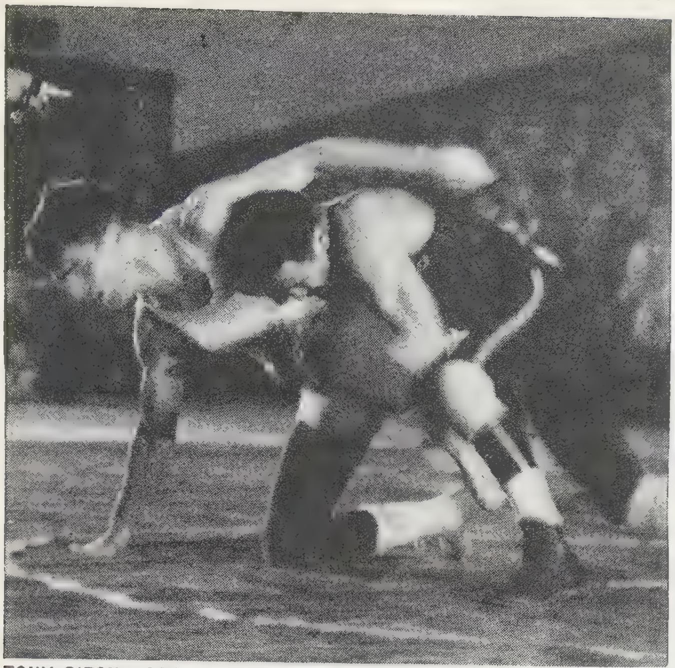
World Federation of Trade Unions: *see* LABOUR UNIONS.

World Health Organization: *see* CHILD WELFARE; UNITED NATIONS.

Wrestling.

Iowa State Teachers college became in 1951 the first team in the history of the Amateur Athletic union to win the wrestling championship three years in a row when it triumphed in the national title meet at Cedar Falls, Ia. The victors annexed three individual crowns as Gene Lybbert scored in the 128 lb. division, Keith Young triumphed at 155 lb. and Bill Smith at 165. Young and Smith were both defending titleholders. Other A.A.U. champions were George Creason, Long Island Grapplers, 115; John Lee, Harvard Varsity club, 121; Bill Armstrong, Oklahoma A. and M., 136; Bob Hoke, East Lansing, Mich., 145; Louis Holland, Laramie, Wyo., 175; Harry Lanzi, Toledo (O.) Y.M.C.A., 191; Carl Abell, Broadway (Cleveland, O.) Y.M.C.A., heavyweight.

Although successful in A.A.U. competition, the Iowa State Teachers were dethroned as team champions of the National Collegiate Athletic association as a record field of 133 contestants from 46 schools saw action at Lehigh university at



TONY GIZONI of Waynesburg college, Pa. (right), breaking the hold of Bill Borders of the University of Oklahoma, Norman, during the 123-lb. event of the 1951 intercollegiate wrestling championship matches held in Bethlehem, Pa. Gizoni, the defending champion, retained his title, 7–6

Bethlehem, Pa. Oklahoma captured the big prize with 24 points, one more than the total for the Oklahoma Aggies. Keith Young, the only defending champion in the big field, scored the only title triumph for the Iowa State Teachers, repeating in the 147 lb. group. Other N.C.A.A. victors were Anthony Gizoni, Waynesburg, Pa., 123; Walter Romanowski, Cornell of Iowa, 130; George Layman, Oklahoma A. and M., 137; Philip Smith, Oklahoma, 157; Eugene Gibbons, Michigan State, 167; Grover Rains, Oklahoma A. and M., 177; Bradley Glass, Princeton, heavyweight. Penn State was the top team in the eastern intercollegiate championships. (T. V. H.)

Wyoming. A Rocky mountain state of the United States, Wyoming was admitted to the union on July 10, 1890, as the 44th state. The name of the state, which means "mountains and valleys alternating," was derived from the Wyoming valley in Pennsylvania. Because of its pioneer work in woman's suffrage, Wyoming became popularly known as the "Equality state."

Wyoming ranks 8th in size and 47th in population among the states. The land area is 97,506 sq.mi.; water area, 408 sq.mi. The 1950 census, which gave a total population of 290,529, a 15.9% increase from 1940, listed rural inhabitants at 145,911 or 50.2% of the population of the state and urban at 144,618, or 49.8%. The 1940 census gave the population at 250,742 and listed 229,818 native white; 950 Negro; and 17,107 foreign-born.

The capital of Wyoming is Cheyenne, with a population (1950 census) of 31,935. Other cities having a population of 10,000 or more were: Casper, 23,673; Laramie, 15,581; Sheridan, 11,500; and Rock Springs, 10,857.

History.—Wyoming's 31st legislature convened on Jan. 9, 1951, and adjourned Feb. 17. It authorized the establishment of the Wyoming natural resource board with broad powers to develop the state's abundant natural resources. Civil defense legislation was enacted, and after studying the matter of sex crimes, a law providing for the disposition of persons so convicted was approved, and an act establishing juvenile courts became law. An oil and gas conservation measure was enacted and after lengthy consideration, oleomargarine legislation was passed. The legislature also approved a measure establishing a weather modification commission and providing for the control of cloud-seeding operations in Wyoming.

State officials during 1951 were: governor, Frank A. Barrett; secretary of state, C. J. Rogers; state auditor, Everett T. Copenhaver; treasurer, J. R. Mitchell; superintendent of public instruction, Edna B. Stolt. The state house of representatives elected in Nov. 1950 was made up of 17 Democrats and 39 Republicans, and the state senate consisted of 10 Democrats and 17 Republicans.

Education.—In 1951 there were 588 elementary and rural schools in Wyoming with 1,546 elementary teachers and 382 rural teachers, and a total enrolment of 45,720. There were 89 accredited high schools, with 945 teachers and an enrolment of 15,543. State expenditures on education for 1951 were approximately $16,131,600.

Social Insurance and Assistance, Public Welfare and Related Programs.—Funds spent on public welfare during the year ending Nov. 30, 1951, were as follows: old-age assistance $2,666,939; aid to dependent children $653,221; aid to the blind $59,852; general welfare $156,475; child welfare $36,566; general welfare health $340,208; aid to the permanently and totally disabled $254,982.

There were three correctional institutions with 412 inmates and appropriations (for the period April 1, 1951, to March 31, 1953) as follows: state penitentiary at Rawlins, 337 inmates, appropriations $434,870, capital outlay $10,000; girls' school at Sheridan, 30 inmates, appropriation $189,300, capital outlay $20,264; boys' school at Worland, 45 inmates, appropriation $222,575, capital outlay $8,000.

A home and hospital for the aged had been completed at the Hot Springs State park, Thermopolis. It was the only state-owned and state-operated home of this type in the United States. It was built at a cost of $600,000 (approx.) to accommodate 70 members and staff with additional hospital facilities for 20 persons. Appropriation (for period April 1, 1951, to March 31, 1953) was $150,000.

Communications.—During 1951 the Wyoming highway department let approximately 96 contracts for a total expenditure of $10,874,252 of which 16 contracts, for an amount of $191,296, were for special maintenance work and 15 contracts, amounting to $317,491, were for state-county co-operative projects. This work was spread over a total mileage of 635,273. The highway system in Wyoming at the end of the year consisted of 4,720 mi., of which 1,326 mi. were secondary routes. The 1951 maintenance budget, which covered the period ending Dec. 31, 1951, was set at $2,100,000. Railroad mileage remained stationary at 1,887.32 mi. There were 45 major airports in the state in 1951; and 76 Flying Farmer and private strips. Eight federal airways totalled 1,390 mi. On Nov. 1, 1951, there were 75,201 telephones.

Banking and Finance.—On June 30, 1951, there were 29 state banks with deposits of $74,520,740.94 and resources of $80,712,069.81. There were 24 national banks with deposits of $175,503,791.18 and resources of $187,954,559.41. There were 10 savings and loan companies with total resources of $20,939,867. Total state receipts for the fiscal year ending Sept. 30, 1951, were $50,190,271.33. Total disbursements for the same period were $41,542,134.03. The bonded debt for the state on Sept. 30, 1951, was $4,558,000.

Agriculture.—The total acreage harvested in 1951 was 1,942,000. Cash income from crops and livestock in 1950 was $146,285,000. There were no droughts, heavy rains or snows which had an unusual effect on crops in 1951.

Manufacturing.—According to the 1947 industrial census, the total estimated value added by manufactures was $34,957,000. The total employ-

Table I.—*Principal Crops of Wyoming*

	1951	1950	Average 1940–49
Corn, bu.	780,000	954,000	1,373,000
Winter wheat, bu.	5,112,000	5,130,000	3,640,000
Spring wheat, bu.	1,638,000	1,248,000	1,336,000
Oats, bu.	4,694,000	4,864,000	4,155,000
Barley, bu.	4,587,000	4,228,000	3,872,000
All hay, tons	1,255,000	1,108,000	1,262,000
Dry, edible beans, cwt.	728,000	878,000	1,133,000
Sugar beets, tons	445,000	454,000	416,000
Potatoes, bu.	1,202,000	1,800,000	2,219,000

Source: U.S. Department of Agriculture.

Table II.—*Number and Value of Livestock in Wyoming*

	Number on farms, 1951	Value
Cattle	1,041,000	$183,216,000
Hogs and pigs	69,000	2,063,000
Stock sheep	1,863,000	61,604,000
Sheep and lambs on feed	71,000	
Horses	76,000	1,900,000
Mules	1,000	33,000
Chickens	801,000	1,065,000
Turkeys	21,000	147,000

Table III.—*Principal Industries of Wyoming*

Industry	Value added by Manufacture, 1947
Petroleum and coal products	$18,363,000
Food and kindred products	7,834,000
Lumber and products	3,566,000
Printing and publishing	2,209,000
Stone, clay, etc.	1,489,000
Miscellaneous	1,496,000

ment at this time was 4,285, with total wages paid amounting to $12,291,000.

Employment.—The total labour force in Wyoming as estimated for May 1951, was about 118,500 workers, of whom about 56,331 were covered by unemployment compensation. Of the total force, approximately 28,000 to 29,200 persons were employed in agriculture, 9,800 in mining, 6,700 in contract construction, 5,500 in manufacturing, 13,160 in all types of transportation, 2,540 in utilities and communications, 3,280 in wholesale trade, 13,120 in retail trade, 1,800 in finance and real estate, 8,760 in the services, 2,040 in professions, 16,100 in all types of government and an estimated 4,500 to 5,000 in miscellaneous; 1,500 were unemployed.

(F. A. Bt.)

Table IV.—*Mineral Production of Wyoming*

(Short tons, except as noted)

Mineral	1950 Quantity	1950 Value	1949 Quantity	1949 Value
Clays	413,271	$ 4,102,122	369,782	$ 3,567,044
Coal	6,348,249	24,048,403	6,000,924	22,972,007
Iron ore	550,935	?	604,300	*
Natural gas (000 cu. ft.)	55,000,000	3,300,000	50,815,000	2,820,000
Natural gasoline (gal.)	43,339,000	3,211,000	38,886,000	3,248,000
Petroleum (bbl.)	60,457,000	130,590,000	47,890,000	109,190,000
Petroleum gases (gal.)	20,718,000	939,000	15,904,000	824,000
Sand and gravel	1,937,943	1,251,220	2,352,493	1,912,838
Stone	1,841,400	2,214,037	1,802,580	2,227,096
Other minerals		?		3,949,363
Total		?		$150,710,348

*Value included with other minerals.

Mineral Production.—Table IV shows the tonnage and value of mineral production in the state in 1949 for commodities having values in excess of $100,000, and corresponding data for 1950.

X-Ray and Radiology.

The advantages of motion-picture photography of the fluorescent screen image had been recognized from the earliest days of the use of the X-ray in medical diagnosis, but the danger of prolonged X-ray exposure and the limited capacity of X-ray tubes had delayed full utilization of this method. Apparatus devised by R. F. Rushmer, R. S. Bark and J. A. Hendron was designed to overcome these difficulties. Their apparatus relies upon interrupting the generation of X-rays while the film is being advanced in order to avoid the necessity of closing the shutter on the camera. The time of X-ray exposure is thus shortened by about half.

The cinefluorographic apparatus was used to: (1) study changes in the outline of the heart during cardiac contractions; (2) make permanent records of the fluoroscopic appearance of the heart in congenital and acquired heart disease; (3) record movements of normal and abnormal joints; (4) study the impact of the left auricle on the oesophagus during a barium swallow; (5) prepare films for training students showing the fluoroscopic appearance of the heart; (6) study the heart and vessels during cardio-angiography following injection of diodrast.

The photofluorographic method—photography of the image on the fluorescent screen—was greatly advanced by the use of photofluorographic cameras constructed according to the principles of Schmidt, that is, reflector-type optics. A. Bouwers in the Netherlands produced a reflector-type camera with a resolution of five lines per millimetre—twice that provided by previously available cameras. This served to improve the clarity of photofluorographic images and render it more nearly equal to that of those produced by conventional roentgenography. Russell H. Morgan, at The Johns Hopkins university and hospital, Baltimore, Md., believed that photofluorography had reached the point of availability for use even in the wards of hospitals. Among its advantages over conventional roentgenography were its availability at the bedside and its relative low cost.

The relatively new method of angiocardiography—X-ray of heart and blood vessels—had been used to determine operability of lung cancer. C. T. Dotter, I. Steinberg and C. W. Holman reported 53 consecutive cases of lung cancer studied by this method. Their study furnished evidence that angiocardiography is a useful addition to other methods to determine operability of lung cancer. They concluded that "the effects of malignant tumors upon vascular structures are often characteristic and afford otherwise unobtainable preoperative information as to the extent of neoplastic involvement." Also that "The angiocardiographic signs of inoperability have in common the demonstration of neoplastic involvement of vascular structures beyond the limit of surgical resectability."

Investigations were made during 1951 to determine the suitability of cobalt 60 as a substitute for radium in the treatment of cancer. Co^{60} is a radioactive isomer with a 5.3-year half life. Since it can be produced at a much lower cost than that of X-ray machines with a comparable output of radiation, it was suggested as a substitute for such machines. I. Meschan and co-workers at the University of Arkansas, Fayetteville, reported during 1951 that a cheap, stable, readily available method for encasing pure cobalt wire had been devised, capable of filtering out the weak beta-rays from cobalt 60 without lessening the gamma-ray intensity. These cobalt 60 needles may be constructed at a fraction of the cost of equivalent radium needles. The authors also presented a method of standardization of cobalt needles against a national bureau of standards ampule of cobalt 60. They cautioned that until cobalt 60 radiation had been biologically standardized against radium it should be used only experimentally.

Chronic nonspecific inflammation of the lung with consolidation in the middle lobe of the right lung recently was classified as a definite disease. Prior to 1938, when A. O. Hampton and D. S. King pointed out that disease of the middle lobe may produce a triangular roentgenographic shadow, the condition was interpreted as interlobar effusion. They demonstrated that interlobar effusions are rare and that the shadow which had theretofore been interpreted as effusion was attributable to pneumonitis. R. C. Brock, in a careful study of the anatomy of the lungs, had shown in 1946 that not only the middle lobe bronchus but the bronchi of the upper and lower lobes of the left lung are liable to be compressed by enlargement of the many glands which surround them at their origin. Brock explained that obstruction is probably caused when a caseous gland adheres to the wall of a bronchus, ulcerates through it and discharges its contents into the lumen, when permanent stricture or obliteration follows. He believed that a damaged lobe or segment may remain silent for years and manifest itself because of infection later in life. The symptoms and signs of the "middle lobe syndrome" are identical with those of bronchogenic carcinoma, namely, haemoptysis, cough and pain. The common roentgenologic findings are calcified hilar lymph nodes and the characteristic triangular shadow of the atelectatic middle lobe. A report from the Mayo clinic and foundation, Rochester, Minn., supported Brock's observations that nonspecific pneumonitis and atelectasis may involve the left lung because of pressure upon a bronchus. W. M. Asche, J. R. McDonald and O. Clagett reported such a case in which the left upper lobe was consolidated and which resembled a superior sulcus tumour.

Evidence confirmed the conclusions of Carroll E. Palmer of the United States public health service concerning the origin of multiple pulmonary calcifications. A study of 114 cases was made by F. C. White and H. E. Hill at the Ray Brook, N.Y., state tuberculosis hospital. Palmer had concluded that the small, multiple, disseminated calcifications often disclosed on roentgenograms were not usually of tuberculous origin and that in most cases they were due to infection by *Histoplasma capsulatum*. The authors offered proof that the pulmonary calcifications found in their cases were due to an air-borne infection, probably *Histoplasma capsulatum* or a fungus antigenically related to it. (*See* also Atomic Energy; Standards, National Bureau of; Tuberculosis.)

CREW OF THE "NORSAGA" hauling the lines aboard in rough waters during the Royal Norwegian Yacht club's Hanko International regatta in July 1951. The "Norsaga" was entered by U.S. Ambassador Charles Bay

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Yachting. The outstanding performance by a major racing yacht during 1951 was that of the 72-ft. yawl "Escapade," owned by Wendell Anderson of Detroit, Mich. "Escapade" made a clean sweep of the four major long-distance races on the Great Lakes, the Chicago-Mackinac, Bayview-Mackinac, Rochester and Mills Trophy races. "Escapade" was the first craft in the history of Great Lakes racing to take all four in the same season.

A transatlantic race from Havana, Cuba, to San Sebastian, Spain; the biennial transpacific race from Los Angeles harbour to Honolulu; and the British Fastnet race were outstanding ocean racing events of 1951. The first was won by the ketch "Malabar XIII," Kennon Jewett, owner, hailing from Miami, Fla. She made the 4,080-mi. passage in the good but not exceptional time of 28 days 26 min., and easily beat her three rivals, the schooners "Cubana" of Havana and "Sunbeam" of Miami, and the ketch "Gaucho" of Buenos Aires.

The Honolulu race went, on corrected time, to the smallest and lowest-rating yacht among 27 starters, A. L. McCormick's 35-ft. ketch "Sea Witch." Another small craft, Ira P. Fulmor's "Staghound," was second and Tucker McClure's "Chiriqui" third. The usual difficulty of the big yachts in this race, with fresh, fair winds most of the way, overcoming the big time allowances of smaller craft, was aggravated by several of them turning back to search for Ted Sierks, who had fallen overboard from the sloop "L'Apache" and who was saved by the U.S.S. "Douglas A. Munro" after 30 hr. in the water in mid-Pacific.

In the traditionally rugged Fastnet race 30 boats, under the flags of seven nations, started and within a day 14 of them were out of the race because of damage caused by a howling southwest gale. The sole U.S. entry, "Malabar XIII,'" was dismasted shortly after the start. The British sloop "Yeoman," Owen A. Aisher, was the winner, with a Dutch boat, C. Bruynzeel's "Zeevalk," second and the royal engineers' "St. Barbara" third.

In the winter "southern circuit," Harvey Conover's yawl "Revonoc" again won the Miami-Nassau race; James Crawford's ketch "Lady Patty" won the St. Petersburg-Havana and Ft. Lauderdale-Cat Cay events; Carleton Mitchell's yawl "Caribbee" won the Nassau trophy and Jacobs Cabassa's sloop "Larry" the Linton trophy. William Erwin's sloop "Belle of the West," though she won no single race, took the Florida Governor's cup as the high collective scorer of these races.

The feature of the biennial Newport-Annapolis race was a duel between the two big yawls "Baruna," Henry C. Taylor, and "Bolero," John Nicholas Brown. They finished 24 sec. apart at the end of 466 mi., "Baruna" winning on corrected time. C. Raymond Hunt won the Eastern Yacht club's New London-Marblehead race for the third time in his career, with the ketch "Zara." Palmer Langdon's sloop "Tiny Teal" took the Stamford-Vineyard race. Richard F. Nye's yawl "Carina" won the Marblehead-Halifax event. On the west coast 127 yachts sailed in the Newport, Calif., to Ensenada, Mex., international ocean race, with over-all fleet honours going to Barney Huber's 32-ft. sloop

"Mara" and class A to Don Ayres' yawl "Skylark." The Tri-Island series of distance races in the Puget sound area was won by Carl Jensen's sloop "Amorita."

An American six-metre team of "Llanoria," sailed by Magnus Konow; "Goose," Robert B. Meyer; and "Firecracker," Herman F. Whiton, defeated a British team off Cowes, Eng., in the first match for a new perpetual British-American cup. Another U.S. team racing abroad, from the Manhasset Bay (L.I.) Yacht club, lost to a Norwegian team in international class sloops at Hanko, Nor.

"Bolero" won the King's cup and George D. Haskell's eight-metre "Navigo" the Puritan cup, features of the New York and Eastern Yacht club cruises, respectively.

Massachusetts Institute of Technology, with Robert Nickerson and Howard Fawcett as its skippers, won the North American intercollegiate dinghy sailing championship for the seventh time in 15 years. A Seal Harbor (Me.) Yacht club crew headed by Jane Smith won the national women's sailing championship, and the national junior title went to a Rocky Point (Conn.) Sailing club crew headed by 17-yr.-old George Reichelm.

Many classes of small racing yachts held their national and international championships during the summer. Among the winning skippers in various classes were: Stars, E. W. Etchells, of Old Greenwich, Conn.; Thistles, Gordon Douglass, Painesville, O.; 110s, Lawrence Conover, Larchmont, N.Y.; Lightnings, John Tiegland, Jr., Spray Beach, N.Y.; Snipes (U.S. national), Francis Seavy, Clearwater, Fla.; 210s, John J. McNamara, Cohasset, Mass.; Comets, William Lyon, Corsica River, Md.; L-16s, Fred Lorenzen, Stamford, Conn.; Penguins, George Ruby, Balboa, Calif.; Ravens, Peter Geddes, Providence, R.I.

FILMS OF 1951.—*Sails in the Wind* (Almanac Films, Inc.).

(W. H. TR.)

Yemen. An independent state in the southwestern tip of the Arabian peninsula, Yemen lies between Saudi Arabia, the British Aden protectorate and the Red sea. Area: *c.* 31,000 sq.mi. Pop. (1950 est.): 1,600,000. Language: Arabic. Religion: Moslem. Capital: San'a (pop. est., 25,000). Ruler: Sayf al-Islam Ahmad ibn Yahya.

History.—On Jan. 20, 1951, the Anglo-Yemeni agreement which had been negotiated in 1950 was published. By it diplomatic relations were to be established between Great Britain and the Yemen and a joint committee was to demarcate the frontier between the Yemen and the Aden protectorate and to settle past disputes. The British government was to assist the Yemeni government in its economic and social development schemes.

Previously, on Jan. 5, Talaat Ghossein, the director of publicity in the Yemeni foreign ministry, had announced in Cairo, Egy., on his return from Lake Success, N.Y., that the Yemeni government proposed building a state hospital and had bought a powerful radio transmitter and a printing press to combat illiteracy and to organize education by radio, and had approached the United Nations and the United States (under Point Four) for technical and other assistance.

Later in the year the government discussed the prospects of the granting of a concession for oil exploration in the kingdom with an Anglo-U.S. group and introduced a scheme for government marketing of the coffee crop which had hitherto been handled by Aden merchants.

During the summer the American Foundation for the Study of Man published a report on its two years of exploration of the ruins of Marib which had been the capital of the country up to A.D. 120.

(O. M. T.)

Finance.—Monetary unit: Maria Theresa dollar, called the riyal, nominally equal to 1 Indian rupee with an exchange rate of 4.76 riyals to the U.S. dollar.

Foreign Trade.—Trade with the U.K. (1950): imports £4,657; exports £801. Trade with the U.S. (1950): imports $62,674; exports $2,273,982. Main imports from the U.S.: machinery, cars and accessories, books, maps, etc. Main exports to the U.S.: cocoa, coffee and tea, hides and skins, petroleum and products.

Agriculture.—Main crops: wheat, barley, millet and coffee.

Yoshida, Shigeru (1878–), Japanese political leader, was born on Sept. 22 in Tokyo. He was educated at the Tokyo Imperial university, and graduated in law in 1906. He held many minor diplomatic posts in the far east and Europe and was second secretary at the Japanese embassy in Washington, D.C., in 1916–17. He was minister to Sweden, Norway and Denmark in 1928; vice-foreign minister, 1928–30; ambassador to Italy, 1930–32; and ambassador to London, 1936–39. Yoshida was arrested in June 1945 on allegations that he headed a "defeatist" peace faction. He was freed after Japan's surrender at the close of World War II, and became foreign minister in the Kijuro Shidehara cabinet, Oct. 6, 1945. In 1946 he accepted the presidency of the Japanese Liberal party and succeeded as premier on May 22.

On July 4, 1951, Emperor Hirohito installed a new Japanese cabinet, but Yoshida remained premier. In the reorganization he had sought to strengthen the economic elements of his regime preparatory to the forthcoming peace settlement. While signing this treaty at the peace conference in San Francisco, Calif., in September, Yoshida pointed out that it stripped Japan of 45% of its prewar territory and of vast overseas assets. He assured the conference that Japan would eventually assume full responsibilities in safeguarding itself.

Young Men's Christian Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Young Women's Christian Association: *see* SOCIETIES AND ASSOCIATIONS, U.S.

Yugoslavia. A federal people's republic of southeastern Europe, Yugoslavia is bounded north by Austria, north and northeast by Hungary and Rumania, east by Bulgaria, south by Greece and west by Albania, the Adriatic sea and Italy. Area: (1940) 95,983 sq.mi.; (1947, incl. newly acquired territory of Julian march, Zara and the islands) 98,826 sq.mi. Federal republics (pop., 1948 census):

	Population	Capital
Serbia	6,523,224	Belgrade (388,246)
Croatia	3,749,039	Zagreb (290,417)
Slovenia	1,389,084	Ljubljana (120,944)
Bosnia and Hercegovina	2,561,961	Sarajevo (118,158)
Crnagora (Montenegro)	376,573	Titograd (12,206)
Macedonia	1,152,054	Skoplje (91,557)
Total	15,751,935	

By mid-1950 the total population was estimated at 16,250,000. Other towns (pop., 1948 census): Subotica (112,551); Novi Sad (77,127); Rijeka, formerly Fiume (72,130). Languages: Serbo-Croat, Slovene and Macedonian; Albanian, Hungarian and Italian spoken by minorities. Religions (1931 census): Greek Orthodox 48.7%, Roman Catholic 37.5%, Moslem 11.2%. President of the presidium of the people's assembly (*Skupština*), Ivan Ribar; prime minister, Marshal Josip Broz (Tito) (*q.v.*).

History.—During 1951 Yugoslavia's relations with the Soviet Union and the people's democratic satellites continued to be bad, and this hostility was reflected from time to time in frontier incidents. During the same period relations with the western countries steadily improved. Up to April 1951 Yugoslavia had received credits and grants from the United States to the amount of $190,000,000 and from Great Britain to the amount of £22,000,000. In June 1951 the United States, British and French governments agreed to make a joint grant of $50,000,000. On Nov. 14 an agreement was signed between the Yugoslav and U.S. governments by which the United States would grant military aid and would have the right to keep a small military mission with limited freedom of movement in the country.

Economic Planning. — The first officially published figures on Yugoslavia's foreign trade since World War II showed some interesting changes in its structure and its direction. The share of timber and timber products in Yugoslav exports rose from 21% in 1939 to 32% in 1950, of ores and metals from 10% to 23%, while the share of vegetable and animal products and foodstuffs fell in the same period from 46% to 23%. In imports the share of goods for industrial investment rose from 29% to 46%. In 1947 Yugoslavia's largest customers were the Soviet Union (16% of exports and 21% of imports) and Czechoslovakia (18% of both). In 1950 trade with these countries had ceased, and their place had been taken by the United States (13% of exports and 21% of imports), Great Britain (18% and 17%), and western Germany (12% and 16%).

On Dec. 28, 1950, the chief economic planner Boris Kidrić told the Yugoslav parliament that the government had decided to postpone until the end of 1952 the completion of the five-year plan. After that date there would be no more long-term plans. The aims of the plan were also considerably modified. Certain branches of engineering —for instance, the production in Yugoslavia of locomotives— were abandoned. It was admitted by officials that the planned output and refinement of oil could not be achieved. On the other hand electrification projects were increased even beyond the original aims. Kidrić told the Trade Union council in October that the main purposes of the plan, as modified, were to increase electric power resources and to expand the textile, mining and steel industries. Yugoslav industry still suffered from severe labour shortage during 1951. The measures of decentralization, undertaken already in 1950, aimed not only to give greater initiative to managers, who were made responsible for finding their own raw materials, machines and spare parts inside Yugoslavia or abroad, and were given greater freedom of choice both as to what their factories should produce and where they should sell it, but also to reduce administrative personnel and increase the numbers working at the factory bench or on the land. It was hoped to transfer the central planners and some members of superfluous regional planning staffs to administrative jobs in factories, to send skilled workers who had become clerks or administrators back to skilled jobs in the workshops, and to send some of the unskilled workers back to the land, where more labour was needed in certain regions.

YUGOSLAV WORKERS at a turbine plant as management of the government-built factory was being turned over to the nominal custody of employees. The change-over was part of a plan for a "withering away of the state" as authorized by law in June 1950

Peasantry and the Regions.—Relations with the peasantry remained difficult. During 1950 the pace of collectivization had been slow except in Macedonia, where the number of peasant households in collective farms increased by about one-third, and by 1951 60% of the peasants and 63% of the arable land were held by collectives. In the rest of the country the average share of arable land held by the socialist sector (collective farms and state farms together) was 26% at the beginning of 1951. In the most fertile grain-growing province of Vojvodina, however, it was as high as 50%. It was, however, clear both that the peasants were unwilling to be collectivized and that the collective farms were inefficient units. In particular, they were strangled by bureaucratic formalities, excessive clerical and administrative staffs, and had little incentive to increase their output. The country's food supplies, and its much-needed export surplus, thus depended on the 74% of private farmers. In the summer of 1951 the government attempted to grant incentives both to the collective farms and to the individual producers. On July 1 the compulsory deliveries to the government at low prices were abolished for meat, milk, potatoes and fodder, but not for cereals, fats, wool and industrial plants. On Aug. 9 all debts to the state incurred by collective farms for capital investment were cancelled. Pressure on peasants to enter collectives virtually ceased. This milder policy however encouraged the peasants to ask for more. Families who had been in a collective farm for three years began to claim their legal right to secede. Soon the demand for the break-up of collectives was strong enough to alarm the government. Official spokesmen, including Marshal Tito himself, while repeating that collectivization must be voluntary, attributed requests for secession to agitation by "the class enemy," and stressed that abandonment of "socialist agriculture" would not be tolerated. During September the formation of new collective farms in

Vojvodina and Slavonia was reported. In November a published directive of the Communist party announced that collectivization would continue, but that mistakes and abuses hitherto committed would be avoided.

The government made serious attempts to improve political administration and to end the abuses of power from which the peoples of Yugoslavia had suffered since 1944. In February the State Control commission, an institution copied from soviet practice, was abolished. A new civil code was introduced which contained specific provisions against arbitrary arrest and stressed the necessity for evidence other than confessions in the law courts. That these reforms were urgently needed and that the government intended to have them really carried out was shown by an astonishingly frank speech made by the minister of interior, Alexander Ranković, in June to the central committee of the Communist party. The minister described in detail the abuses committed and admitted that in 1949 no less than 47% of all arrests made by the police had been unlawful.

On Dec. 5 Archbishop Aloysius Stepinac, head of the Catholic hierarchy in Yugoslavia, was released after serving 5 of the 16 years' prison sentence to which he had been condemned in 1946. His status was not clear, as both the Vatican and he himself maintained that he was still archbishop while the government denied this. (*See* also Albania; International Bank for Reconstruction and Development; Trieste, The Free Territory of.) (H. S-W.)

Education.—Schools (1949–50): elementary 12,742, pupils 1,640,954, teachers 24,256; secondary 1,242, pupils 434,202, teachers 9,892; teachers' training colleges 69, students 21,917, teachers 787; technical schools 1,249, students 176,631, teachers 14,866; art, musical and dramatic schools 134, students 17,481, teachers 1,585; workers' educational colleges 81, pupils 5,854. Institutions of higher education: 79 faculties, academies and high schools, students 60,566, professors and lecturers 4,354. In addition, the national minorities were provided with 1,264 elementary, 151 secondary and 9 teachers' training schools.

Finance and Banking.—Budget estimates: (1950) balanced at 173,746,000,000 dinars; (1951) balanced at 172,662,000,000 dinars. Currency circulation (June 1951): 37,380,000,000 dinars. Bank deposits (June 1951): 91,770,000,000 dinars. Monetary unit: dinar, with an official exchange rate devalued on Dec. 28 from 50 dinars to 300 dinars to the U.S. dollar.

Foreign Trade.—(1950): imports 11,791,000,000 dinars; exports 7,930,000,000 dinars. Main sources of imports (1950): U.S. 22%; U.K. 17%; western Germany 17%; Italy 10%. Main destinations of exports: U.K. 19%; U.S. 14%; western Germany 12%; Italy 12%. Main imports: textiles 25%; ores, metals and products 14%; machinery and equipment 12%. Main exports: wool and products 33%; ores, metal and products 23%; vegetable products 15%.

Transport and Communications.—Roads (1950): 30,184 mi. Licensed motor vehicles (Dec. 1950): cars 12,000, commercial 20,000. Railways (1949): 7,223 mi. Shipping (merchant vessels owned over 100 gross tons, July 1950): 107; total tonnage 216,789. Air transport (1949): miles flown 490,769; passengers carried 33,998. Telephones (1949): 74,994 subscribers. Radio receiving set licenses (Dec. 1949): 299,055.

Agriculture.—Main crops (metric tons, 1951): wheat 2,358,000; barley 377,000; oats 315,000; (1950) rye 219,000; maize 2,081,000; potatoes 1,019,000; sugar, raw value 100,000; tobacco 17,000; dry beans 97,000; hemp fibre 30,000; sunflower seed 121,000. Livestock: cattle (1951) 5,236,000; sheep (1950) 10,042,000; pigs (1950) 4,287,000; horses (1951) 1,090,000; goats (1950) 786,000; mules (1951) 33,000; chickens (1951) 15,020,000; ducks (1950) 1,043,000. Wool production, greasy basis (1950) 16,000 metric tons. Wine production (1950) 3,300,000 hl.

Industry.—Manufacturing establishments (1948) 1,042, persons employed 254,000 wage earners and 74,300 salaried staff. Fuel and power (metric tons, 1950): coal 1,152,000; lignite 11,124,000; crude petroleum (1949) 62,600; electricity (1949) 2,186,000,000 kw.hr.; manufactured gas (1949) 27,000,000 cu.m.; natural gas consumption (1949) 8,000,000 cu.m. Raw materials (metric tons, 1949): manganese ore 4,300; pig iron 191,000; crude steel 399,000; copper 48,500; lead 56,800; zinc 8,800; bauxite 368,000; aluminum 2,400; chrome ore 41,900; molybdenum ore 200; antimony ore 2,800; magnesite 87,200; salt 108,900. Timber production (1950): sawn softwood 453,700 standards; sawn hardwood 635,900 cu.m. Manufactured goods (1949): cotton yarn (metric tons) 29,000; cotton and mixed piece goods 169,600,000 sq.m.; wool yarn 12,900 metric tons; woven woollen fabrics 27,900,000 sq.m.; cement 1,300,000 metric tons.

Bibliography.—Vladimir Dedijer, *With Tito Through the War* (London, 1951); Josef Korbel, *Tito's Communism* (1951); Leigh White, *Balkan Caesar* (1951).

Yukon Territory.

The most northwesterly political division of Canada, the Yukon was created in 1908. Area: 207,076 sq.mi. Pop.: (1941) 4,914; (1951 census) 9,096.

History.—From the creation of the territory until early in 1951, Dawson was the capital; but on March 14 in the house of commons Robert H. Winters, federal minister of resources and development, announced that "the development of Whitehorse, together with its geographic position, have made it the centre of economic activity and communications for the territory." The change was vigorously protested by Dawson residents, but they could not overcome the effect of the population trend: Dawson (1941) 1,043, (1951) 773; Whitehorse (1941) 754, (1951) 2,548. The Yukon act was amended by parliament to increase the membership of the elective Yukon territorial council from three to five, and to permit the manufacture and importation of intoxicating liquor in the territory. The geological survey of Canada sent ten parties into the Yukon in 1951 to provide maps of mineral areas on the scale of four miles to one inch, based on vertical aerial photographs by the royal Canadian air force.

The workmen's compensation ordinance was revised to raise the percentage of compensation from one-half to two-thirds, and compensation became payable for specified industrial diseases. The Prisons and Reformatories act was amended to make remission earned by a prisoner by good conduct applicable to the Yukon. (C. Cy.)

Education.—There are three authorities in the educational administration. During 1951 the Yukon territorial government maintained ten schools with about 700 pupils and 31 teachers, the Indian affairs branch of the federal government maintained seven schools with 234 pupils and 12 teachers and the Roman Catholic Church had two schools with 118 pupils and 4 teachers.

Finance.—In the fiscal year 1950–51 the federal government collected revenue in the Yukon Territory totalling $1,846,793 and expended the sum of $5,626,640 for purposes of administration and development.

Transportation.—The White Pass & Yukon route railway runs from Skagway, Alaska, to Whitehorse, Y.T., a distance of 110 mi. Transportation to points in the interior beyond Whitehorse is afforded by the Yukon river and its tributaries. Freight and passenger service over the river system during 1951 were as follows: freight 8,751 tons, passengers 4,821.

Canadian Pacific Air Lines operates frequent service from both Vancouver, B.C., and Edmonton, Alta., to the Yukon. Charter operators provide services from bases at Whitehorse, Carcross and Dawson. Regular flights are made from Whitehorse to Mayo and Dawson twice weekly. Pan American World Airways provides service between Seattle, Wash., and Whitehorse on the Seattle-Fairbanks flight.

Furs.—Raw furs exported during the year ended July 31, 1951, totalled 228,616 pelts, compared with 151,969 during all of 1949.

Minerals.—Mineral production in 1950 was valued at $8,035,696 and included 93,339 fine ounces of gold, 3,202,779 fine ounces of silver and 12,865,518 lb. of lead.

Bibliography.—Florence Page Jaques, *As Far as the Yukon* (1951).

Zanzibar: *see* British East Africa.

Zinc.

World production of zinc advanced regularly from the low of 1945 and in 1950 surpassed the war peak of 1943, making a new record high. The outputs of the major producing countries listed in Table I, as reported by the U.S. bureau of mines, accounted for about 93% of the total output.

Table I.—*World Smelter Production of Zinc*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Australia	88.2	93.8	85.4	77.7	91.1	90.7	93.4
Belgium	9.6	12.9	95.0	146.7	169.6	194.6	195.4
Canada	168.5	183.3	185.7	172.9	196.5	206.0	205.0
France	9.7	9.3	33.5	50.7	61.2	66.8	78.8
Germany	286.2	?	31.3	22.8	45.6	95.8	124.3
Great Britain	79.6	69.5	73.4	76.5	80.6	71.8	78.7
Italy	—	1.7	17.3	25.1	29.1	29.3	42.0
Japan	69.0	20.4	12.4	16.4	23.4	35.6	54.0
Mexico	54.3	54.0	46.3	62.5	53.2	59.0	59.0
Netherlands	2.3	—	2.2	10.5	15.0	17.2	21.8
Northern Rhodesia	16.2	17.1	19.2	23.7	24.8	25.6	25.4
Norway	13.0	10.2	33.3	38.1	46.3	45.2	48.5
Poland	?	40.1	62.4	79.1	96.0	?	?
Spain	19.9	19.1	19.4	21.8	23.4	21.6	24.5
United States	869.3	764.6	772.4	802.5	787.8	814.8	843.5
Total	1,790	1,400	1,550	1,760	1,870	2,000	2,140

All countries except Germany surpassed or were closely approaching the prewar level of output, with the United States responsible for most of the subsequent increase.

United States.—Although the total mine output rose by 5% in 1950, smelter recoveries from domestic ores declined, but increased recoveries from imported ores more than offset the decline. Table II presents the salient features of the zinc industry in the United States, as reported by the U.S. bureau of mines.

Table II.—*Data of Zinc Industry in the U.S.*

(In thousands of short tons)

	1944	1945	1946	1947	1948	1949	1950
Mine production. . .	718.6	614.4	574.8	637.6	630.0	593.2	623.4
Smelter production. .	869.3	764.6	772.4	802.5	787.8	814.8	843.5
Domestic ores. . .	574.5	467.1	459.2	510.1	538.0	591.5	588.3
Foreign ores . . .	294.8	297.5	269.1	292.4	249.8	223.3	255.2
Imports	486.3	478.8	376.8	370.3	357.4	367.8	428.5
In ore.	422.7	381.7	272.1	298.0	264.2	241.2	272.5
Metal.	63.6	97.1	104.7	72.3	93.2	126.9	156.0
Secondary recovery .	345.5	360.4	300.7	310.8	324.6	237.8	326.0
Stocks.	298.5	328.6	269.2	149.3	116.7	176.0	69.2
Producers'	233.7	256.2	176.2	68.6	20.8	94.2	8.9
Consumers'. . . .	64.8	72.4	93.0	80.8	95.9	81.8	60.3
Consumption	888.6	852.3	801.2	786.4	817.7	711.8	967.1

While both domestic output and imports increased, the advance was not enough to meet a new record high in consumption, and stocks were reduced to a low level.

In the first seven months of 1951 the mine output totalled 506,145 tons, smelter output 546,598 tons and consumption 515,022 tons.

Canada.—The mine output of zinc rose from 288,262 short tons in 1949 to 312,585 tons in 1950, but the refined zinc output dropped from 206,045 tons to 204,959 tons. Exports in 1950 included 146,880 tons of metal and 129,561 tons of zinc in ore. (G. A. Ro.)

Zonta International: *see* Societies and Associations, U.S.

Zoology.

Ecology.—T. A. and Anne Stephenson, in the first of a projected series of six monographs on the life between tidemarks on all coasts of North America, dealt comprehensively with ecological and geographical relations of tidal zone plants and animals in the Florida Keys and noted that they were tropical, not subtropical.

Embryology.—An important step in clarification of the role of reproductive glands in controlling the differentiation of accessory sex organs was made by Etienne and Emilienne Wolff, who used a carefully shielded X-ray beam to destroy the testes or ovaries of embryonic chicks and ducks. The organs used as indicators were those that normally show a difference in males and females well before hatching: in ducks, the syrinx (organ of voice) and the genital tubercles; in both ducks and chicks the Müllerian ducts (oviducts). They found that both syrinx and genital tubercle were of the male type in castrated male and female ducks; hence they concluded that in normal development the body tissues of both sexes have equal possibilities for differentiation of these organs, but that in the female the ovarian hormone suppresses the growth and differentiation of syrinx and genital tubercle. In a somewhat similar way, the decline of the Müllerian duct in males is a consequence of suppression by the testicular hormone for, in castrated males and castrated females, both ducts continue to grow and differentiate up to the eighteenth day of incubation.

J. Piatt was able to secure additional evidence about the embryonic origin of several tissues in salamanders by the use of a naturally occurring lot of colourless embryos as hosts and donors in transplantation experiments. The transplanted cells were always clearly distinguishable from the pigmented cells of the normal hosts and vice versa in the reciprocal experiments. Thus, he was able to confirm earlier work that showed that head ectoderm was the source of the cranial ganglia and that neural crest cells gave rise to certain cartilages in the head, spinal ganglia, pigment cells, sheath cells and a considerable part of the dorsal half of the spinal cord. On the contrary, he found no evidence that sympathetic ganglion cells, to which a neural crest origin is often ascribed, were derived from the neural crest.

Experimental Zoology.—M. F. M. Osborne studied the flight characteristics of 25 insects and, in accordance with aerodynamical theory, derived general formulas for lift, thrust, and power when wing motion was specified. He found that the honey bee, using a wing beat of 250 per second, attained a velocity of about 2.5 metres per second (about 6.1 miles per hour) and a certain dragonfly (*Aeschna mixtra* Latr.), using a wing beat of 38 per second attained a velocity of 7 metres per second (about 17 miles per hour).

It had long been known that female ferrets reach a reproductive state as the days become longer in the spring. David Hart, by subjecting ferrets to artificial days, showed that the determining factor was not an increasing daily ration of light, but rather the ratio between light and dark that is effective (2 parts of light to 1 part of darkness) in inducing oestrus.

S. Zuckermann concluded, on the basis of new experiments, that it was probable that all the eggs which differentiate in adult mammals are derived from primordial germ cells already present in the ovary at birth; or, to put it in other terms, that no new source of eggs arises during growth and further development.

Evolution.—The journal *Evolution*, vol. V, no. 1 (1951), inaugurated a section, "Comments on Evolutionary Literature," that had value as a bibliographic aid. Tilly Edinger corrected an old and widely accepted error in showing that the illustrations published in the 19th century by O. C. Marsh and regarded as showing the reptilian proportions of the brains of the ancient fossil birds *Icthyornis* and *Hesperornis* could not have been based on casts of the cranial cavities of those birds. The specimens available to Marsh were either too fragmentary or too distorted to be used for that purpose. She concluded, on the basis of a restudy of the specimens, that the brains of these birds were much more similar to those of modern birds than had been thought heretofore.

Lucien Cuenot presented a detailed summary of a great range of evidence for evolution in both plants and animals and expressed his reservations about current interpretations of the mechanism of evolution in his book, *L'Evolution biologique: les faits, les incertitudes* (Paris, 1951). G. S. Carter made an able presentation of modern evolutionary fact and theory in his *Animal Evolution: A Study of Recent Views of Its Causes* (London, 1951). By far the most elaborate study in this field during the year was W. K. Gregory's two-volume work, *Evolution Emerging* (1951), with 5,500 splendid illustrations and nearly 5,000 subject entries.

General.—T. S. Hall edited an anthology of important original publications in biology beginning with da Vinci and extending into the 20th century. Sir Francis Darwin, using some letters not previously available, published *Charles Darwin's Autobiography* (1951). Rachel Carson's *The Sea Around Us* (1951), notable for quality of writing and accuracy of content, was reviewed favourably both by scientists and literary critics.

The American Society of Zoologists met in joint sessions with the American Association for the Advancement of Science in Philadelphia, Dec. 27–30, 1951. The increasing interest in the effects of radiations and in the use of radioactive tracer substances was reflected in 22 papers devoted to radiobiology.

A new journal, *Experimental Parasitology*, was started (Academic Press, New York). (*See* also Endocrinology; Genetics; Marine Biology; Palaeontology; Physiology.)

Bibliography.—Tilly Edinger, *Evolution*, 5 (1951); T. Goodey, *Soil and Freshwater Nematodes* (1950); T. S. Hall, *A Source Book in Animal Biology*, (New York and London, 1951); D. S. Hart, *Journal of Experimental Biology*, 28 (1951); M. F. M. Osborne, *Journal of Experimental Biology*, 28 (1951); T. A. and Anne Stephenson, *Journal of Ecology*, 38 (1951); L. S. West, *The Housefly: Its Natural History, Medical Impor-*

tance, and Control (1951); E. and E. Wolff, *Journal of Experimental Zoology*, 116 (1951); S. Zuckermann, in *Recent Progress in Hormone Research, 1951*, ed. by G. Pincus, 6 (1951). (G. P. DuS.)

Zoological Parks.—*Europe.*—Privately operated zoological parks conducted for profit gained in number all over Europe during 1951, particularly in the Netherlands, where four zoos maintaining general collections were opened, and a special establishment for the keeping of birds at Alphen aan den Rijn was much enlarged in both collection and enclosures. An animal hospital was constructed and put into service in the zoological garden at Antwerp.

The spread of foot-and-mouth disease into zoos in north and central Europe from rural areas was recorded, and the only countries considered free of this disease were Norway and the Republic of Ireland.

Visitors to zoological gardens on the continent showed a remarkable increase in spite of the opening of new zoos and improvements in old ones. The attendance in zoos in England, however, was reported much reduced. The management of the city zoo in Rome was constructing a seaside zoo where the emphasis would be on setting and the exhibiting of large groups of animals in aggregations according to the continent of their origin.

A small English language publication, *International Zoo-News*, appeared; Bent Jorgensen. Rönne, Denmark, was the publisher.

Australia.—The Australian zoos, principally the Sydney zoo, accumulated collections of native animals and sent them abroad for exchange. The first koalas exported from Australia since 1925 were placed on deposit in the zoo at San Diego, Calif.

Several additional prohibitions on the importation of animals into Australia were enacted; the severest one prohibited the entry of birds from anywhere beyond the continent.

North America.—The managements of zoos in the United States seemed to be extravagantly preoccupied in the accumulation of various kinds of monkeys, particularly apes. Forty-one gorillas were shown in zoos and private collections. During the year, the celebrated Bushman of Lincoln Park zoo, Chicago, and the very large and younger male gorilla at the zoo in New York city died. The record for keeping gorillas alive in captivity was still held by the zoological garden at Philadelphia, where the gorilla Bamboo, believed to have been born in Aug. 1926, was still living in 1951.

A number of private ventures, showing wild and domestic animals in settings especially appealing to children, sprang up in popular resort areas. These were known as deer parks and children's zoos.

A large and modern house with several innovations in its construction for the showing of monkeys was opened at Houston, Tex. At Denver, Colo., a large glass flower house was converted into a tropical bird house in which the birds have complete liberty, and may be viewed in their tropical setting by the visitors from informal walks and benches. An animal hospital and animal study building was completed and opened at the zoological park at Brookfield, Ill. There fundamental research in its various phases, and current medical and surgical problems would receive investigation and treatment.

The endeavour to bring the theories and principles of animals in nature beyond the precincts of the zoo itself and its limited number of visitors, was accomplished by several zoos in presenting programs on radio, both by standard broadcast and television; audiences of many millions of listeners and spectators were reached.

FILMS OF 1951.—*Animals of the Farm* (Carl F. Mahnke Productions); *Autumn, Bee City, Bird Paradise, Microbes, Ponds, Sea Zoo, Shore Birds* (Almanac Films, Inc.); *Biography of a Fish* (Sterling Films); *Elk For The Future* (Wild Life Films); *Grey Owl's Little Brother, Nature's Songsters, Not So Dumb, Song Birds of the North Woods* (Skibo Productions); *Monarch Butterfly Story, Seashore Life* (Encyclopædia Britannica Films Inc.); *Salmon, Life Cycle of the Sockeye* (Paul Hoefler Productions); *The Adventures of Willie Skunk, Two Little Raccoons* (Young America Films, Inc.); *The Story of a Frog* (United World Films).

(Ro. B.)

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